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Dear colleagues,

We are pleased to announce that we will be hosting the Brazilian Congress of Cellular Therapy and SBTMO Bone Marrow Transplant for the second time in Fortaleza, Ceará, in 2024! We bring with us the spirit of our traditionally hospitable people who cherish their homeland deeply. Our land is defined by the relentless struggle to overcome adversity, rooted in the harsh hinterlands where drought has shaped our history. This has instilled in us a profound appreciation for rain, rivers, and our abundant natural resources.

More than 15 years ago, we initiated bone marrow transplantation in our region through a fruitful collaboration between the Walter Cantídio University Hospital of the Federal University of Ceará (HUWC-UFC) and the Hematology and Hemotherapy Center of Ceará. This partnership has been a milestone, transforming the lives of approximately 900 individuals who have undergone transplants in Ceará. We are dedicated to providing compassionate care, training new professionals, and advancing through scientific research.

I am honored to lead this Congress alongside Dr. Karine Sampaio, Vice-President of the Congress, Professor Dr. Carmen Bomfim, Scientific Director of SBTMO, and our esteemed Honorary President, Professor Mary E. Flowers. Professor Flowers, known for her distinguished career, embodies the strength and grace of northeastern women, whose wisdom and simplicity captivate all.

In recent years, Bone Marrow Transplantation has revolutionized medicine, significantly advancing our understanding of managing infectious complications, controlling GVHD, preventing and treating relapses, and broadening the eligibility criteria, making this procedure safer with promising outcomes. Cell therapy, with its genetic innovations, propels us towards a modern and promising future.

The theme of our upcoming Congress, "BMT in constant evolution," reflects our deepened understanding enabling more precise donor selection. We are privileged to collaborate with the Brazilian Association of Histocompatibility and Imunogenetic (ABHI), Brazilian Association of Hematology, Hemotherapy and Cellular Therapy (ABHH), Brazilian Society of Pediatric Oncology (SOBOPE), American Society for Transplantation and Cellular Therapy (ASTCT), European Bone Marrow Transplantation (EBMT), Latin American Bone Marrow Transplantation (LABMT), and Jornada do Hemoce (Hematology and Hemotherapy Journey of Ceara Center), to explore this further. Our 27th Multidisciplinary Meeting will also take place, uniting the diverse professionals from Brazilian HSCT centers.

As we push the boundaries of what is possible, we recognize the crucial role of mental health for patients, caregivers, and healthcare professionals involved. Emphasizing the importance of multidisciplinary teamwork, bone marrow transplantation underscores our commitment to cooperative patient care and continuous improvement.

We eagerly anticipate your participation! It promises to be an exceptional event.#TMOJuntos

Brotherly hug.

Fernando Barroso Duarte
President of SBTMO 2024 Annual Meeting

Karine Sampaio
Vice President of SBTMO 2024 Annual Meeting

Carmem Bonfim
Scientific Director of SBTMO

Fernando Barroso Duarte
President of SBTMO

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AWARDS

MARY FLOWERS AWARD

BEST ABSTRACT IN CLINICAL ASPECTS OF HSCT

IMPACT OF REDUCED-DOSE OF POST-TRANSPLANTATION CYCLOPHOSPHAMIDE (PTCY) IN HLA-IDENTICAL AND HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANTATION: A RETROSPECTIVE ANALYSIS

Thaís Fernanda Negrão de Araújo[1], Luana Pompeu dos Santos Rocha[1], Camila Frade Oliveira[1], Matheus Lopes Puls[1], Camila de Fátima de Morais Ferreira[1], Breno Aires de Souza[1], Fernanda Santos Azevedo[1,2], Vinicius Campos de Molla[1,2], Pedro Henrique Arruda de Moraes[1,2], Eurides Leite da Rosa[1,2], Cainã Dabbous de Liz[1], Caio Cesar Justino de Oliveira[2], Ana Marcela Rojas Fonseca Hial[2], Roberta Shcolnik Szor[1], Celso Arrais-Rodrigues[1,2]

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INTRODUCTION

Post-transplantation cyclophosphamide (PTCy) has become a widely used tool as prophylaxis for graft-versus-host disease (GVHD) following hematopoietic stem cell transplantation (HSCT). Its effectiveness in controlling GVHD, particularly in haploidentical transplants with reduced-intensity conditioning (RIC), has been well-established. Recent randomized trials have expanded its application to matched sibling donor (MSD) and matched unrelated donor (MUD), even in myeloablative conditioning regimens (MAC). While the standard PTCy total dose is 100mg/kg, studies suggest that a reduced dose of 80 mg/kg might be equally effective in preventing GVHD while maintaining favorable outcomes for non-relapse mortality (NRM).

OBJECTIVE

To compare the efficacy and safety of a reduced-dose (80mg/kg) PTCy with the standard dose (100mg/kg).

METHODS

This retrospective analysis reviewed data from patients who underwent HSCT with PTCy prophylaxis from June 2019 to January 2024 at two transplant centers in São Paulo, Brazil.

RESULTS

A total of 158 patients who underwent HSCT with PTCy prophylaxis were included. Median follow-up was 17 months. Acute leukemia was the underlying disease in most cases (55%). Peripheral blood was the most common stem cell source (85%) and reduced-intensity conditioning was employed in most cases (87%). Donors were haploidentical in most cases (72%), matched sibling donors (MSD) in 18%, and matched unrelated donor (MUD) in 10%. The PTCy dose of 100 mg/kg was administered to 114 patients (72%). The cohort of patients who received the reduced-dose presented a significantly higher median age as compared to the standard-dose cohort (61 vs. 40 years, $p < 0.001$). Overall survival (OS) at 17 months was significantly higher in the reduced-dose group (82%) as compared to the standard-dose group (59%, $p = 0.045$). Additionally, the reduced-dose group had a lower non-relapse mortality (NRM) rate (29% vs. 11%, $p = 0.037$). No significant differences were observed in relapse rates (14% vs. 15%, p = non significant. - NS), acute (33% vs. 38%, p = NS), or chronic GVHD (42% vs. 39%, p = NS). Besides, there were no differences in the incidence of febrile neutropenia or CMV reactivation between the groups. After a multivariate analysis, standard-dose PTCy dose and older age remained significantly associated with higher NRM and lower OS. Patients receiving

100 mg/kg PTCy exhibited a higher risk of NRM (HR 1.12, 95% CI 1.006-1.24, p = 0.039) and lower OS (HR 1.10, 95% CI 1.02-1.20, p = 0.018). Matched-pair analysis further supported these findings.

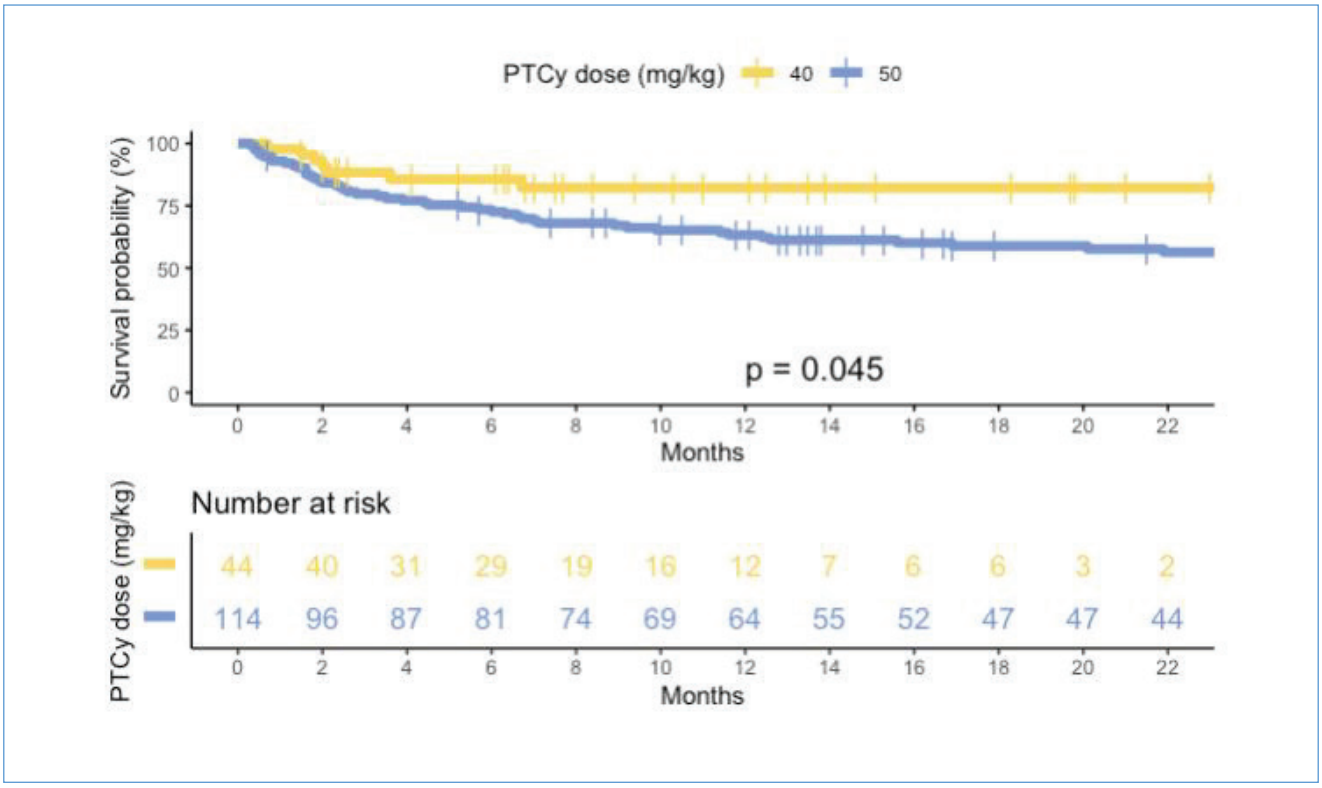
CONCLUSION

Our findings suggest that reduced dose PTCy is feasible and seems to be associated with a lower mortality than standard-dose PTCY in allogeneic HSCT, with no detrimental effect on increase of GVHD or relapse. However, the retrospective nature of this study limits the strength of the evidence. Prospective, randomized controlled trials are needed to definitively confirm these findings.

KEYWORDS

Post-transplantation cyclophosphamide, Hematopoietic stem cell transplantation, Graft-versus-host disease

FIGURE 1: Overall survivor (OS) PTCy dose 40mg/kg and 50mg/kg



JÚLIO VOLTARELLI AWARD

BEST ABSTRACT IN CELL THERAPY AND BASIC RESEARCH

TRANSCRIPTOMIC META-DATASET DISPLAYED DISTINCT ONCOGENIC SIGNATURE AND POTENTIAL MEMBRANE TARGETS FOR CAR-T CELL THERAPY IN CHRONIC LYMPHOCYTIC LEUKEMIA

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INTRODUCTION

Chronic lymphocytic leukemia (CLL) is a lymphoproliferative disorder characterized by the proliferation of neoplastic B cells with a mature appearance. CLL treatment ranges from observation to chemo-immunotherapy and targeted therapies. Recently, several studies have shown CAR-T (anti-CD19) therapy as a promising strategy. So far, over 100 CLL patients have been treated with anti-CD19 CAR-T cells. However, the overall response rate is still insufficient for some refractory/relapsed patients (mean of ORR = 58.6%) and adverse events are commonly present. In this sense, it is important to identify novel molecular targets for CAR-T therapy development to overcome the difficulties encountered.

AIMS

The present study aims to produce transcriptomic meta-data and evaluate potential differences in genetic expression profiles in CLL patients to seek novel target biomarkers.

METHODS

The transcriptomic meta-dataset was constructed with 37 healthy and 254 CLL samples from three independent studies (GSE26725, GSE79196, and GSE50006). First, datasets were downloaded from the Gene Expression Omnibus, and expression values were normalized and subsequently merged. Batch effects were identified and removed using empirical Bayes estimation (ComBat). Finally, differentially expressed genes (DEGs) and functional analysis were performed using Limma, gene set enrichment analysis (GSEA), and Gene Ontology (GO). Then, a subcellular location filter was applied for genes that express in cell membrane proteins (ECO:0000269). Human Protein Atlas was used to verify the protein expression (pTPM). Furthermore, modeled FCRL1 protein was obtained in Alfaphold (Uniprot: Q96LA6), and potential epitopes were predicted using the IEDB database (www.immuneepitope.org).

RESULTS

There were 544 upregulated (36.11%) and 491 downregulated (63.89%) genes in CLL compared to normal cells (Figure 1A). The top 10 up- and down-regulated genes are presented in Figure 1B. It was possible to verify that 41 genes were commonly observed in Limma and GSEA analysis (Figure 1C, D). Thereafter, only DEGs with subcellular locations for cell membranes were analyzed to determine the top 20 genes overexpressed in CLL samples (Figure 2A). The GO analysis revealed that these genes are closely related to immune response signaling, (Figure 2B). FCRL1 (CD307a) gene was the most relevant biomarker identified, confirmed in the TCGA database (Figure 2C), and is predominantly expressed in B-cell lineage (Figures 2D and 3). Using machine learning, 18 epitopes were predicted (Figure 4).

CONCLUSION

The global transcriptome for CLL patients displayed a significant oncogenic profile. Furthermore, when filtered by cell membrane sublocation, the FCRL1 gene was the most enriched in CLL. Therefore, this study proposes the FCRL1 as a relevant biomarker for CLL and other B-cell malignant and a potential target for CAR-T cell therapy.

KEYWORDS

Transcriptome, CAR-T, Biomarkers, Chronic lymphoid leukemia.

Figure 1 – Global transcriptome analysis in CLL merged samples.

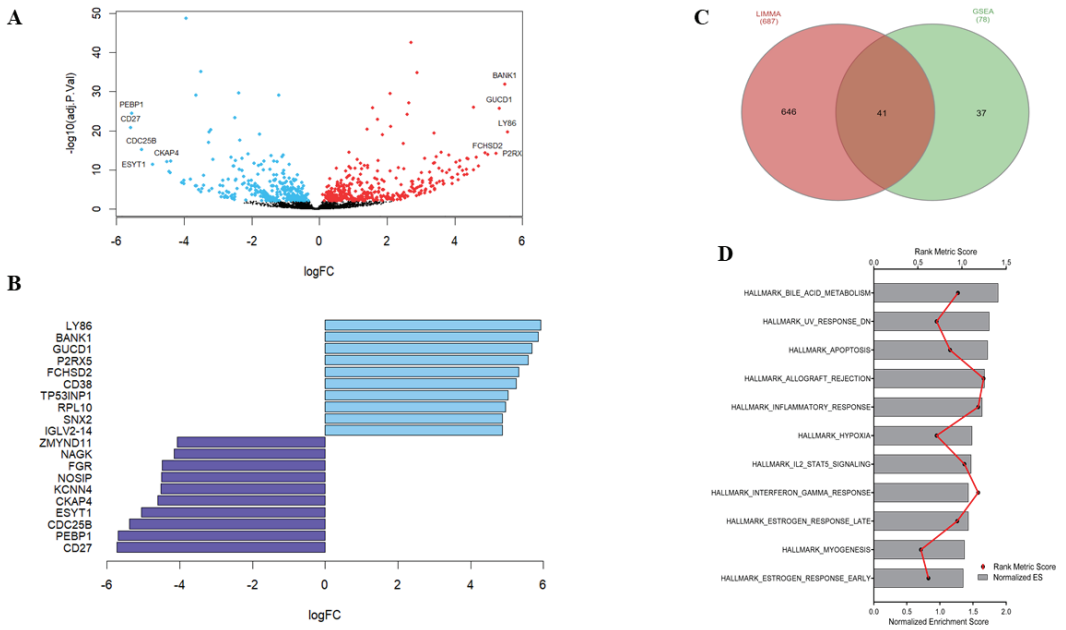


Figure 2 - Transcriptome analysis filtered to identify only cell membrane overexpressed genes in CLL.

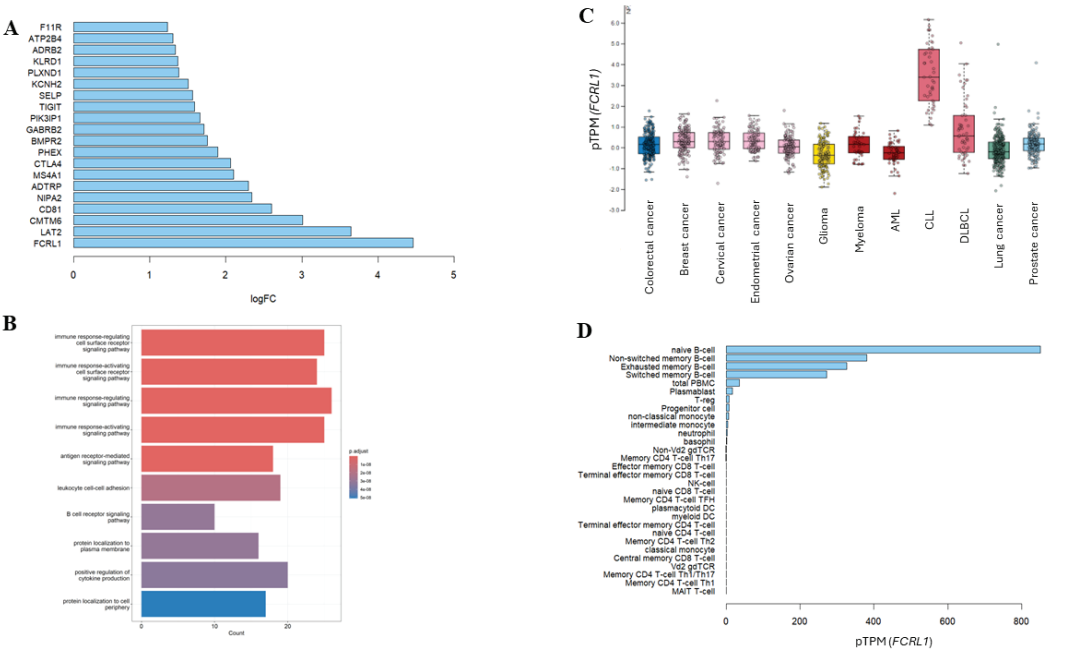


Figure 3 - *FCRL1* protein expression in different cancer cell lines (Human Protein Atlas).

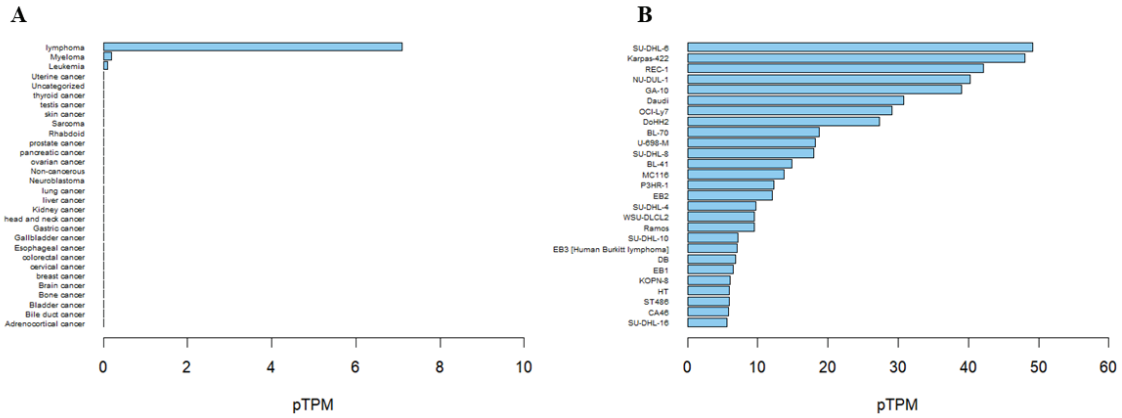
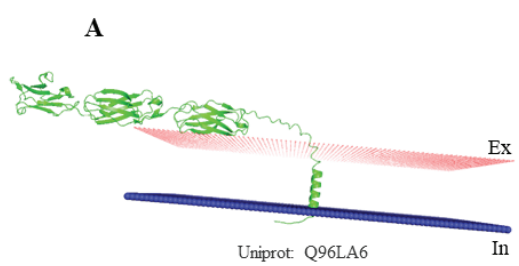
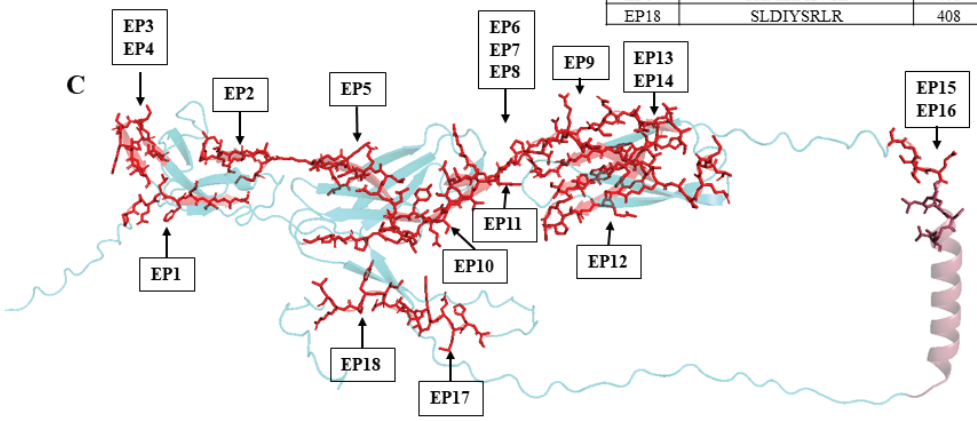


Figure 4 – *FCRL1* protein modelling and epitope identification.



B

ID	Epitope	Starting Position	Ending Position
EP1	PAELFLIAS	16	24
EP2	SPKLQIAAM	29	37
EP3	EAQTMASKVLR + OX(M5)	87	97
EP4	EAQTMASKVLR	87	97
EP5	VGLNLQSKTQRSLT	113	126
EP6	IPVSRPILMLRAPRAQ	164	179
EP7	IPVSRPILMLRAPRAQA	164	180
EP8	IPVSRPILMLRAPRAQAA	164	181
EP9	SRPILMLRAPRAQA	167	180
EP10	RESDAEQYY	174	182
EP11	GPSPSGLVSITVRIPVSRP	190	208
EP12	ILYWFYHEDITLGSRSAPSGG	238	258
EP13	EANNGLGAQR	277	286
EP14	AQRSEAVTL	284	292
EP15	SGVIEGLLSTL	307	317
EP16	GVIEGLLSTL	308	317
EP17	THMEDKVSL	401	409
EP18	SLDIYSRLR	408	416



FANI JOB AWARD

BEST MULTIDISCIPLINARY ABSTRACT

UNDERSTANDING THE ROLE OF INFLAMMATORY CYTOKINES IN SALIVA AS A STRATEGY FOR IDENTIFYING BIOMARKERS OF CHRONIC GRAFT VERSUS HOST DISEASE: A PROSPECTIVE COHORT STUDY IN BRAZILIAN PATIENTS UNDERGOING ALLOGENEIC HEMATOPOIETIC STEM CELLS TRANSPLANTATION

Ana Patrícia Espaladori Eskenazi[1], Thiago de Carvalho Reis[1], Mariana Andrade Costa[1], Maria Julia Pagliarone[1], Milena Rodrigues Vasconcelos[1], Vanessa Tonetto Marques Galves[1], Ana Carolina de Jesus Vieira[2], Camila Campos Mesquita[2], Fabíola Traina[2], Juliana Bernardes Elias Dias[2], Tatiane Cristina Ferrari[2], Hilton Marcos Alves Ricz[2], Alan Grupioni Lourenco[3], Thalita Cristina de Mello Costa[2], Leandro Dorigan de Macedo[2]

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INTRODUCTION

Chronic graft-versus-host disease (cGVHD) is the major long-term disorder in allogenic hematopoietic cell transplantation (allo-HCT). Recent studies have considered saliva as a potential fluid to study marker on cGVHD, but there is no report of inflammatory cytokines, in both, blood and saliva as a predictive and monitoring method for this complication.

OBJECTIVE

To evaluate the expression of inflammatory cytokines in plasma and saliva of allo-HCT recipients according to organ involvement.

METHOD

This prospective study included patients older than 14 years submitted to first allo-HCT. Plasma and saliva samples were collected immediately before conditioning (T0) and patients were followed until D+ 365. When cGVHD was diagnosed, new samples were taken before the treatment beginning, it was considered (T1 cGVHD-group). For those who did not manifest the complication another collection was carried out in D+365 ±5 (T1 NO-cGVHD group). Cytokine expressions were compared and tested for correlation between plasma and saliva in the two groups by organ involved and in the different times of collection (T0 and T1).

RESULTS

33 patients were included, 21 males, 34.04 (±15.96) years old, 48.78% related match, 31.7% haploidentical transplant. Thirteen (13) developed cGVHD (31%) as following: 38.46% exclusively in mouth (score 0.66±1.15); 23.08% mouth and other organ(s): mouth (score 1±1.41); liver (score 1.5 ±0.7); skin (score 2±0.5); 38.46% in other organs (not including the mouth): skin (score 2.2 ±0.83), and eye (score 2 ±0.7). Of these, four had exclusive skin involvement, one had skin and eye. Most cases were classified as mild (61.54%) and 23.08% developed the severe form of the disease. Patients with cGVHD exclusively in the mouth showed no difference in cytokine expression when compared to patients without cGVHD. Patients with cGVHD in the mouth and other organs presented, at T1, higher plasma expression of IL-8 (0.018±0.012 X 0.012±0.010, p=0.04), IL-1β (0.158±0.090 X 0.057±0.064, p= 0.045), IL-6 (0.051±0.011 X 0.027±0.0179, p= 0.053); and IL-8 (0.677±0.128 X 0.404±0.453, p= 0.024) and IL-6 (0.345±0.391 X 0.070 ±0.126, p= 0.057) in saliva

at the time of disease diagnosis, when compared to T1 for NO-cGVHD group (Figure 1). The development of cGVHD in other organs (without mouth) was related to greater expression of salivary IL-6 (0.132±0.0887 X 0.089±0.186, p=0.047) and lower lactoferrin in saliva (0.194±0.191 X 0.067±0.030, p= 0.016) in T1 (Figure 2).

CONCLUSION

Results lead to the possible identification of new potential salivary biomarkers of cGVHD, as demonstrated by the greater expression of IL-8 and IL-6, even when the manifestation occurs systemically, not involving the mouth. Lactoferrin expression suggests a possible protective role against the disease. New studies with large sample are necessary to corroborate the potential of saliva as a non-invasive method for screening, early detection and monitoring of cGVHD.

KEYWORDS

Chronic graft-versus-host disease, Allogeneic hematopoietic cell transplantation, inflammatory cytokine.

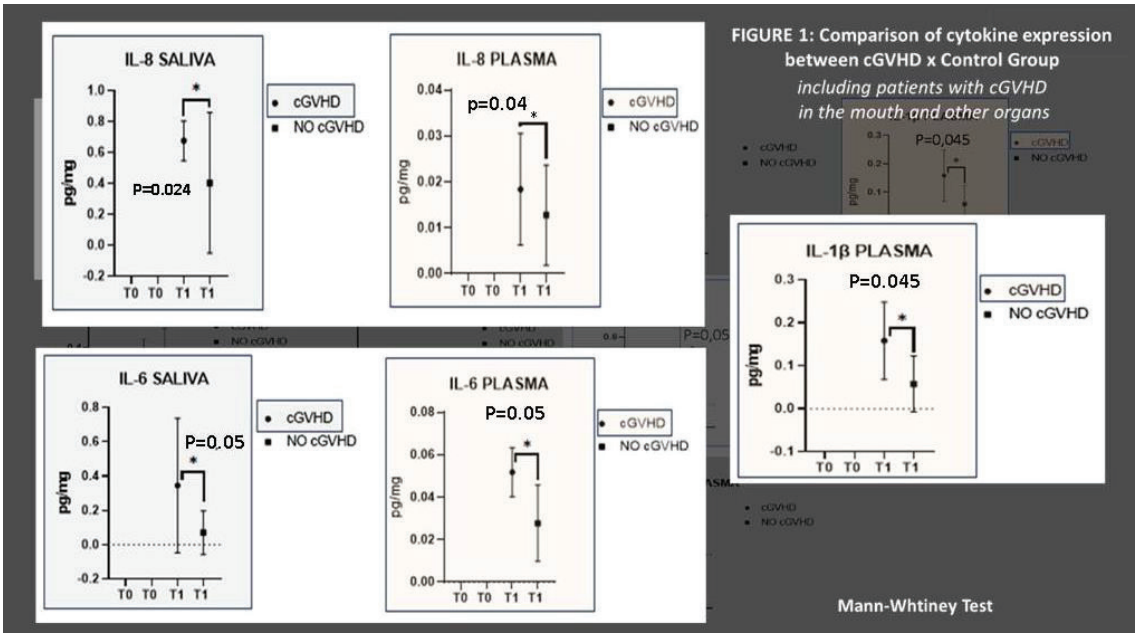

FIGURE 1: Comparison of cytokine expression between cGVHD x Control Group *including patients with cGVHD in the mouth and other organs*

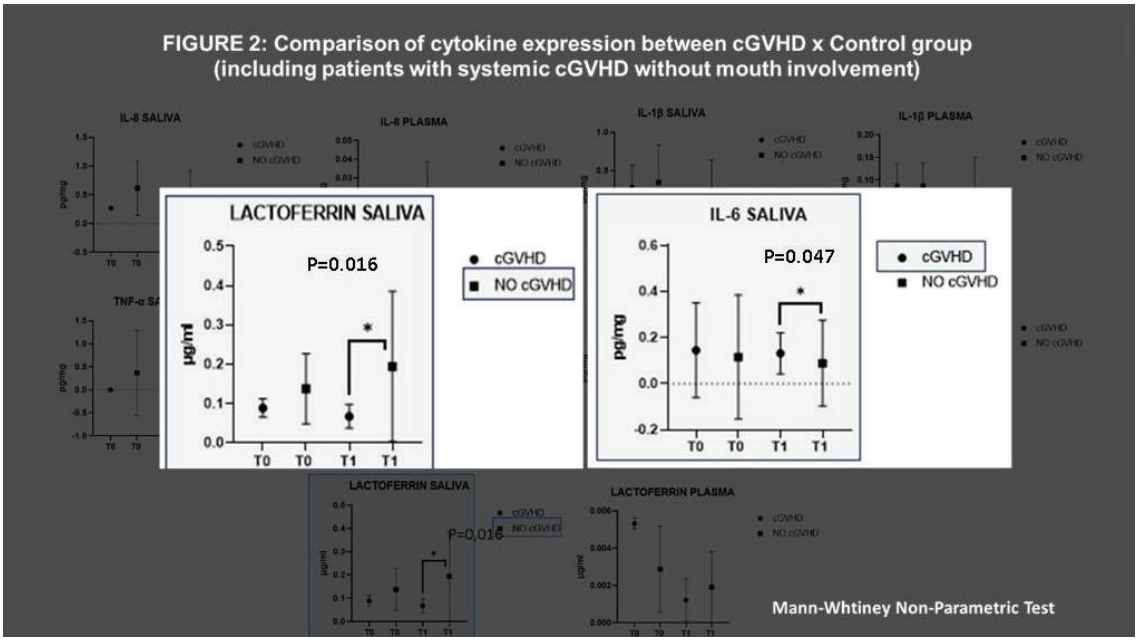

FIGURE 2: Comparison of cytokine expression between cGVHD x Control group (including patients with systemic cGVHD without mouth involvement)

RICARDO PASQUINI AWARD

YOUNG SCIENTIST BEST AUTHOR ABSTRACT
WITH AGE EQUAL OR UNDER 35

ANTI-BCMA CAR-T CELL ACTIVITY WITH SIL-15 CYTOKINE: ENHANCED IN VITRO CYTOTOXICITY, CYTOKINE PRODUCTION, AND PREFERABLY CD8+ PHENOTYPE EXPANSION

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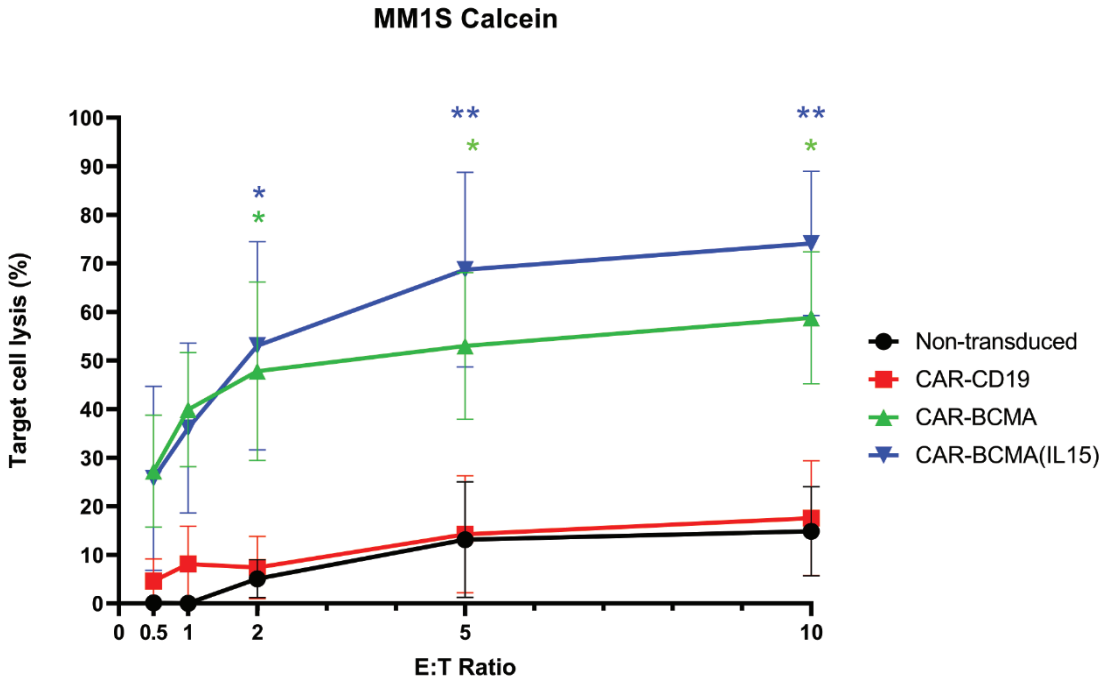
ABSTRACT

BCMA-targeted CAR-T cell therapy has revolutionized Multiple Myeloma (MM) treatment, showing robust and durable responses for this challenging hematological neoplasm. Despite exciting clinical outcomes, production shortages, prohibitive costs, and lengthy waiting lists have hindered access to this advanced cell therapy. The development of national and academic initiatives to develop BCMA CAR-T cell products offers hope for Brazilian patients with relapsed/refractory MM (R/R MM). With point-of-care manufacture, access to anti-BCMA CAR-T therapy domestically could mitigate healthcare inequalities, reduce treatment expenses, and improve patient outcomes. In this project, we developed a second-generation anti-BCMA CAR (CAR-41BB-CD3z-BCMA), and a fourth-generation version with the incorporation of soluble Interleukin-15 (CAR-41BB-CD3z-BCMA-IL15). We produced CAR-T cells using lentiviral vectors and achieved satisfactory levels of CAR transduction (75%-85% for the CAR-BCMA and 35-55% transduction with the CAR-BCMA-IL15). We observed in vitro CAR-T cell expansion of up to 250 to 400-fold in 15 days while maintaining high cell viability (>90%) at the end of cell expansion, with stable CAR expression and no sign of exhaustion such as upregulation of PD-1 and TIM-3. These CAR-T cells were tested against BCMA positive cell line (MM1S and U266) and BCMA negative cell line (Nalm6 and K562). The anti-BCMA CAR-T cells with the IL-15 expression (CAR-BCMA-IL15) demonstrated higher killing of MM1S cell line when compared with non-transduced T cells (N.T) (p=0.03 in 5:1 ratio or anti-CD19 CAR-T cells (p=0.04, Figure 1). When CAR-BCMA-IL15 cells were co-cultured with the MM1S cell line, we identified a higher number of CAR+IFNg+ cells compared to second-generation CAR-BCMA T cells (p=0.08). Also, CD8+ CAR-T expansion was preferably enhanced with the anti-BCMA CAR-T cells with the IL-15 expression (CAR-BCMA-IL15). Studies to test in vitro CD8+ memory profiling and in vivo anti-tumor efficacy of CAR-BCMA-IL15 or CAR-BCMA T cells in an MM1S NSG mouse model are underway. In summary, our data demonstrate the capacity of CAR-BCMA and CAR-BCMA-IL15 T to kill BCMA+ targets, and support the future use of BCMA-CAR T cells in the clinic for patients with R/R MM.

FIGURE 1: **T cells cytotoxicity against BCMA+ target cell line MM1S using calcein-AM assay. The co-culture of Target and Effector cells was maintained for 2 hours at multiple effector:target ratios, and data acquired by flow cytometry.**

Figure 1: CAR-T cytotoxicity assay



CARMEM BONFIM AWARD

BEST ABSTRACT IN THE PEDIATRICS AREA

THE TREATMENT OF BRAZILIAN CHILDREN WITH RELAPSED/ REFRACTORY ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) WITH TISAGENLECLEUCEL

Adriana Seber[1], Antonella Zanette[2], Ana Luiza de Melo Rodrigues[2], Cilmara Kuwahara[3], Gisele Loth[3], Carla Nolasco Monteiro Breviglieri[1], Victor Gottardello Zecchin[4], Maria Lucia de Martino Lee[4], Viviane Sonaglio[5], Jayr Schmit[5], Samantha Nichele[6], Adriana Martins de Sousa[7], Maria Claudia Rodrigues Moreira[8,9], Carmem Bonfim[3,6]

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5 AC Camargo Cancer Center, São Paulo
6 Hospital Nossa Senhora das Graças, Curitiba
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The use of autologous genetically modified cell therapy with CAR-T cells (chimeric antigen receptor T lymphocytes) has revolutionized the treatment of relapsed and refractory B-lineage acute lymphoblastic leukemia, non-Hodgkin lymphoma and multiple myeloma. Several commercial products have been available for many years in other countries, thousands of patients have been treated worldwide. The only commercial product available to treat ALL in children and up to 25 years of age is the Tisagenlecleucel (Kymriah®), licensed in Brazil only on the last year. The objective of this paper is to understand the initial experience with commercial Tisagenlecleucel in Brazilian children. Method: Direct contact was made with the institutions to have demographic data, remission status and B-cell aplasia duration. Results: Fifteen patients from 7 institutions have been infused with Kymriah from Jan 8, 2023 to April 9, 2024. Median age was 8 years (4-19), 7 were male. The underlying diagnosis was CD19+ B-precursor ALL in primary refractory disease (n=4), > second relapse (n=9), and relapse after one (n=11) or two (n=1) allogeneic hematopoietic stem cell transplants (HCT). The median vein-to-vein interval, length of time from apheresis to the infusion, was 84 days (44-244). During the three months preceding leukapheresis, 5 patients used immunotherapy (4 blinatumomab, 1 inotuzumabe). Bridging therapy, strategies used to maintain disease control between apheresis and the initiation of lymphocyte depletion, was intensive chemotherapy (defined as expected to produce severe neutropenia for > 7 days) in 6, with blinatumomab in one and maintenance in 9, combined with irradiation of extra-medullary disease in 2. Ten patients had active disease at the time of infusion (M2/M3 marrow in 3, and MRD+ in 5), 4 had extra-medullary disease, and 6 were in remission. 11/15 had cytokine release syndrome, most grade I and 6 of them needed Tocilizumab; 3 had neurotoxicity and received steroids; 1 had macrophage activation syndrome. Overall, with a median follow up of 7.2 months, 5 children have relapsed, 1 died of infection, 2 are still too early to be evaluated, and 1 had early loss of B-cell aplasia (D63), was reinfused with the same product after intensified lymphodepletion, but lost it again within 30 days. Six of 13 children (46%) remain disease free in B-cell aplasia after a median of 270 days (30-457). Three additional patients had the apheresis performed but CAR-T cells not infused due to disease progression, infection, and insurance issues. We conclude that the use of Tisagenlecleucel is feasible and can offer a real opportunity to cure children that would be otherwise under palliative care. The cost of the medication is a huge challenge, and it is imperative to have the process submitted to CONITEC to broaden access among our children.

NELSON HAMERSCHLAK AND MARCELO PASQUINI AWARD

BEST ABSTRACT IN THE DATA MANAGEMENT AREA

DEVELOPMENT OF A PILOT PREDICTIVE MACHINE LEARNING MODEL FOR ACUTE GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

The incidence and severity of acute Graft-versus-Host Disease (aGVHD) after allogeneic Hematopoietic Cell Transplantation (allo-HCT) is associated with numerous factors, including recipient and donor's age, conditioning intensity, and graft source, among others. Machine Learning (ML) presents an innovative analytical approach that harnesses data to construct predictive models incorporating multiple variables. By training algorithms on diverse datasets, ML mitigates selection biases and captures intricate interactions as well as confounding factors.

OBJECTIVE

This study aims to develop an ML predictive model to identify allo-HCT patients with an increased risk of aGVHD.

METHODS

The models were trained using data from 78 patients aged over 18 years, who underwent allo-HCT at a tertiary hospital between Oct-2018 and Dec-2022. For pilot model validation, prospective data from 7 allo-HCT patients (Jan-2023 to Jun-2023) were utilized. Patient's outcomes were classified based on the maximum grade of aGVHD, with a value of '0' assigned for absence/aGVHD I and '1' for grades II-III-IV. For model training, data were divided into training (75%) and testing subsets (25%). Six predictive algorithms were trained: K-Nearest Neighbors (KNN), Logistic Regression, Categorical Naive Bayes, Decision Tree, Random Forest, and Multilayer Perceptron (MLP). The hyperparameters of each model were optimized using the GridSearchCV function from SciKit-Learning package, with 10-fold Cross Validation. Models were evaluated using the area under the Precision/Recall curve (AUC PR) and F-1 Score. A confusion matrix was constructed using validation data for the top three models.

RESULTS

From the 78 patients used in models training, 50 (64%) developed aGVHD II-IV after a median of 36 (17-166) days post-transplant. In the pilot validation group, 2 (29%) patients developed aGVHD II-IV. The three models that showed best prediction results were, in order, MLP, Decision Tree, and KNN, both for AUC PR (0.83, 0.66, and 0.65) (Figure 1) and F1-Score (0.81, 0.80, and 0.77) (Table 1), with these metrics indicating a good balance between false positive and false negative rates. When applying these models to the validation group, error rates from lowest to highest were 14% (Decision Tree), 42% (KNN), and 47% (MLP). Despite achieving the best metrics, MLP resulted in worse performance with validation data, which may indicate overfitting or bias during its modeling.

CONCLUSION

This study demonstrated the possibility of developing predictive ML models to identify patients at higher risk of developing aGVHD II-IV post-HCT. The Decision Tree, KNN, and MLP models showed good performance, balancing precision and sensitivity, as indicated by AUC PR and F1-Score metrics. This study highlights the practical application of ML models in early identification of high-risk patients. Application of this algorithm to a larger cohort is underway.

KEYWORDS

Predictive models, aGVHD risk, model evaluation metrics

FIGURE 1. AUC PR for MLP, Decision Tree, and KNN

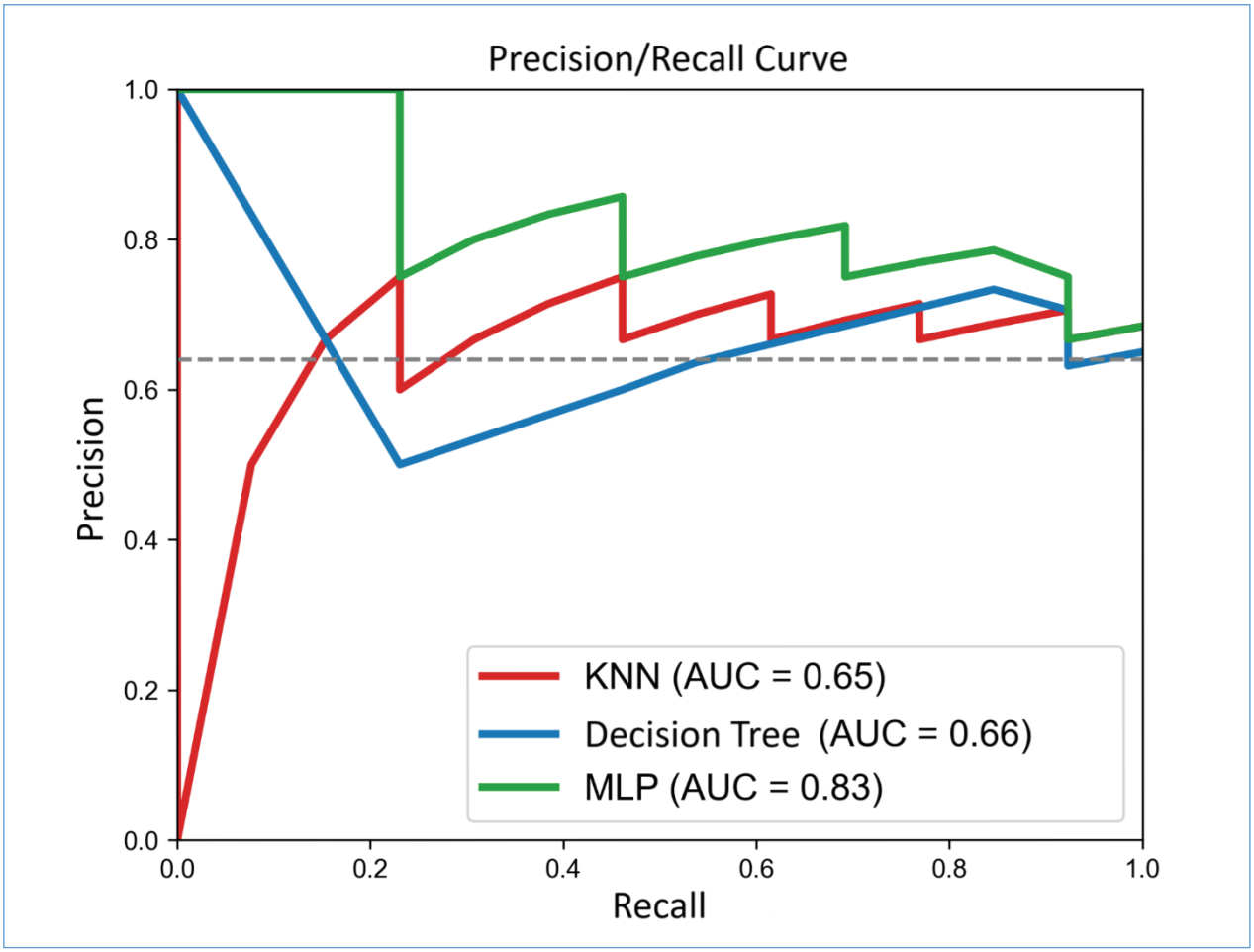

TABLE1. Model performance metrics

Model	Precision	Recall	F1-Score
K-Nearest Neighbors (KNN)	0.67	0.92	0.77
Logistic Regression	0.70	0.54	0.61
Categorical Naive Bayes	0.62	0.77	0.69
Decision tree	0.71	0.92	0.80
Random Forest	0.61	0.85	0.71
Multilayer Perceptron (MLP)	0.79	0.85	0.81

ALIRIO PFIFFER AWARD

BEST ABSTRACT IN BONE MARROW FAILURE SYNDROMES

RETROSPECTIVE ANALYSIS OF UPFRONT HAPLOIDENTICAL TRANSPLANTATION WITH POST-TRANSPLANT CYCLOPHOSPHAMIDE FOR SEVERE APLASTIC ANEMIA IN CHILDREN AND ADOLESCENTS

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INTRODUCTION

Severe aplastic anemia(SAA) is a life-threatening disease in children, for which immunosuppressive therapy(IST) or allogeneic hematopoietic cell transplantation(HCT) with a matched related or unrelated donor are well established treatments. For patients(pts) lacking compatible donors, especially those with very SAA or severe infections, upfront haploidentical HCT (haplo-HCT) offers a viable alternative. Objective: To describe the outcomes of upfront haplo-HCT in pediatric pts with SAA transplanted in four pediatric centers.

METHODS

This study involved a retrospective analysis of medical records. Patients with Fanconi anemia, and Diamond-Blackfan anemia were excluded. Results: Thirty patients younger than 18 years-old, diagnosed with acquired(n=26) or inherited SAA(n=4) underwent upfront haplo-HCT between January 2015 and December 2023. The majority of pts were male (61.3%) with a median age of 10 years (range: 2-16). All pts had not received prior treatment or had irregular IST for less than 3 months prior to HCT. 73% had received more than 15 previous blood transfusions, and 53% had very SAA.

Haploidentical donors included fathers(n=20), brothers(n=6), and mothers(n=4). ABO incompatibility was present in 37%(n=11). Bone marrow was the main cell source (93%). Most conditioning regimens (83%) used Cyclophosphamide(Cy)+ Fludarabine +TBI(200-400 cgGy) with serotherapy (77%), and GvHD prophylaxis included post-transplantation CY (PTCy) in all pts, and calcineurin inhibitor + MMF in 90%. The 1-year Cumulative incidence(CI) of primary graft failure(GF) was 13%, and 2pts were successfully rescued by a 2 nd HCT. Engraftment with a complete donor chimerism occurred in 86%. Gastrointestinal toxicities were mild, and VOD occurred in only one patient. Additionally, one patient experienced a severe thrombotic microangiopathy (TMA). The 100-day CI of CMV reactivation and hemorrhagic cystitis was 50% and 7%, respectively. The 100-day CI of acute grade I-III was 33% (grade 1: 2pts; grade II: 9pts and grade 3; 1pt). The 2-year CI of chronic GVHD was only 16%. Three pts died due to sepsis, TMA, and VOD. With a median follow-up of 2,2 years (range: 3 months-5,4 years), the 2-year overall survival was 89% and the event-free survival (defined as GF or death) was 83%.

CONCLUSION

In this small cohort, upfront Haplo-PTCy proved to be an effective and safe option for children with SAA, leading to excellent outcomes in experienced centers.

JOSÉ ROBERTO MORAES AWARD

BEST ABSTRACT IN THE HISTOCOMPATIBILITY AREA

EVALUATION OF "CORE/ NON-CORE" MODEL APPLICABILITY IN A BRAZILIAN COHORT OF BONE MARROW RECIPIENTS

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INTRODUCTION

In unrelated bone marrow transplantation, the importance of evaluating the permissiveness of HLA-DPB1 alleles between recipients and donors by T-cell epitope (TCE) model has well-known impacts in post-transplant outcomes. Optimal balance of T cell alloreactivity sufficient for graft versus leukemia effect, but not severe graft-versus-host disease (GVHD), has been the primary goal of allogeneic hematopoietic stem cell transplantation. With this goal, in a study published by Arrieta-Bolanos and collaborators a model was proposed for stratifying the permissive incompatibilities in HLA-DPB1 TCE3 alleles into groups of lower ("core" group) and higher ("non-core" group) immunogenicity and its use to select unrelated donors (UD) seeking better outcomes. As HLA-DPB1 incompatibility is observed in over 80% of UD and recipient pairs, defining permissive HLA-DPB1 incompatibilities represents a major challenge in matched UD transplant.

OBJECTIVE

To describe the frequency of "core" and "non-core" TCE3 HLA-DPB1 alleles in recipients from the Brazilian registry (REREME) to evaluate the applicability of the "core/non-core" model in our population.

METHODS

High-resolution HLA-DPB1 typing from 972 bone marrow recipients from REREME, typed between 2018 and 2023 at a tertiary hospital, were evaluated by the TCE mismatch stratification model using the online DPB1 TCE webtool from the IPD-IMGT/HLA Database (version 2). Those alleles classified into the TCE3 group were stratified into "core" and "non-core" groups according to the study previously cited. We couldn't classify 15 patients (HLA-DPB1*27:01, -DPB1*60:01, -DPB1*63:01, -DPB1*66:01, -DPB1*133:01 and -DPB1*584:01) in this model, which were excluded from the analysis.

RESULTS

In our cohort of HLA-DPB1 alleles, 8% (159/1914) was TCE1, 12% (232/1914) TCE2 and 80% (1538/1914) TCE3 group. We found that 63% of patients (607/957) had both HLA-DPB1 alleles from the TCE3 group, being considered our population of interest for evaluation. Of those, 54% (328/607) had both TCE3 "core" alleles, and 46% (279/607) had at least one "non-core" allele. We also evaluated the frequency of possible combinations between groups, as shown in figure 1.

CONCLUSION

The majority of HLA-DPB1 from Brazilian recipients was classified into the TCE3 group, indicating the possible impact of using a model able to stratify this group into alleles with different impacts on immunogenicity. We found a considerable proportion of patients (29%) with at least one non-core TCE3 allele allowing the selection of a donor with "core" HLA-DPB1 permissive mismatch to reduce the risk of relapse in malignant diseases. In our cohort, a proportion of patients with two TCE3 "core" alleles exceeds almost one third of those analyzed (328/957), highlighting the importance of considering this model in donor selection aiming to lower risks of rejection and GVHD. New studies must address the real impact of this model on patients' outcomes.

KEYWORDS

HLA-DPB1, TCE3 core, TCE3on-core

ASTCT-SBTMO AWARD:
BEST ABSTRACT OF YOUNG INVESTIGATOR

CYTOKINE EXPRESSION PROFILE ASSOCIATED WITH SEVERE ORAL MUCOSITIS DEVELOPMENT IN PATIENTS SUBMITTED TO ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION: AN CLUSTERING ANALYSIS

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INTRODUCTION

Oral mucositis (OM) is one of the most frequent life-threating complications during the allogeneic hematopoietic cell transplantation (allo-HCT). Despite the improvement in the knowledge in pathophysiology there is no answer to why some patients develop severe OM. Although saliva has been shown as a good fluid to study inflammatory cytokine there is few studies analyzing plasma and saliva in allo-HCT recipients during mucositis.

OBJECTIVE

To propose a profile of inflammatory cytokine expression in plasma and saliva associated with the development of OM in allo-HCT recipients.

METHOD

This prospective study included patients over than 14 years submitted to first allo-HCT. Immediately before conditioning beginning patients were submitted to blood and saliva collection (T0). The collection was repeated each 2 days and clinical mucositis graded daily (WHO-scale) until neutrophil engraftment. Plasma and saliva collected in the first day of worst mucositis grade were considered as T1 sample. Patients were allocated into two groups: 1. Without severe OM (grade 0,1,2); 2. With severe OM (grade 3-4). Plasma and saliva cytokines expression were compared and tested to correlation with OM severity. Cytokines Delta (T1-T0) were used to clustering analysis (K-means) focused on OM severity. The critical p was 0.05.

RESULTS

40 patients, 62.5% male, 36.7 ±16.4 years, 62.5% myeloablative, 25% reduced intensity and 12.5% non-myeloablative conditioning; 20% developed severe OM (SOM) and 80% no severe OM (No-SOM). Comparing cytokine expression there were found no difference between the two groups in T0 for saliva and in T1 for plasma. Expression of TNF in T0 was higher in the plasma of SOM (741.8; IIQ:620.8) than in No-SOM group (466.1, IIQ:399.1; p=0.0065). Saliva showed higher expression of TNF (1204.7, IIQ:1029 Vs 213.7, IIG733.6; p=0.0012) and IL6 (1635.8, IIQ1029.1 Vs 213.7, IIQ733.6, p<0.0001) during T1 in the SOM group. In T0, plasma TNF showed correlation with OM severity (0.4034, p=0.009), no significant result was found in T0 for saliva. In T1, were found the following correlations: 1. Plasma: TNF (0.330, p=0.037); IL6 (0.365, p=0.02); 2. Saliva: IL8 (0.338, p=0.032); TNF (0.522, p=0.0005); IL6 (0.620, p<0.0001) and Lactoferrin (LF) (-0.388, p=0.013). Clustering (CL) analysis results in 3 groups, CL1 showed worst mucositis than the other groups, CL 3 showed the lower grades for OM. By this analysis the increase of IL6, TNF in saliva and IL6 in plasma was the key for the worst mucositis development, the decrease of IL1β and the increase of LF in saliva was the special pattern in CL3 (Figures 1 and 2).

CONCLUSION

This study unprecedently suggested a profile of cytokine expression related to OM severity in allo-HCT. The results suggest that OM involved a local and not systemic inflammatory response. Strategies to reduce IL 6, TNF and IL1β, and to increase LF expression in saliva can be potential way in severe OM prevention and treatment.

KEYWORDS: allogeneic hematopoietic cell transplantation; oral mucositis; inflammatory cytokine

Figure 1. Clustering definition by Delta of cytokine (T1-T0)- K Means Cluster

Cytokines/Clusters		1	2	3
BLOOD	IL-8	36.40	21.70	-5.4
	IL-1B	-181.90	86.10	-238.1
	TNF-α	-154.10	12.70	-302.1
	IL-6	128.40	-32.00	-35.4
	Lactoferrin (LF)	-6.80	-6.30	-19.9
	Total Proteins (TP)	-463.60	183.00	-1139.6
SALIVA	IL-8	79.20	103.20	-264.10
	IL-1B	70.90	58.20	-589.00
	TNF-α	1739.00	337.50	-79.60
	IL-6	1469.70	164.10	-11.50
	Lactoferrin (LF)	66.90	-10.20	253.70
	Total Proteins (TP)	487.50	296.50	-1047.1

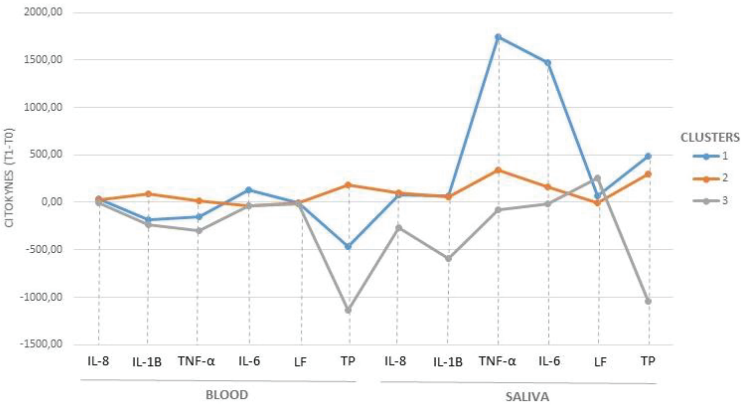
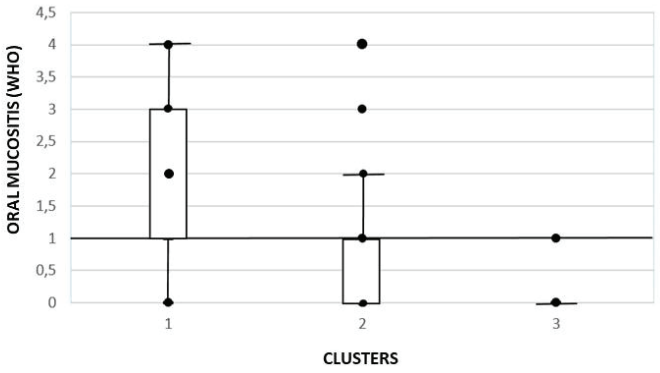


Figure 2. Clustering analysis by mucositis severity

Cluster	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	1	3	3	4	4
2	0	0	0	0	1	3	4
3	0	0	0	0	0	1	1

Cluster	-Cluster	Score Mean Difference	Std Err Dif	Z	p-Value
3	2	-6.3641	4.408079	-1.44374	0.4464
2	1	-11.1618	4.222476	-2.64343	0.0246*
3	1	-17.5694	5.218379	-3.36684	0.0023*



ORAL PRESENTATIONS

ALOGENEIC HSCT

BASILIXIMAB AS TREATMENT FOR REFRACTORY ACUTE GRAFT-VERSUS-HOST DISEASE: LONG-TERM RESULTS FROM A SINGLE CENTER

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INTRODUCTION

The treatment of steroid-refractory acute graft-versus-host disease (SR-aGVHD) remains a challenge in low-middle-income countries like Brazil due to the lack of access to current standard therapies, such as ruxolitinib. Alternatively, in previous studies, basiliximab - an anti-CD25 monoclonal antibody - has presented good response and overall survival rates.

OBJECTIVE

To analyze the outcomes of response to treatment and the survival rates after using basiliximab in a cohort of mostly high-risk SR-aGVHD patients. Casuistic: 120 patients with SR-aGVHD received basiliximab from December 1999 to March 2019. Of those, 92 patients with SR-aGVHD grades II-III (30.4%) and IV (69.6%) were included in the analysis, and 28 were excluded due to a lack of records. Patient characteristics are summarized in Table 1.

METHODS

An observational, retrospective study was conducted by reviewing medical records and databases from a reference transplant center in Brazil. The primary endpoints were best overall response, overall response rate (ORR) at days 28 and 56, and overall survival (OS) in five years. Secondary endpoints were disease-free survival (DFS), GVHD-free/relapse-free survival (GRFS), and non-relapse mortality (NRM). ORR was evaluated with cumulative incidence curves. The impact of achieving overall response (OR) on survival outcomes was assessed with Cox or Fine-Gray regression models with OR as a time-dependent covariate. The Mantel-Byer test and Simon and Makuch plots were also used for OS, DFS, and GRFS.

RESULTS

The ORR was 71.2% (66/92), including 38.0% (n=35) complete responses and 33.7% (n=31) partial responses. The cumulative incidence of ORR at 28 days and 56 days after basiliximab treatment was 57.7% (95%CI 46.6-67.2%) and 69.1% (95%CI 57.9-77.9%), respectively. The median time to achieve the best response was 24 days. The overall survival (OS) rate in five years was 50% (95%CI 39.4-59.7%), and patients who achieved OR had greater chances of survival in 5 years (HR=0.2, 95%CI 0.10-0.39, p<0.001). Pediatric patients (< 18 years) had higher OS rates when compared to older patients (HR=2.37, 95%CI 1.27-4.41, p=0.006). The GRFS rate was 14.1% (95%CI 08.0-22.0%) in one year, and the DFS rate was 47.8%. The cumulative inci-

dence of NRM was 46.7% (95%CI 36.2-56.6%). Patients who responded to treatment had improved DFS (HR=0.22, 95%CI 0.12-0.43, p<0.001) and lower NRM (HR=0.23, 95%CI 0.13-0.41, p<0.001).

CONCLUSIONS

In this cohort of patients, the best overall response rate after basiliximab was 71.2%, with a median time to achieve the best response of 24 days. The OS rate in 5 years was 50%, even though most patients had grade IV aGVHD, which has been previously associated with dismal survival rates. Patients who achieved OR had greater chances of OS and DFS and lower rates of NRM. Therefore, we conclude that basiliximab is a viable option of therapy for severe refractory acute GVHD in a scenario of limited resources.

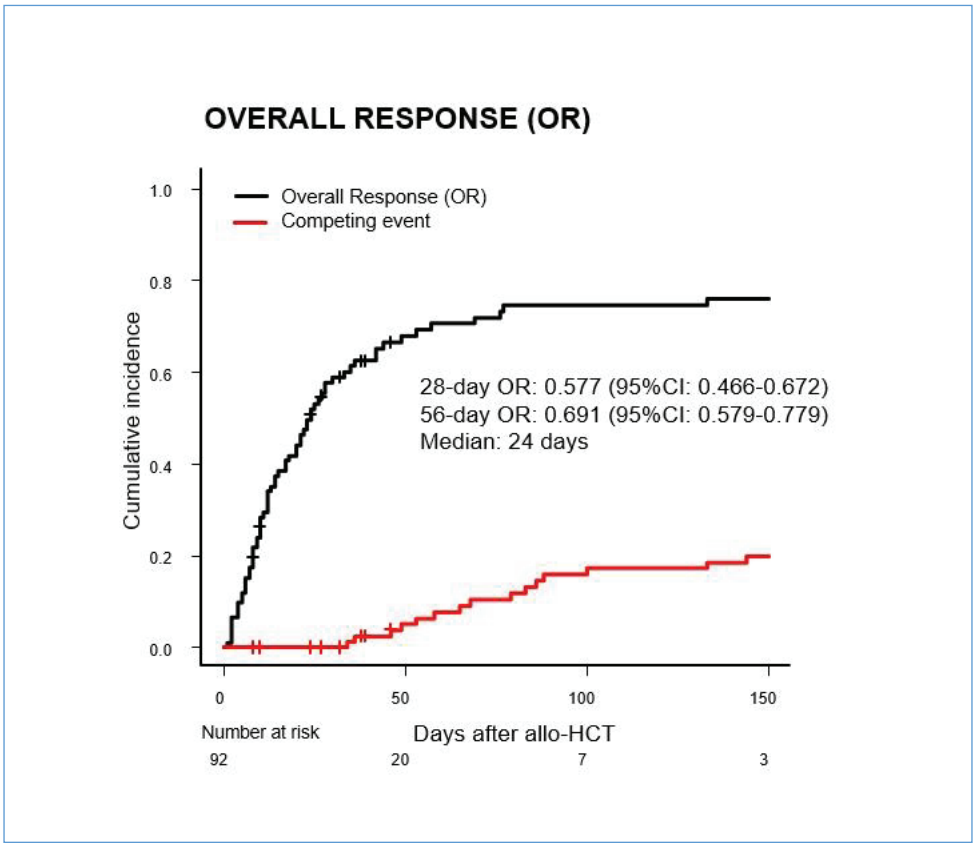
KEYWORDS

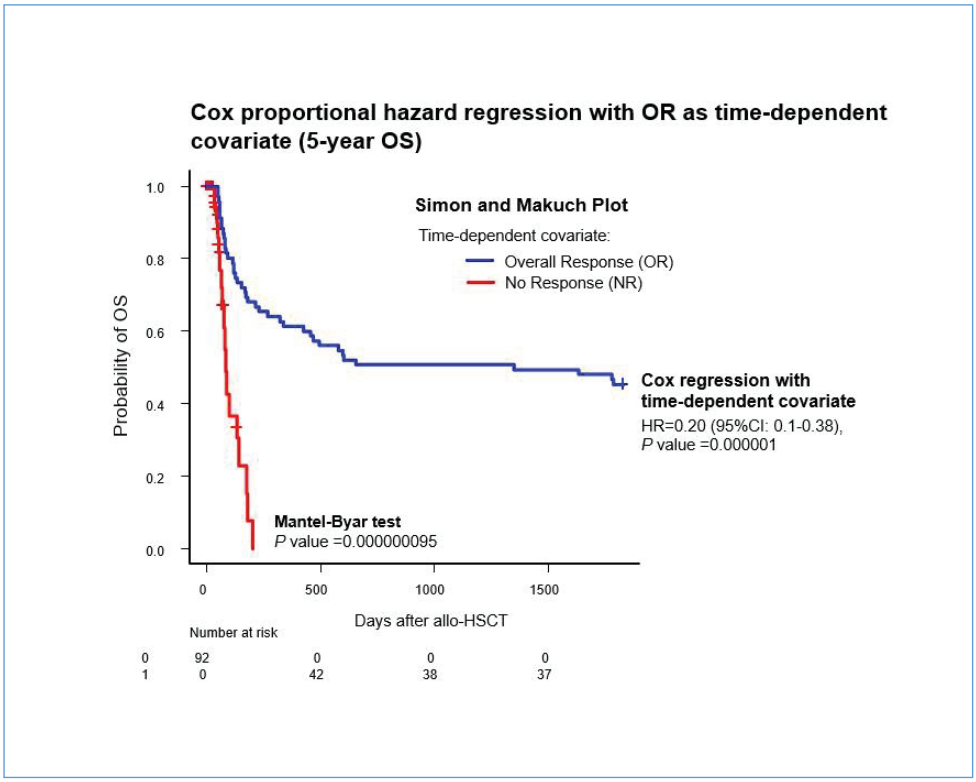
HSCT; Steroid-refractory aGVHD; Basiliximab.

TABLE 1. Patient Characteristics

CHARACTERISTICS		N (%)	MEDIAN (RANGE)	SD
Age at HSCT	< 18	65 (70.7)	9.5 (0-58)	15.49
	> 18	27 (29.3)		
Sex	Female	35 (38.0)	-	-
	Male	57 (62.0)		
Graft type	BM	57 (62.0)	-	
	UCB	20 (21.7)		
	PBSC	15 (16.3)		
Donor type	Related	32 (42.4)	-	
	Unrelated	53 (57.6)		
HLA compatibility	Complete	41 (44.6)	-	
	Incomplete	51 (55.4)		
Male receptor / female donor	Yes	26 (28.3)	-	
	No	66 (71.1)		
TNC (x108/kg)	< 5	41 (44.6)	5.32 (0.32-19.6)	4.82
	> 5	51 (55.4)		
Underlying disease	Benign	46 (50.0)	-	
	Malignant	46 (50.0)		
aGVHD grade	II-III	28 (30.4)	-	
	IV	64 (69.6)		
Overlap or late aGVHD	No	70 (23.9)	-	
	Yes	22 (76.1)		
Developed cGVHD	No	41 (44.6)	-	
	Yes	51 (55.4)		
Relapse	Yes	6 (6.5)	-	
	No	86 (93.5)		

Abbreviations: HSCT, Hematopoietic Stem Cell Transplantation; HLA, Human Leucocyte Antigen; BM, Bone Marrow; UCB, Umbilical Cord Blood; PBSC, Peripheral Blood Stem Cell; TNC, Total Nucleated Cells; aGVHD, Acute Graft Versus Host Disease; cGVHD, chronic Graft Versus Host Disease.


OVERALL RESPONSE (OR)
Overall Response (OR)
Competing event
Cumulative incidence
1.0
0.8
0.6
0.4
0.2
0.0
28-day OR: 0.577 (95%CI: 0.466-0.672)
56-day OR: 0.691 (95%CI: 0.579-0.779)
Median: 24 days
0
50
100
150
Number at risk
Days after allo-HCT
92
20
7
3


Cox proportional hazard regression with OR as time-dependent covariate (5-year OS)
Simon and Makuch Plot
Time-dependent covariate:
Overall Response (OR)
No Response (NR)
Probability of OS
1.0
0.8
0.6
0.4
0.2
0.0
Cox regression with time-dependent covariate
HR=0.20 (95%CI: 0.1-0.38),
P value =0.000001
Mantel-Byar test
P value =0.000000095
0
500
1000
1500
Days after allo-HSCT
Number at risk
0 92 0 0 0
1 0 42 38 37

EPIDEMIOLOGIC PROFILE OF ACUTE LYMPHOBLASTIC LEUKEMIA PATIENTS TREATED IN THE HEMATOLOGY WARD OF A TERTIARY HOSPITAL IN NORTHEAST REGION OF BRAZIL

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INTRODUCTION

The acute lymphoblastic leukemia (ALL) is an hematologic neoplasm caused by clonal proliferation of abnormal lymphoid progenitors. In adults, cure rates are better when pediatric based chemotherapy regimens are performed, although inferior outcomes remain. Hematopoietic stem cell transplantation (HSCT) is an option of treatment, especially in the subset of high risk patients.

OBJECTIVE

This study aims to analyze the clinical and epidemiological profile of patients diagnosed with ALL in a tertiary hospital in Northeast Region of Brazil. Sample: included ALL patients hospitalized in a hematology ward between 2018 and 2022.

METHODS

Retrospective observational study enlisting individual, epidemiologic and clinical aspects of the study patients based on medical records. Results: 54 patients were enrolled, with a slight male predominance (28 patients - 51%), 40 patients (74%) with B-ALL diagnosis and 14 patients (26%) with T-ALL. The median age was 36 years for B-ALL and 27.5 years for T-ALL. Most of the patients were classified as high risk at the diagnosis (49 patients - 90%) and more than half (32 - 59%) were treated with the CALGB (8811 or 9511) regimen, with the remainder being treated with HYPERCVAD or BFM protocols. 77% (40 patients) achieved morphologic remission and 63% (25 patients) had a negative MRD after first induction. Only 12 (22%) patients were submitted to HSCT, based on to relapse/refractory ALL. By multivariate Cox proportional hazard evaluation the two most important and statistical significant factors were the T-ALL diagnosis (HR = 2.52; p-value 0.0174), as a risk factor for mortality, and the HSCT (HR = 0.27; p-value 0.019), as a protector factor (Charts 1 and 2).

CONCLUSION

Our study reported demographic findings similar to other countries' reports, calling attention to the importance of HSCT as a relevant treatment option in this pathology, specially when novel approaches, such as CART-cell or BiTE, are not feasible.

KEYWORDS

Acute Lymphoblastic Leukemia. Clinical Epidemiology. Hematopoietic Stem Cell Transplantation.

Chart 1 – Comparison between survival of patients with T-ALL and B-ALL

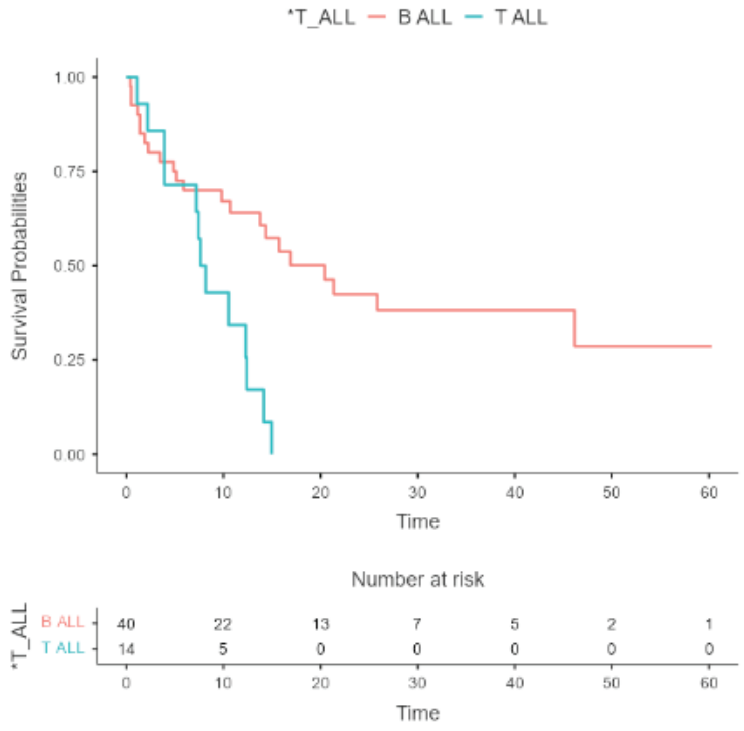
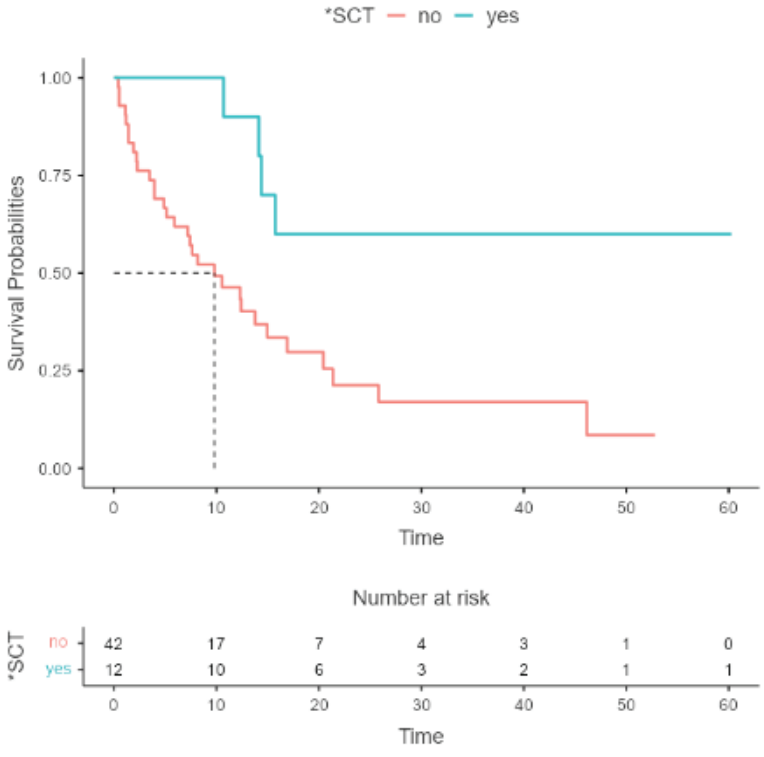


Chart 2 – Comparison between survival of patients undergoing or not undergoing HSCT



IMPROVING DIAGNOSTIC MECHANISMS FOR CHRONIC GRAFT-VERSUS-HOST DISEASE: SALIVA AS A POTENTIAL BIOMARKER OF INFLAMMATORY CYTOKINE EXPRESSION IN PATIENTS UNDERGOING ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Chronic graft-versus-host disease (cGVHD) remains the most important long-term complication in allogeneic hematopoietic cell transplantation (allo-HCT). Understanding the expression of biomarkers beyond peripheral blood samples can improve the diagnosis, estimating risk, and monitoring treatment. Although saliva has already been shown as a promising fluid to study cytokine it was never analyzed in the cGVHD context.

OBJECTIVE

To analyze cytokine expression in plasma and saliva in allo-HCT recipients with and without cGVHD.

METHOD

This prospective study included patients older than 14 years submitted to first allo-HCT. Patients were submitted to a collection of plasma and saliva immediately before conditioning (T0) and were followed until D+ 365. In the suspicion of cGVHD it was repeated the collections before the treatment beginning and if confirmed cGVHD it was considered T1 for cGVHD group. Patients that didn´t develop the complication were submitted to collection in D+365 ±5 (T1 for NO-cGVHD group). Cytokine expressions were compared and tested for correlation between plasma and saliva in the two groups and in the different times of collection (T0 and T1).

RESULTS

Final sample was composed of 33 patients, 21 males, 34.04 (±15.96) years old, 48.78% related match, 31.7% haploidentical transplant. Thirteen (13) developed cGVHD and 20 was included in NO-cGVHD group. There was no difference between the two groups for age (33.84 vs 34.14, t:0.055; p=0.957), and sex (ratio: 4.76; IC=0.89-25.64). cGVHD occurred more frequently in haploidentical HCT (46.2%) than in match HCT (22.2%), without significance (ratio:3.00; IC:0.73-12.39). There was no difference between cell source (bone marrow 34.6% vs 26.7%-peripheral blood). It was found significant and positive correlation between plasma and saliva for IL-8, IL-β, IL-6 (p<0.000) at T0 and IL-1β (p=0.002), IL-6 and lactoferrin (p<0.001) at T1-cGVHD (Table 1). Patients who developed cGVHD had higher expression of IL-6 (0.036±0.0171 X 0.025±0.0189, p=0.034) in plasma and IL-8 (0.434±0.198 X 0.425±0.549, p=0.055) and IL-6 (0.146±0.208 X 0.0624±0.145,

p=0.009) in saliva at the time of disease diagnosis, when compared to T1 of patients who did not develop the complication (Figure1). It was observed reduction of IL1β in plasma (p=0.033) and saliva (p=0.013); and IL8 in saliva (p=0.007) between T0 and T1 in NO-cGVHD group. No cytokine reduction was found in patients that developed cGVHD either in plasma or in saliva.

CONCLUSION

The results indicate that saliva has the potential to reflect the systemic inflammatory status caused by cGVHD and that IL-6 and IL-8 may be promising markers. Additional studies with a larger number of patients are needed to confirm the potential of saliva as a fluid for early diagnosis, prognostic, and therapeutic monitoring in cGVHD.

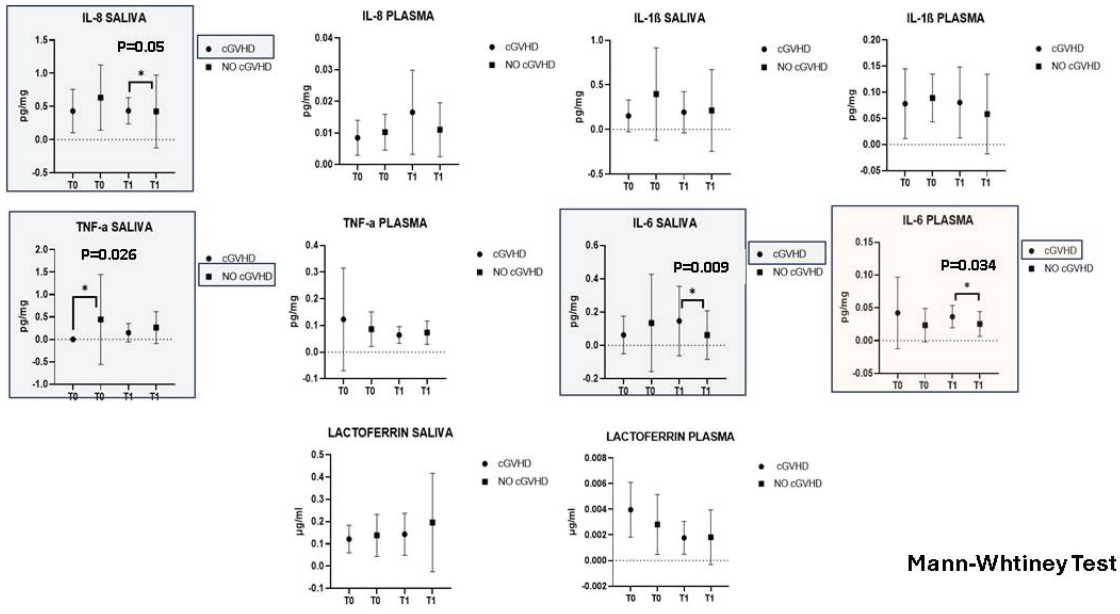
KEYWORDS

Chronic graft-versus-host disease. Allogeneic hematopoietic stem cell trans-plantation. Inflammatory cytokine.

TABLE 1- Comparison and correlation between plasma and saliva in T0 and T1

			Wilcoxon		Spearman	
Cytokines	Plasma	Saliva	p	Sample in superiority	r	p
		T0			r	p
IL-8	0.009872441 (±0.0055889773)	0.586999849 (±0.4608556188)	**<0.000**	Saliva	0.63	**0.001**
IL-1β	0.086776394 (±0.0497488632)	0.340001226 (±0.4711352687)	**<0.000**	Saliva	0.59	**0.001**
TNF-α	0.093933010 (±0.1030421306)	0.340747265 (±0.8946659172)	0.585	-	0.04	0.85
IL-6	0.027673937 (±0.0336901051)	0.118168346 (±0.2615773483)	0.288	-	0.59	**0.001**
Lactoferrin	0.003066178 (±0.0023129611)	0.133950894 (±0.0868108385)	**<0.000**	Saliva	0.02	0.92
		T1				
IL-8	0.013325517 (±0.0109453259)	0.429321572 (±0.4402327925)	**<0.000**	Saliva	0.22	0.25
IL-1β	0.067666545 (±0.0724562169)	0.204593811 (±0.3815930652)	**0.001**	Saliva	0.53	**0.002**
TNF-α	0.069169413 (±0.0387062146)	0.217749771 (±0.3080930186)	0.142	-	0.03	0.86
IL-6	0.030111309 (±0.0187410334)	0.095523619 (±0.1748847648)	**0.048**	Saliva	0.78	**<0.001**
Lactoferrin	0.001804981 (±0.0018009124)	0.174980222 (±0.1817876964)	**<0.000**	Saliva	0.63	**<0.001**

FIGURE1: Comparison of cytokine expression between cGVHD x Control Group



Comparison of cytokine expression in plasma and saliva between groups with and without cGVHD at times T0 and T1

INCREASED INTESTINAL PERMEABILITY IN PATIENTS SUBMITTED TO ALLOGENEIC BONE MARROW TRANSPLANTATION

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INTRODUCTION

Allogeneic bone marrow transplantation (allo-BMT) has been used as a therapeutic procedure for hematologic malignancies and other chemotherapy-unresponsive diseases. Despite the increasing application and expansion of access, allo-BMT is still associated with significant morbidity and mortality. Graft-versus-host disease (GvHD) is the main complication and cause of death after allo-BMT, affecting 40 to 50% of patients. Previous studies have shown that, during allo-BMT, intestinal permeability can be altered by several factors, such as 1) conditioning regimen, 2) infections, and 3) intestinal dysbiosis. This increase in intestinal permeability has been associated with clinical outcomes: mortality, bacterial translocation, and GvHD. However, to date, no study has comprehensively evaluated the relationship between intestinal permeability and clinical outcomes during allo-BMT in patients in Brazil.

AIMS

The aim of this study was to evaluate the intestinal permeability in patients undergoing allogeneic bone marrow transplantation (allo-BMT).

PATIENTS AND METHODS

This multicenter prospective cohort study was approved by the Research Ethics Committee. Peripheral blood was collected in the preconditioning period, pre-allo-BMT, 30, 60, 90 and 180 days post-allo-BMT, and at GvHD diagnosis and relapse. Zonulin and lipopolysaccharide-binding protein (LBP) concentrations were evaluated by ELISA. Non-parametric test with multiple comparisons was used to compare the groups.

RESULTS

To this work, fifty patients undergoing allo-BMT have been included, aged 13 to 65 (36.7 ± 13.6 years old). Forty percent were HLA-matched and 60% haploidentical. Allo-BMT indications included Acute Myeloid Leukemia (31%), Acute Lymphoid Leukemia (25%), Severe Aplastic Anemia (14%), Myelodysplastic Syndrome (8%), Chronic Myeloid Leukemia (6%), Sickle Cell Disease (4%), non-Hodgkin's Lymphoma (4%), Hodgkin's Lymphoma (4%), Chronic Lymphocytic Leukemia and Myelofibrosis (2% each). Among patients with available clinical data until now, 33% (n=14/42) developed acute Graft-versus-host-Disease (GvHD) and 14% (n=7/50) of patients died. We detected a significant increase in serum zonulin concentrations in patients in the pre-conditioning period (51 ng/mL ± 4.2), pre-allo-BMT (41 ± 5) and 30 days after transplantation (43 ± 4.6), when compared with controls (19 ng/mL ± 3). Differences in serum LBP in patients were not detected (P>0.05).

CONCLUSIONS

We suggest that increased permeability contribute to bacterial translocation and intestinal mucosal inflammation during the follow-up and can favor acute GvHD development. Further investigations are needed to evaluate the role of zonulin in relapses and patients' clinical response.

KEYWORDS:

Bone marrow transplantation, mucosal inflammation, intestinal permeability

FINANCIAL SUPPORT:

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MAJOR OUTCOMES AND RISK FACTORS FOR SURVIVAL AND NON-RELAPSE MORTALITY (NRM) AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT FOR MYELOFIBROSIS IN BRAZIL

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Introduction: Allogeneic hematopoietic cell transplantation remains the only curative treatment for Myelofibrosis. However, advanced age of patients and the significant transplant related mortality (TRM) limit the applicability of this procedure in clinical practice. Hence, there is no data of HSCT for this disease in regions with low-middle income countries as Latin America. These data can be helpful to assess the risk-benefit ratio of transplantation in potential candidates, as well as provide benchmark for future prospective studies in these countries. Primary objective: of this study is to evaluate overall survival (OS) of a Brazilian cohort of patients who received HSCT for the diagnosis of MP or secondary to TE and PV. Secondary objectives: estimate non relapse mortality (NRM), relapse or rejection, and cumulative incidence of acute and chronic GVHD and identifying risk factors for OS, and NRM.

Patients and methods: We analyzed retrospectively charts and database from 158 patients with the diagnosis of MF who received allo-SCT at 15 centers in Brazil from 1997 to 2020. Statistical analysis by EZR software. Bivariate analysis and estimation of OS were performed using Kaplan Meier method and Log Rank test for curve comparison. Cox Survival Model was used for multivariate analysis of risk factors for Overall Survival and Multivariable Fine-Gray competing risks regression model was used for non-relapse mortality at one year. P level of significance was <0,05. Characteristics of patients are showed in table 1.

Results: Overall Survival (OS) was 64% at one year, 52% at 3 years and 49% at 5 years One- year cumulative incidence of relapse or rejection was 12 %. Cumulative incidence of non-relapse mortality (competitive risk) at one year was 30%. Cumulative incidence of acute GVHD grade II or IV at 100 days was 16% and of chronic GVHD at 2 years was 32%. At multivariate analysis by Cox Model, CD 34 < 5 x 106 HR 1.94 (1.15- 3.28; p= 0.0013), relapse or rejection HR 4.19 (2.38-7.36; p= 0.00000064,) DIPSS intermediate 2 or high-risk HR 2,17 (1,16 - 4.05; p= 0.0016)

and grade III-IV acute GVHD HR 2,39 (1.45-3.94; p=0,00064) were significantly associated with inferior survival. At Multivariable Fine-Gray competing risks regression model for NRM, only Donor type HR 2,02(1,1 - 3.71; p= 0.023) was identified as independent risk factor.

Conclusions: At multivariate analysis CD34 dose < 5 x 106, relapse or rejection, DIPSS High risk or Intermediate II and acute GVHD grade III-IV were risk factors for survival while Donor type was a risk factor for non-relapse mortality. This study, although retrospective, can provide a benchmark for future prospective studies in Brazil.factors for survival while Donor type was a risk factor for non-relapse mortality. Major limitations of this study is the retrospective nature which lead to missing data, however, it still can provide a benchmark for future prospective studies.

TABLE 1 - Stem Cell Transplantation. Primary myelofibrosis. Risk factors

PATIENTS CHARACTHERISTICS	N=158 (%)
Age, years	50 (4-74)
CD34 cells (× 10^6/kg)	4.9 (0.47 - 12.10)
Sex	
Male	93 (58)
Female	65 (42)
Previous therapy	
Jak 2 inhibitor	31 (20)
Radiation/splenectomy	13 (8)
DIPSS	
High risk	29 (13)
Intermediate II	74 (47)
Intermediate I	29 (18)
Low Risk	07 (4)
Missing	19 (12)
Donor type	
Related	119 (75)
Unrelated	29 (18)
Haplo	10 (7)
Graft Source	
BM	56 (36)
PB	102 (64)
Conditioning	
MAC	68 (43)
RIC	90 (57)

PTCY-BASED, WITH MMF 30 MG/KG, HAPLOIDENTICAL TRANSPLANTATION COMPARED WITH ATG-BASED, 6 MG/KG, UNRELATED DONOR TRANSPLANTATION FOR ACUTE LYMPHOBLASTIC LEUKEMIA, ACUTE MYELOID LEUKEMIA, OR MYELODYSPLASTIC SYNDROME

Leonardo Javier Arcuri, Carla de Oliveira Ribeiro, Irtis de Oliveira Fernandes-Junior, Simone Cunha Maradei, Simone Pereira Lermontov, Decio Lerner

INTRODUCTION

The EBMT recommends an ATG (Thymoglobulin) dose of 4.5-6.0 mg/kg for an unrelated (URD) hematopoietic cell transplant (HCT). The PTCy-based Baltimore protocol for haploidentical (Haplo) HCT included MMF 45 mg/kg starting at D+5, however MMF 30 mg/kg starting at D0 has also been reported. In our institution, the first 6 Haplo received 45 mg/kg MMF, with a 50% incidence of CMV disease, prompting us to reduce MMF to 30 mg/kg.

OBJECTIVE

To compare 6.0 mg/kg ATG-based URD versus PT-Cy-based with MMF 30 mg/kg Haplo HCT.

METHODS

This single-center study was conducted in a public hospital in Rio de Janeiro, Brazil. We included all patients who underwent Haplo or URD HCT for acute leukemia or myelodysplasia between 2015 and January 2024. URD received 6 mg/kg ATG with a calcineurin inhibitor (CNI) and an antimetabolite. Haplo received PTCy combined with a CNI and MMF 30 mg/kg (except the first 6 patients who received MMF 45 mg/kg) starting at D+5. All follow-up times were longer than 100 days. Survival and cumulative incidence curves were carried out with Kaplan-Meier and Gray methods and compared with logrank and Gray tests. Propensity score (PS) weighted-Cox models were performed to control for relevant variables (Tab 1) and confirm the results. The study was approved by Ethics Committee and registered at ClinicalTrials (NCT02759822).

RESULTS

With a median follow-up of 21 and 35 months, 52 Haplo and 80 URD were included, respectively. Patients' profile is in Table 1. Except for conditioning intensity, all variables were relatively well-balanced (Tab 1). 2-y OS, for Haplo and URD, respectively, were 49% and 67% (p=0.24); 2-y RFS 49% and 60% (p=0.42); GRFS 27% and 46% (p=0.14); 2-y relapse 23% and 22% (p=0.72); 2-y NRM 29% and 18% (p=0.23); 2-y cGVHD 34% and 28% (p=0.52), 2-y moderate/severe cGVHD 22% and 15% (p=0.49); 6-month II-IV aGVHD 33% and 45% (p=0.16); and 6-month III-IV aGVHD 8% and 10% (p=0.68, Fig 1 and 2). In PS-weighted model, only GRFS was slightly different: HR=1.70 for Haplo versus URD, p=0.02. Graft failure was 10% and 4% for Haplo and URD (Fig 3, p=0.26). Of note, graft failure in Haplo occurred only following Bu-based conditioning regimen, either MAC or RIC.

DISCUSSION

Our results suggest it might not be safe to systematically offer Haplo transplants for patients with suitable URD. PS-weighted GRFS was statistically improved with URD, compared with Haplo. Overall, our Haplo results were comparable with those already reported, although in most comparisons of Haplo versus URD, ATG was not given to all URD patients. GVHD control was not hampered by MMF reduction from 45 mg/kg to 30 mg/kg in the Haplo arm, even in a highly miscegenated country like Brazil. Although not randomized, it was a relatively large sample that included patients with only acute leukemias or myelodysplasia. Results remained unchanged excluding Haplo who received MMF 45 mg/kg or not including conditioning regimen intensity in the propensity score.

TABLE 1 - Patient´s profile

	Unrelated 80	Haploidentical 52	P value
Median age (IQR)	22 (11,41)	21 (11,33)	0.37
Sex			0.28
Male	48 (60%)	36 (69%)	
Female	32 (40%)	16 (31%)	
Donor sex			0.82
Male	57 (71%)	38 (73%)	
Female	23 (29%)	14 (27%)	
Disease			0.84
Acute leukemia, ambiguous lineage	2 (2%)	1 (2%)	
Acute lymphoblastic leukemia	43 (54%)	27 (52%)	
Acute myeloid leukemia	27 (34%)	21 (40%)	
Myelodysplastic syndrome	8 (10%)	3 (6%)	
Disease risk index			0.53
Low	3 (4%)	4 (8%)	
Intermediate	47 (59%)	34 (65%)	
High	27 (34%)	13 (25%)	
Very-high	3 (4%)	1 (2%)	
Graft source			0.35
Bone marrow	57 (71%)	33 (63%)	
Peripheral blood	23 (29%)	19 (37%)	
HLA			< 0.001
HLA 8/8	63 (80%)	-	
HLA 7/8	16 (20%)	-	
Conditioning regimen			0.02
Bu-based myeloablative	34 (42%)	16 (31%)	
RIC/NMA	3 (4%)	9 (17%)	
TBI-based myeloablative	43 (54%)	27 (52%)	
Median follow-up, monts (IQR)	35 (19,70)	21 (11,51)	0.08

IQR, interquartile range

SALVAGE HAPLOIDENTICAL TRANSPLANTATION FOR GRAFT FAILURE: A SINGLE CENTER EXPERIENCE

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INTRODUCTION

Graft failure (GF) is catastrophic condition affecting patients undergoing allogeneic hematopoietic stem cell transplantation (HSCT), which require urgent management. It is divided into primary graft failure (PrGF) and secondary graft failure (ScGF). Primary graft failure (PrGF) is defined as neutrophil count < 500 /µL on D+30 (or D+42 in umbilical cord blood), in the presence of pancytopenia and loss of chimerism. Secondary graft failure (ScGF) is the loss of donor chimerism with or without bone marrow dysfunction. Haploidentical HSCT has proven to be a time-sensitive strategy for achieving a second HSCT.

OBJECTIVE

To evaluate the outcomes of salvage haploidentical transplantation for graft failure.

PATIENT POPULATION:

Patients who experienced graft failure, either primary or secondary, and underwent at least one second haploidentical transplant between 2012 and 2024.

METHODS

This is a single-center, observational, retrospective study of outcomes of patients undergoing a salvage haploidentical transplant due to PrGF or ScGF. Medical records between 2012 and 2024 were reviewed. Analyzed outcomes were: one-year overall survival (OS) following salvage transplant, cytomegalovirus (CMV) reactivation, and neutrophil engraftment. Survival and cumulative incidence curves were built with the Kaplan-Meier and Gray methods, respectively.

RESULTS

495 allogeneic medical records were reviewed. With a median follow-up of 493.3 days, 13 patients (2.6%) underwent a salvage transplant due to GF (6 PrGF and 7 ScGF). The mean age was 14.3 years. Non-malignant diseases were frequent (85%). Median times to salvage HSCT were 60.5 days (PrGF) and 129.7 (ScGF). Haploidentical HSCT accounted for 92.3% of salvage HSCT and the remaining, UCB HSCT. 15.3% patients had another ScGF and underwent a subsequent haploidentical HSCT. 15.4% had a major ABO incompatibility and 23.1% had a minor ABO incompatibility, while 61.6% were ABO compatible. In patients undergoing haploidentical HSCT for GF treatment, 7,7% received a CD34 and total nucleated cell considered minimal for infusion and 92.3% received above optimal amounts, according to EBMT guidelines, with a mean infused CD34 cell count of 8.5E6/kg. One-year OS was 68% (95% CI 47-100%); CMV reactivation was 27% at 6 months (95% CI 10-72%); and an engraftment of 85% (95% CI 45-96%) at D+42

CONCLUSION

The use of haploidentical HSCT is an effective strategy for patients with PrGF and ScGF. 1y-OS of 68% for mainly non-malignant diseases remains suboptimal.

Gráfico 1 - First year overall survival of the patients

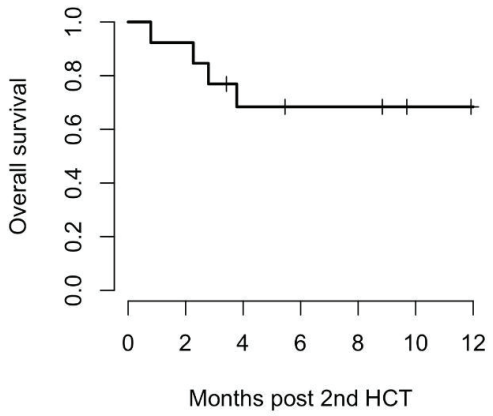

Gráfico 2 - Post-HCT CMV reactivation (previous CMV reactivation excluded, n = 11)

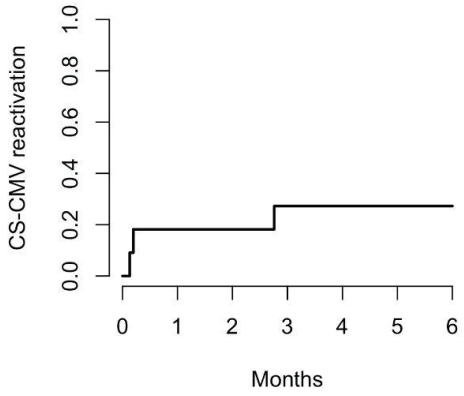

Gráfico 3 - Post 2nd HCT engraftment

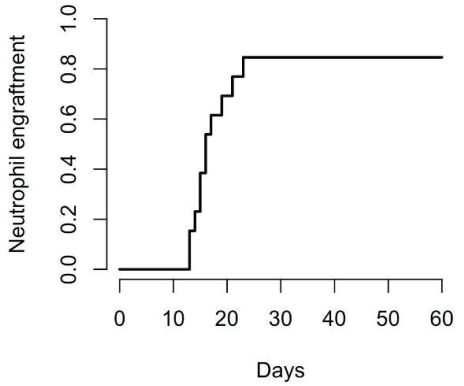

Table 1: Characteristics of patients undergoing haploidentical transplant as rescue for graft failure

Total of patients	
	13
Mean age	Years
	14.3 (1-63)
Diagnosis	N° (%)
X-linked adrenoleukodystrophy	2 (15.4)
Blackfan-Diamond	1 (7.7)
Chediak-Higashi	1 (7.7)
Chronic granulomatous disease	2 (15.4)
Severe combined immunodeficiency	1 (7.7)
Primary immunodeficiency (DNA ligase IV mutation)	1 (7.7)
Mucopolysaccharidosis IV	1 (7.7)
Aleukemic Myeloid Sarcoma	1 (7.7)
Dubowitz Syndrome	1 (7.7)
IPEX Syndrome	1 (7.7)
Mielodisplastic Syndrome	1 (7.7)
Conditioning	N° (%)
Flu + Cy + TBI	9 (69,3)
Flu + Cy + TLI	2 (15,4)
Cy + ATG + Thiotepa	1 (7.7)
Rituximab + Flu + Cy + Alemtuzumab	1 (7.7)
Sex	N° (%)
Male	10 (76.9)
Female	3 (23.1)
CMV IgG	N° (%)
Positive	11 (84.6)
Negative	2 (15.4)
TCTH1 type	N° (%)
Haploidentical	8 (61,6)
URD	5 (38,4)
Stem cell source TCTH 1	N° (%)
BM	6 (46.2)
PB	5 (38.5)
UCB	2 (15.4)
Donor TCTH 1	N° (%)
Mother	4 (30.8)
Father	2 (15.4)
Cousin	1 (7.7)
Uncle/Aunt	1 (7.7)
URD	5 (38.5)
Graft Failure TCTH 1	
Primary Failure	6 (46.2)
Secondary Failure	7 (53.8)
CD34 Rescue	N° (%)
Yes	1 (11.1)
No	8 (88.9)
TCTH 2 Type	N° (%)
Haploidentical	12 (92,3)
URD	1 (7,7)
Stem cell source TCTH 2	N° (%)
BM	7 (53.8)
PB	5 (38.5)
UCB	1 (7.7)
TCTH 2 Donor	N° (%)
Mother	3 (23.1)
Father	4 (30.8)
Cousin	1 (7.7)
Uncle/aunt	2 (15.4)
URD	1 (7.7)
Brother/Sister	2 (15.4)
Grafing TCTH 2	N° (%)
Yes	11 (84.6)
No	2 (15.4)
TCTH 3 Type	N° (%)
Haploidentical	2 (15,4)
Stem cell source TCTH 3	N° (%)
BM	1 (50)
PB	1 (50)
TCTH 3 donor	
Mother	1 (50)
Father	1 (50)
Mean Time in days between TCTH 1 and 2 - Primary Failure	N°
	60.5
Mean Time in days between TCTH 1 and 2 - Secondary Failure	N°
	129.7
Mean Follow-Up	**Days**
	493.3
Mean Infused CD34	**(x10e6/kg)**
	8.5 (2,79-28,13)
ABO incompatibility in haploidentical transplant	N° (%)
Major	2 (15,4%)
Minor	3 (23,1%)
Compatible	8 (61,6%)

Tabela 2 – Outcomes in 2º TCTH for GF

	%	(CI 95%)
1y OS	68	47-100
6m CS-CMV	27	10-72
42d engraftment	85	45-96

THE LONG-TERM OUTCOME OF RELAPSE AND MUTATIONS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) FOR CHRONIC MYELOID LEUKEMIA (CML) REFRACTORY TO TYROSINE KINASE INHIBITORS (TKIS): A 20-YEAR FOLLOW-UP STUDY FROM A SINGLE CENTER

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BACKGROUND

Allogeneic HSCT remains the preferred therapy for patients with CML refractory or intolerant to TKIs. The risk factors for relapse after transplantation are a point of discussion in the literature, as is the behavior of mutations in these patients.

AIM

The primary objective was to evaluate the incidence of relapse after HSCT and the profile of mutations at transplantation and at the time of relapse. Secondary objectives included assessing the impact of relapse on survival.

METHODS

From 2001 to 2021, we retrospectively analyzed 70 patients who underwent transplantation after TKI failure. 27 relapses were identified. The analysis included the variables: age; gender; Sokal; year of HSCT; donor-recipient sex match; time from diagnosis to HSCT; donor type, age and sex; use of interferon; immunoprophylaxis; HSCT indication; number of previous TKIs; presence of mutation; total nucleated cells (TNC); CD34; stem cell source; disease phase, treatment response at HSCT, and conditioning.

RESULTS

In this cohort, the cumulative incidence of relapse was 27.1% at 1 year (17.3%-38%) and 38.9% at 5 years (27.3%-50.3%). The only variable associated with the risk of relapse was the use of peripheral blood as stem cell source (SHR 2.85; 1.27-6.36). However, these data should be interpreted with caution since the majority of patients in that group were in advanced stages. Of the 27 patients who relapsed, the majority had molecular relapse (16 patients), 4 relapsed in blast crisis, 1 in accelerated phase, 2 had hematological relapse, and 4 had graft failure. Regarding therapy after relapse, 7 received donor lymphocyte infusion (DLI), 17 used TKIs, and 6 patients used both. Five patients achieved durable molecular remission after TKI/DLI for relapse. Of the 19 patients with mutations present before transplantation, only 4 had mutations at relapse; 2 of them had new mutations (Table 1). At the latest follow-up, among the 27 patients who relapsed, 15 patients died (55%), primarily due to disease progression. Among the 12 patients alive (45%), 3 had molecularly undetectable leukemia, 1 achieved RM 4,5, 2 achieved RM 4.0, 2 achieved RMM, 3 achieved CCyR, and one patient achieved MCyR. The 5-year

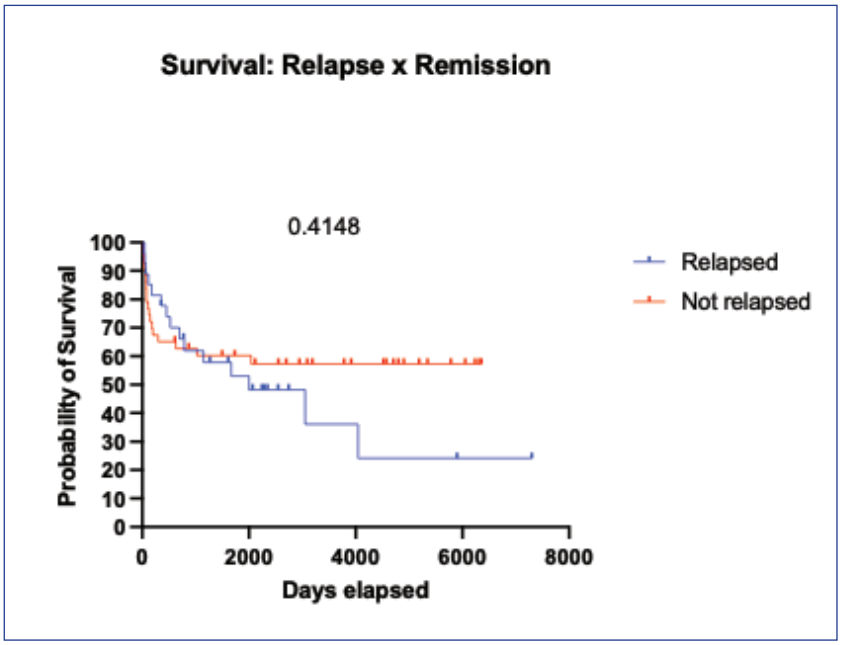
estimated OS of the relapsed group was 50%, 10-year OS was 40% and 20-year OS was 25%. The median survival was 2001 days compared to not reached for the remission group (Figure 1).

CONCLUSION

This study reports long-term results of relapse in a cohort of patients treated with TKIs before HSCT. We described a cumulative incidence of relapse of 27.1% at 1 year and 38.9% at 5 years, despite the majority of patients being in advanced disease phases. There was a different pattern of mutations at relapse, suggesting that they should always be reassessed. Long-term responses were observed after the use of DLI, TKI, or both. This study corroborates the potential of HSCT in the scenario of therapeutic failure and highlights the risks associated with relapse in this population.

Table 1. Analysis of mutations before and after HSCT

Patients (N=19)	Mutation	Mutation after relapse
A	M244V	No
B	G250E	No
C	D276G	No
D	T315I + Y253Y + M244V	No
E	E279k	No
F	F317L	No
G	L248V	No
H	V299L	No
I	T315I	No
J	G250E	G250E
K	L248V	No
L	T315I	No
M	T315I	E255K
N	T315I	No
O	G250E	No
P	T315I	T315I
Q	F359V	T315I
R	E255K	No
S	Y253H	No



AUTOLOGOUS HSCT

ANALYSIS OF A LOWER CD34+ CELL ENUMERATION AS A PREDICTOR OF SUCCESFULL APHERESIS WHEN USING CHEMOMOBILIZATION: EXPERIENCE IN A SINGLE CENTER IN BRAZIL

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INTRODUCTION

High-dose chemotherapy following autologous stem cell transplantation (ASCT) from peripheral blood is a established therapy for many hematological malignancies and some solid neoplasms, such as germ cell tumors. Cells mobilization and collection are crucial steps throughout the procedure and many strategies are valid aiming not only a good collection of CD34+ cells, but also trying to minimize the number of apheresis sessions, preventing failure and optimizing resource allocation. Using the concept created when using mobilization with granulocyte colony-stimulating factor (G-CSF) alone, patients with a CD34+ cell count below 10–20×106/L on day 5 are usually judged as "failed mobilisers". Chemomobilization with vinorelbine and G-CSF could increase apheresis efficacy and lower the threshold of CD34+ progenitor cells in peripheral blood to initiate collection.

OBJECTIVES

Evaluate if 10 x 106 CD34+ cells/L in peripheral blood can be used as a trigger to initiate collection in patients after using of vinorelbine and G-CSF as mobilization for ASCT.

METHODS

It was a retrospective study including all patients who underwent hematopoietic progenitor cells mobilization for ASCT at a Brazilian Stem Cell Transplantation Center from January 2021 to December 2023. The mobilization regimen used was vinorelbine (35mg/m2; maximum of 70mg, intravenous) on day 1 and daily GCSF (standard dose of 900µg/day, subcutaneous) from day 4 up to day 8, when leukapheresis is performed. The trigger for timing leukapheresis was 10 x 106 CD34+ cells/L in peripheral blood and could be processed up to 8 blood volumes. All patients were submitted to only one session of apheresis and plerixafor use was not allowed.

RESULTS

In total, we analyzed 319 patients. 12,2% (n = 39) patients performed the apheresis having between 10 and 20 x 106 CD34+ cells/L in peripheral blood (10 – 19,5 x 106 CD34+ cells/L). All patients accumulated more than 2 x 106 CD34+ cells/kg and, of those, 51,28% (n = 20) accumulated more than 3 x 106 CD34+ cells/kg. None of the patients who initiated the collection with more than 10 x 106 CD34+ cells/L failed the procedure.

CONCLUSION

Mobilization with vinorelbine and G-CSF is an excellent alternative when considering the predictability of a good collection and can lower the threshold to initiate apheresis and avoid the use of other alternatives as plerixafor, increasing the success, reducing complications and challenging the concept of a poor mobilizer when having less than 20 x 106 CD34+ cells/L in peripheral blood after mobilization.

KEYWORDS

Autologous stem cell transplantation, chemomobilization, apheresis.

AUTOLOGOUS NON-MYELOABLATIVE HEMATOPOIETIC STEM CELL TRANSPLANTATION IN CROHN'S DISEASE: RESULTS FROM A SINGLE BRAZILIAN INSTITUTION

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INTRODUCTION

A serious and heterogeneous illness, Crohn's disease is a chronic, relapsing and recurrent condition that may affect any segment of gastrointestinal tract. Standard therapy includes anti-inflammatory, immunomodulatory, and immunosuppressive agents, with biologic agents being the gold standard for most patients. With the first report of its use for Crohn's disease in Brazil and Latin America dating back to 2013, hematopoietic stem cell transplantation has emerged as a promising strategy for critically ill patients with refractory disease. Objective: To report the results of autologous non-myeloablative transplantation in patients with severe Crohn's disease.

PATIENTS AND METHODS

A retrospective study was made of 50 patients with Crohn's disease who underwent autologous non-myeloablative hematopoietic stem cell transplantation from 2013 to 2023 (at least 4 years of follow-up). The inclusion criteria were patients with active disease (Crohn's Disease activity index) >150, intestinal lesions confirmed by colonoscopy or capsule endoscopy, refractoriness or adverse reactions to at least two biological agents. Patients with significant comorbidities, diagnosis of neoplastic diseases within the previous four years, psychiatric disorders or current infectious diseases were excluded. Mobilization used cyclophosphamide (60 mg/kg/day) with 10 ug/kg granulocyte colony-stimulating factor from Day 5 until peripheral hematopoietic stem cell harvesting by apheresis. Conditioning was achieved with total doses of cyclophosphamide of 200 mg/kg and rabbit antithymocyte globulin of 6.0 mg/kg over 4 days.

RESULTS

Two patients were lost to follow-up. Toxicity during the procedure was low; no patients died and there was an immediate improvement in the quality of life that was maintained more than one year post-procedure. The percentage of disease-free clinical remission is defined by a Crohn's Disease activity index <150 without the reintroduction of specific medical therapy or surgery for the disease. In the Kaplan-Meyer analysis, disease-free survival was 100% at 6 months, 97% at 9 months, 85% at 12 months, 68% at 14 months, 60% at 36 months and 40% at 48 months post-transplant.

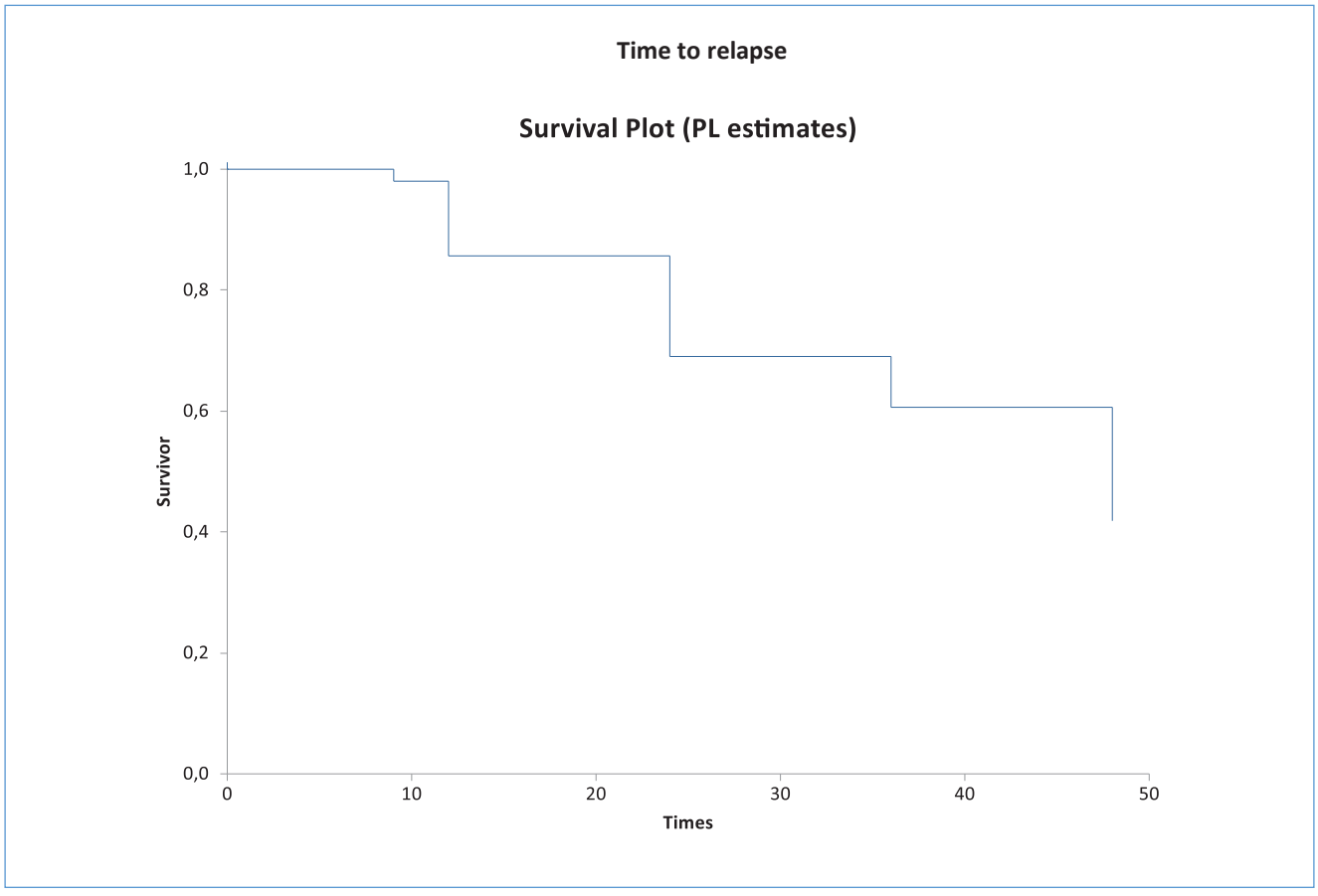
CONCLUSIONS

Autologous non-myeloablative hematopoietic stem cell transplantation is an effective and safe option for patients with Crohn's disease refractory to conventional treatment. Transplantation significantly improves the patients' quality of life. These results encourage further studies to consolidate the role of transplantation in Crohn's disease management.

KEYWORDS

Crohn's disease, hematopoietic stem cell transplantation, quality of life.

FIGURE 2 - Probability of clinical relapse-free survival after autologous non-myeloablative hematopoietic stem cell transplantation. Disease-free survival is defined by a CDAI >150, without the reintroduction of specific medical therapy or surgery related to the disease



CORRELATION OF THE G8 SCREENING EXAM WITH THE COMPREHENSIVE GERIATRIC ASSESSMENT (CGA) IN ELDERLY PEOPLE UNDERGOING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION – EXPERIENCE FROM A SINGLE CENTER IN BRAZIL

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INTRODUCTION

Older Adults patients are frequently becoming candidates for autologous hematopoietic cell transplantation (AHSCT) due to the aging population and the increase in incidence of hematological diseases in these population. Advancing age brings geriatric syndromes and vulnerabilities that affect the functional capacity of the older adults. Comprehensive geriatric assessment (CGA) is a multidimensional tool used to identify older adults at increased risk of complications and assist in therapeutic decisions, but it is time-consuming and requires a multidisciplinary team. The G8 is a screening tool that could facilitate the identification of patients who benefited from CGA, but no analysis was done in the AHSCT setting to our knowledge.

OBJECTIVE

To correlate the G8 screening tool and CGA in older adults patients (≥ 60 years) undergoing AHSCT for hematological malignancies in a Brazilian institution, between January 2013 and September 2023.

METHODS

Retrospective, single-center study with analysis of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of G8 in relation to CGA. Consider CGA changed if ≥ 2 variables changed and G8 changed if ≤ 14 points.

RESULTS

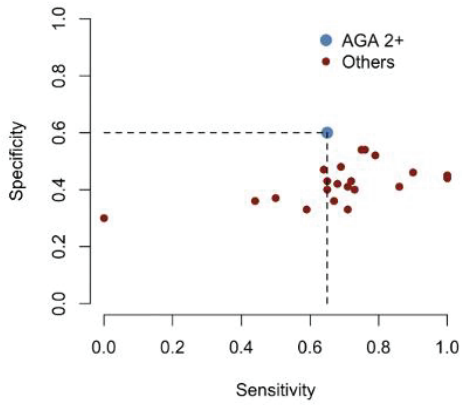
53 patients undergoing autologous HCT were able to be analyzed with all the variables: plasma cell dyscrasias (37 patients) and lymphomas (16 patients). The median age was 67 years in both groups. In the group of plasma cell dyscrasias and lymphomas, the majority presented low risk according to HCT-CI, 67% and 62%, respectively. Cognitive function, emotional and nutritional status were predominantly normal in both groups. Most patients (60% of plasma cell dyscrasias and 67% of lymphomas) only showed changes in the functionality test (hand grip). Polypharmacy was common in 70% of patients in the plasma cell dyscrasias group and in 73% of patients in the lymphoma group. According to Fried's criteria, 46% of patients were defined as "fit" in the plasma cell dyscrasias group, while 50% of patients in the lymphoma group were classified as vulnerable. Regarding the CARG Toxicity scale, we observed that 54% in the plasma cell dyscrasias group were classified as low risk, while 67% of patients in the lymphoma group were intermediate risk. In our sample, in both groups the majority of patients presented altered results in the G8 test (62% in both groups). Progression-free survival was 55% in lymphomas and 70% in plasma cell dyscrasias, without statistical significance. The sensitivity of CGA in relation to G8 was 65%, specificity 60%, PPV 94% and NPV 15%.

CONCLUSION

The older adults are at greater risk of developing geriatric syndromes and having poor outcomes in HCT. The study did not find that G8 a screening tool was sensitive and specific to replace the need of CGA, however, so CGA remains the best method for evaluating older adults transplant candidates, reflecting results similar to other studies.

KEYWORDS Older adults, CGA and G8

Assessment of AGA sensitivity and specificity in relation to G8



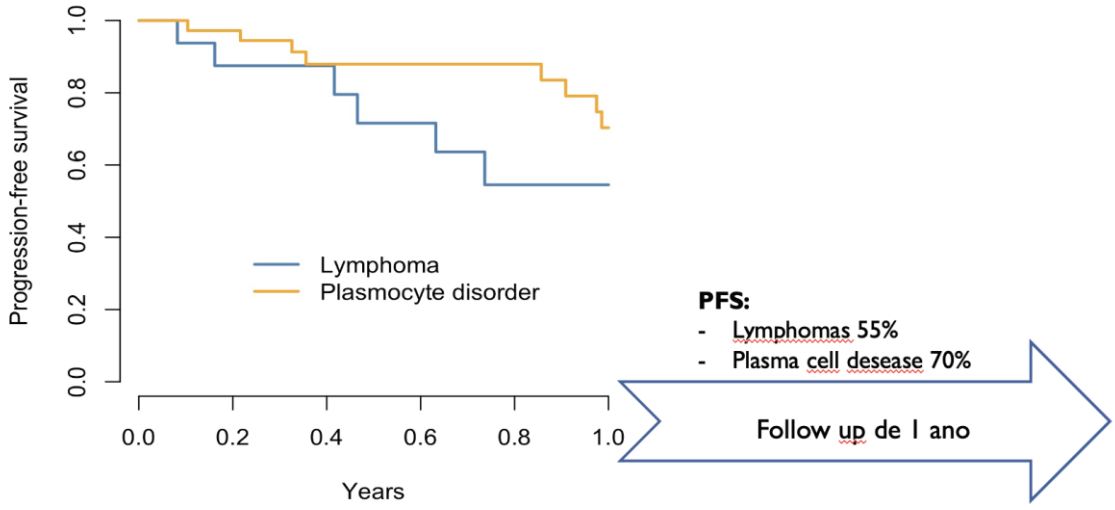


Table 1: Patient characteristics

	Plasma cell disease (%)	LNH/LH- n(%)	P value
Total	37	16	
Age_TCTH			
mean(SD)	67	67.2	0.91
Sex			0.013
F	14	12 (75)	
M	23	4 (25)	
HCT.CI			0.721
0-2	25 (67.6)	10 (62,5)	
3+	12 (32.4)	6 (37.5)	
Conditioning			<0.001
BEAM +- R	0	**10 (62.5)**	
MEL	**34 (91.9)**	0	
BuCyThio	0	3 (18.8)	
BuMel	2 (5.4)	0	
ECOG			0.065
0	6 (37.5)	24 (64.9)	

	Plasma cell disease– n(%)	LNH/LH- n (%)	P value
Status Lymphoma			
CR		12 (75)	
PR		4 (25)	
Status Myeloma			
PD	1 (2.7)		
PR	14 (37.8)		
VGPR	11 (29.7)		
CR	11 (29.7)		

Table 2: CGA Variables

	Plasma cell desease n (%)	LNH/LH – n(%)	P value
Hand Grip			0.65
Normal	14 (40)	5 (33.3)	
Abnormal	21 (60)	10(66.7)	
ABVD			0.51
Independent	36 (97.3)	15 (93.8)	
Dependent partial/total	1 (2.7)	1 (6.2)	
AIVD			0.41
Independent	33 (89.2)	13 (81.2)	
Dependente partial/total	4 (10.8)	3 (18.8)	
GDS			1
Normal	27 (73)	12 (75)	
Abnormal	10 (27)	4 (25)	
HAD. A			0.07
Normal/light	15 (68.2)	9 (100)	
Moderate/severe	7 (31.8)	0 (0)	
HAD.D			1
Normal/light	21 (95.5)	9 (100)	
Moderate/severe	1 (4.5)	0 (0)	

	Plasma cell desease – n (%)	LNH/LH – n (%)	P value
Mini MAN			1
No nutricional risck	31 (83.8)	13 (81.2)	
At nutricional risk	6 (16.2)	3 (18.8)	
IMC			0.88
Malnourished	5 (13.5)	3 (18.8)	
Eutrophic	17 (43.8)	7 (43.8)	
Obese	6 (37.5)	6 (37.5)	
MEEM			0.42
Normal	31 (86.1)	11 (73.3)	
Abnormal	5 (13.9)	4 (26.7)	
Verbal fluency			0.57
Normal	32 (94.1)	13 (86.7)	
Abnormal	2 (5.9)	2 (13.3)	
Watch test			0.45
Normal	30 (83.3)	11 (73.3)	
Alterado	6 (16.7)	4 (26.7)	
Polypharmacy			1
<5	11 (30.6)	4 (26.7)	
5+	25 (69.4)	11 (73.3)	

Table 3: G8 scale assessment and CGA variable

	Plasma cell desease– n (%)	LNH/LH – n(%)	P value
CARG			0..06
BLow	20 (54.1)	4 (26.7)	
Intermediate	11 (29.7)	10 (66.7)	
High	6 (16.2)	1 (6.7)	
ER			0.92
None	21 (56.8)	8 (50)	
1-2	10 (27)	5 (31.2)	
3+	6 (16.2)	3 (18.8)	
Fall			1
None	29 (78.4)	4 (26.7)	
1	6 (16.2)	10 (66.7)	
2+	2 (5.4)	1 (6.7)	
Internation			0.08
None	18 (48.6)	3 (18.8)	
1-2	13 (35.1)	7 (43.8)	
3+	6 (16.2)	6 (37.5)	

	Plasma cell desease- n (%)	LNH/LH – n (%)	P value
G8			0.98
>14	14 (37.8)	6 (37.5)	
≤14	23 (62.2)	10 (62.5)	
FRIED			0.76
Fit	17 (45.9)	7 (43.8)	
Vulnerable	15 (40.5)	8 (50)	
Fragile	5 (13.5)	1 (6.2)	

EFFECTIVENESS OF HEMATOPOIETIC STEM CELL MOBILIZATION USING VINORELBINE AND GRANULOCYTE STIMULATION FACTOR: EXPERIENCE IN A SINGLE CENTER IN BRAZIL

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INTRODUCTION

Autologous stem cell transplantation (ASCT) from peripheral blood is a well known therapy for many hematological malignancies, such as multiple myeloma, non-Hodgkin's and Hodgkin's lymphoma, as well as for some solid neoplasms, such as germ cell tumors. To harvest a sufficient amount of hematopoietic progenitor cells (HPCs), many strategies may be used and the choice is made upon different factors aiming less apheresis sessions, less complications and optimizing resource allocation. The combination of chemotherapy and granulocyte-colony stimulating factor (G-CSF) has shown to improve the collection of CD34 + cells and reduce tumor activity. The combination of vinorelbine and G-CSF is an excellent alternative when compared with G-CSF alone, showing a more favorable toxicity profile, resulting in earlier collection and lower costs. Furthermore, outpatient administration with one in bolus injection and better predictability of apheresis improve patient comfort and simplify the collection procedure. Then, chemomobilization has a potential to save financial resources. This study was triggered by an interest to analyze the success and efficacy of vinorelbine and G-CSF in mobilizations in a single transplantation center in Brazil.

OBJECTIVES

Evaluate the efficacy of vinorelbine and G-CSF as a standard mobilization for all patients.

METHODS

It was a retrospective study including all patients who underwent HPC mobilization for ASCT at a Brazilian Stem Cell Transplantation Center from January 2021 to December 2023. The mobilization regimen used was vinorelbine (35mg/m2; maximum of 70mg, intravenous) on day 1 and daily GCSF (standard dose of 900µg/day, subcutaneous) from day 4 up to day 8, when leukapheresis is performed. The trigger for timing leukapheresis was 10 x 106 CD34+ cells/L in peripheral blood and could be processed up to 8 blood volumes.

RESULTS

In total, we analyzed 319 patients. Of those, only 3,44% (n = 11) patients failed the standard mobilization. 27,27% (n = 3) patients had multiple myeloma, 27,27% (n = 3) had Hodgkin's lymphoma, 27,27% (n = 3) had B cell lymphoma and 18,18% (n = 2) had germ cell tumor. 27,27% (n = 3) of those patients had access to plerixafor (240 mg/kg subcutaneously between 6 and 11 hours before the new apheresis) after the primary failure, but yet they did not obtain a successful apheresis. The mean age was 50,3 years old. All the 96,56% (n = 308) had successfully collected more than 2*106 CD34+ cells per kilogram using the standard protocol.

CONCLUSION

Mobilization with vinorelbine and G-CSF is an excellent alternative, with higher rates of success and a good predictability of apheresis. Adding vinorelbine to the standard use of G-CSF alone can improve collection success by optimizing mobilization strategies and improving CD34+ cells counting in some poor mobilizers patients who could have failed mobilization omitting the vinorelbine use.

KEY WORDS

Autologous stem cell transplantation, chemomobilization, apheresis.

PEDIATRIC HSCT

ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) IN CHILDREN AND ADOLESCENTS WITH SICKLE CELL DISEASE (SCD): A FEASIBLE CURATIVE OPTION WITH HLA-IDENTICAL OR HAPLOIDENTICAL DONORS

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INTRODUCTION

HCT is the only curative option available in Brazil to SCD. Most patients do not have an unaffected matched sibling donor (MSD), so alternative donor options are urgently needed. The Vanderbilt Global Haploidentical Learning Collaborative (VGC2) has led an international initiative to develop haploidentical HCT for SCD. Due to the 43% rejection rate with the original Hopkins protocol (Bolaños-Meade, 2012), thiotepa (TT) was added with excellent results in adults, but 30% rejection in children (Kassim, 2024) despite marrow suppression with hypertransfusions and hydroxyurea.

OBJECTIVE

Report the experience of HCT in children and adolescents with SCD, comparing outcomes with MSD, haploidentical HCT as initially transplanted (Haplo) and Haplo with augmented conditioning therapy (AugHaplo).

METHODS

Conditioning therapy for MSD was (total doses) ATG 4.5mg/kg, busulfan AUC 4.500/day, fludarabine (Flu) 120mg/m^2 and Cy 200mg/kg, erythrocytheresis at admission to lower HbS < 20-30%. In all Haplo HCT, all patients had a mandatory prephase for at least 2 months with hydroxyurea 30 mg/kg/day, exchange transfusions to maintain HbS <30% and reticulocytes <10%. Haplo had ATG 4.5 mg/Kg, TT 10 mg/Kg, fludarabine 150 mg/m^2, Cy 29 mg/Kg, TBI 200cGy, increased in the AugHaplo (Cy 50 mg/kg and TBI 400 cGy in a single fraction). GVHD prophylaxis: MSD CsA-Mtx and in all Haplos, PT-Cy, sirolimus, MMF.

RESULTS

From Sep2016 to Dec2023, 30 patients had HCT; 8 MSD and 13 Haplo, 9 AugHaplo. Median age was 11 y (4-20), 50% female. Among Haplos, donors were 4 siblings, 7 fathers, 10 mothers and 1 cousin; 73% sickle cell trait and all ABO-compatible. Main indications were: stroke or altered TCD/MoyaMoya (23); recurrent vasoocclusive crises (30); acute chest syndrome and priapism. Only one had anti-donor specific antibodies and was desensitized. All but 3 underwent exchange transfusions. The stem cell sources was marrow in 27/30; median CD34 7.5x106/kg (2.1-11.2). Overall survival was 100%, event free survival 94% and median follow-up 20 months (0-8 years). All patients engrafted (D+14-D+24). Rejection was so far avoided with low dose DLI in 2 Haplo with decreasing chimerism; 2 Haplo had 2ry graft failure on D+60 and D+180; 8 Aug-Haplo have 100% and 1 >90%

chimerism. Immunosuppression was suspended in 33% and is being reduced in 40%. 16% had III-IV acute GVHD and 27% chronic GVHD, none severe. All patients had viral reactivations, mostly CMV and HHV6. Other complications in 1 patient each were Guillan-Barre syndrome, PRES, interstitial pneumonia and alveolar proteinosis secondary to sirolimus.

CONCLUSIONS

All patients are alive. All 9 consecutive AugHaplo have >90% chimerism. Viral reactivations are very frequent. Studies with larger cohorts and longer follow-up are needed to evaluate the long-term effects of this treatment strategy.

Table 1

Patient characteristics and outcome

	Sibling	Haplo standard dose (Cy 29 mg/Kg and TBI 200 cGy)	Haplo Aug dose (Cy 50 mg/Kg and TBI 400 cGy)
Number of patients	8	13	9
Age, median (range)	9.5 (7-18)	14 (4-20)	11 (5-20)
Gender (Female), n (%)	5 (62.5%)	6 (46.1%)	5 (55.5%)
Donor characteristics			
Donor age, median (range)	12 (0-24)	36.5 (25-46)	27 (12-38)
Donor gender (Female), n (%)	5 (62,5%)	5 (38.4%)	6 (6.66%)
Donor relationship, n (%)			
Mother	0	5 (38.4%)	4 (44.4%)
Father	0	6 (46.1%)	2 (22.2%)
Sibling	8 (100%)	2 (15.4%)	2 (22.2%)
Cousin	0	0	1 (11.1%)
SIckle cell trait (AS)	2 (25%)	11 (84.6%)	7 (77.7%)
Donor/recipient sex match, n (%)			
Sex-matched transplant	3 (37.5%)	3 (25%)	4 (44.4%)
Female donor, male recipient	3 (37.5%)	4 (33.3%)	3 (33.3%)
Male donor, female recipient	2 (25%)	6 (46.1%)	2 (22.2%)
ABO incompatibility, n (%)			
No incompatibility	8 (100%)	13 (100%)	9 (100%)
Graft source, n (%)			
Bone Marrow	6 (75%)	12 (92.3%)	9 (100%)
PBSC	0	1 (7.7%)	0
Cord Blood+Bone Marrow	2 (25%)	0	0
Graft composition, median (range)			
Bone Marrow and PBSC			
CD34x106/Kg	6.7 (0.6-11.9)	7.8 (2.1-9.2)	7.4 (3-10)
TNCx108/Kg	6.2 (1.3-9)	8.9 (5.3-9.8)	7.1 (5.4-11)
Cord Blood			
CD34x105/Kg	2.2 (0.5-3.9)	0	0
TNCx107/Kg	5.3 (3-7.6)	0	0
CMV serostatus, n (%)			
CMV - R and D seronegative	0	0	0
CMV - R and D seropositive	8 (100%)	11 (84.6%)	8 (88.8%)
CMV - R seronegative and D seropositive	0	1 (7.7%)	0
CMV - R seropositive and D seronegative	0	1 (7.7%)	1 (11.1%)
Neutrophils engraftment (>500/µl)			
Day, median (range)	15.5 (14-20)	19 (16-24)	18 (15-20)
Last Chimerism, median (range)	97% (84-100%)	100% (0-100%)	100% (92-100%)
Rejection, n (%)	0	2 (15.4%)	0
DLI, n (%)	0	2 (15.4%)	0
Acute GVHD, n (%) - Grade ≥ III	0	2 (15.4%)	1 (11.1%)
Chronic GVHD, n (%)			
No	5 (62.5%)	6 (50%)	7 (77.7%)
Mild	2 (25%)	3 (25%)	0
Moderate	1 (12.5%)	4 (25%)	2 (22.2%)
Infection, n (%)	8 (100%)	13 (100%)	9 (100%)
CMV	6	5	4
Herpes virus 6	3	6	4
Others	5	8	8
Follow up time (days), median (range)	640 (171-2794)	901 (597-1633)	436 (185-537)

Legend: Haplo= haploidentical transplant, Cy=cyclophosphamide, TBI=total body irradiation, Aug=augmented, PBSC=peripheral blood stem cell, TNC=total nuclear cells, CMV=cytomegalovirus, DLI=donor lymphocyte infusion, GVHD=graft versus host disease

Figure 1. Overall Survival

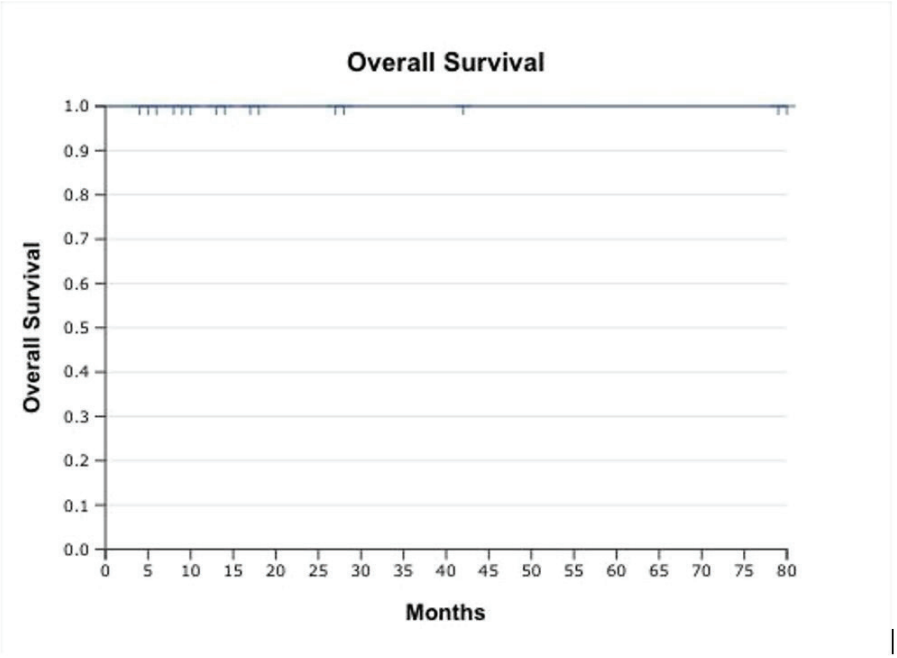
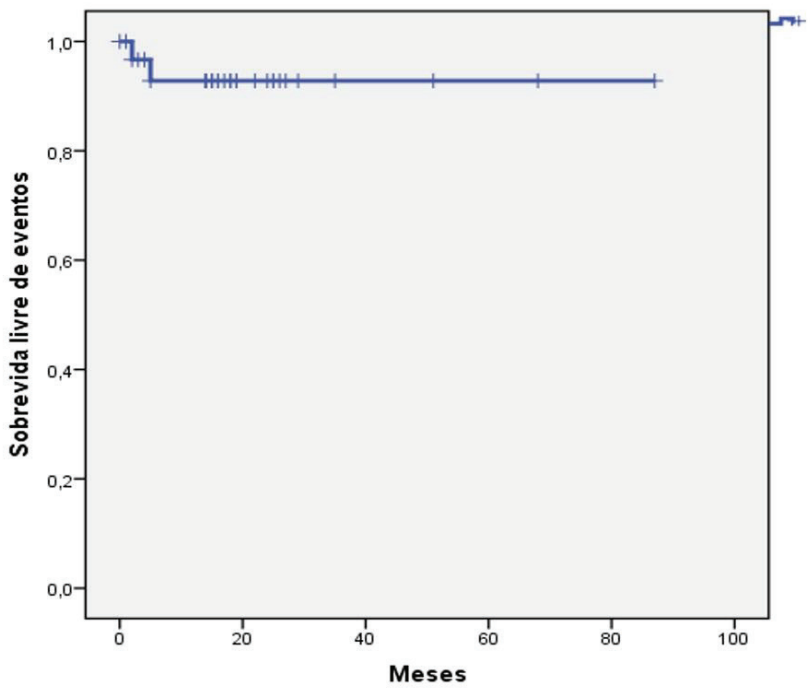


Figure 2. Event Free Survival



BLINATUMOMAB + DONOR LEUKOCYTE INFUSIONS (DLI) CAN BE USED TO PREVENT THE RELAPSE OF ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT)

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Chimeric antigen receptor (CAR) T-cell therapy is a choice for ALL relapsed post-HCT but is hindered by cost and the required lengthy washout period, emphasizing the need for new strategies to prevent relapse. For those at high relapse risk due to disease characteristics or high pre-HCT residual disease levels, blinatumomab post-HCT to guide the donor lymphocytes could be an effective option to eliminate MRD before relapse occurs. The objective of this study is to evaluate the use of blinatumomab maintenance in pediatric patients with high-risk ALL undergoing HCT.

METHODS

Children with high-risk ALL received Blinatumomab via a portable pump initiated at discharge from HCT. The full maintenance dose began after a single steroid pre-medication.

RESULTS

Eleven patients, 5 females, median age 8 years (1-12), were included. Nine had haploidentical HCT; 10 had pre-HCT blinatumomab. Six were in first remission after primary refractory disease, others in 2nd remission. Five showed 0.01%-0.8% pre-HCT MRD. Conditioning regimens included 1200cGy TBI with fludarabine (5) or etoposide (6). Median CD34+ cell dose was 6x106/kg (4-10x106/kg). Median day of neutrophil engraftment was D+18 and blinatumomab start, D+26 (22-323), median cycles post-HCT: 3 (1-6), interval between cycles: 14 days (13-44). At blinatumomab start, 8 remained on cyclosporine, 2 were reducing steroids. Specific therapies included dasatinib (Ph+), venetoclax, and trametinib (RAS) in 3 patients. Six without GVHD had concurrent DLI to boost T-cell recovery, median 2 doses/patient, 1x106/kg CD3+ (1x105-5x106/kg). Median lymphocytes at 1st blinatumomab cycle: 480 CD3/µL (80-2,450). Adverse events involved hematologic toxicity, viral reactivations (herpes viruses, CMV, BKV, COVID), and fever in 4 patients without signs of cytokine release syndrome; infusions werw paused 24h and resumed at slower rate. No severe infections reported. A Down's syndrome patient had a seizure, causing brief dose reduction. All received IgG replacement. Eight developed acute GVHD, none beyond MAGIC grade II; 4 had mild chronic GVHD. Three relapsed, one recovered with CAR T-cell therapy, two died from disease; one died in remission from unidentified pneumonia. At 20 months median follow-up (2-38), 7/11 extremely high-risk ALL patients remain in remission post-allogeneic HCT with blinatumomab. Conclusion: The study highlights that blinatumomab maintenance post-HCT in pediatric ALL as effective and safe. Despite tough cases, outcomes are promising. Manageable adverse events confirm feasibility as a possible alternative where CAR T-cell access is limited. Adding DLI may enhance therapeutic effects. These results support using blinatumomab maintenance as a strategy to reduce pediatric ALL relapse risk post-HCT, deserving further exploration in larger prospective trials.

Table 1 – Blinatumomab maintenance post-HCT

	HCT	GVHD	Blina (cycles)	DLI	Follow-up (months)	Outcome
1	Haplo	Yes	6	3	38	Alive - remission
2	UD	Yes	5	No	35	Alive - remission
3	MSD	Yes	3	No	32	Alive – remission
4	Haplo	No	5	1	25	Alive – remission
5	Haplo	Yes	5	2	37	Alive – remission
6	Haplo	Yes	6	1	20	Dead – PD
7	Haplo	Yes	2	No	7	Alive – remission
8	Haplo	No	2	No	2	Alive – remission
9	Haplo	No	2	1	2	Alive - remission
10	Haplo	Yes	1	1	3	Dead - remission
11	Haplo	Yes	2	No	12	Dead - PD

HCT – allogeneic stem cell transplantation; GVHD – graft versus host disese; Blina – blinatumomab; Haplo – haploidentical; UD – unrelated donor; MSD – matched sibling donor; DLI – donor ymphocyte infusion; PD – progressive disease

BRAZILIAN REAL-WORLD STUDY OF PEDIATRIC AND YOUNG ADULT RELAPSED/REFRACTORY TO FIRST LINE TREATMENT FOR B CELL PRECURSOR ACUTE LYMPHOBLASTIC LEUKEMIA: CURRENT TREATMENT PATTERN

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INTRODUCTION

In Brazil, leukemia is the leading cause of death from cancer in the age group of 1 to 19 years old. Globally, 20% of B-cell precursor pediatric acute lymphoblastic leukemia (B-cell pedALL) patients experience refractory or relapse (R/R) after first-line treatment (LOT1). Allogeneic hematopoietic stem cell transplantation remains the only curative option for R/R B-cell pedALL, but it is limited. For patients with a second relapse, effective treatment options are even scarcer, leading to a poor prognosis.

OBJECTIVE

To describe treatment pattern and responses in R/R pedALL patients after LOT1.

METHODS

Retrospective study (2014-2018) using medical records from 8 ALL-reference Brazilian sites. Descriptive statistics were performed.

RESULTS

Out of the 102 screened patients, 95 were diagnosed with R/R ALL during the study. Overall, mean age at diagnosis was 7.4 years. Most of patients were male (70%), from Southeast region of Brazil (38%), and users of the public health system (92%). For LOT1, 5 protocols - GBTLI 99, GBTLI 2009, BFM 2002, BFM 2009 and RE-LLA - were the most used (92% combined). In LOT2, the most frequently used protocols were Saint Jude 17 Relapse (18%) and BFM RELAPSE 2002 (17%). Overall, 61 patients received LOT3, with the most prescribed protocols being Saint Jude 11 Relapse and IDA FLAG (8% each). Most patients (62.5%) had less than 5% of blast cell in the bone marrow at the end. Negative minimal residual disease (MRD) (< 0.01%) was achieved by 16 (37%) patients. Regarding disease remission, 33 (56%) patients achieved complete remission (CR). A total of 29 patients received LOT4, and the most used protocol was Saint Jude 17 Relapse (14%), followed by Blinatomumab and IDA FLAG (10% each). Blinatomumab was the most used protocol for

patients in LOT5 (27%; N=4) and LOT6 (40%; N=2). Two patients underwent LOT7, 1 receiving Blinatomumab and 1 receiving Vumon and Citarabine (ARAC-C). Most patients had more than 25% of blast cell in bone marrow at the end of induction therapy for LOT4, LOT5, and LOT6 (62.5%, N=15; 54%, N=7 and 60%, N=3, respectively). All patients in LOT7 had less than 5% of bone marrow blast at the end. Negative MRD (< 0.01%) was achieved for 3 (24%) patients in LOT4, 1 (12.5%) patient in LOT5, and 1 (33%) in LOT6. Regarding CR, this was achieved in 8 patients on LOT4 (29%), 4 on LOT5 (31%) and 2 on LOT6 (40%). Although some patients achieved CR, most patients experienced disease progression at LOT4, LOT5, LOT6, (71%, N=20; 71%, N= 10; 60%, N=3 and 100%, N=2, respectively) and all the patients on LOT7 had disease progression.

CONCLUSION

This study provides relevant data and important insights into the Brazilian care management of R/R pedALL patients. Of note, high mortality rate and poorer outcomes were observed in patients with advanced LOT, in line with the global trend. These findings underscore the importance of optimized treatment strategies in managing relapses.

KEYWORDS

B-cell Precursor Acute Lymphoblastic Leukemia, Treatment pattern, Relapse Management.

BRIDGING THE GAP IN POST-TRANSPLANT CARE FOR PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): INNOVATIVE MAINTENANCE STRATEGIES TO REDUCE RELAPSE RATE AND ENHANCE SURVIVAL

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Relapsed Acute Lymphoblastic Leukemia (ALL) post-hematopoietic stem cell transplantation (HCT) have very poor outcomes. Patients face increased toxicity and poorer responses to therapy. With limited access to Chimeric Antigen Receptor (CAR) T-cell therapy, and the toxicity of a second HCT, alternative strategies are critically needed.

OBJECTIVE

To evaluate the impact of novel maintenance therapies post-HCT in pediatric ALL on reduce relapse rates and survival outcomes.

METHODS

This is a retrospective study of 64 pediatric ALL patients who underwent HCT between 2014 and 2024. From 2021 on, T-cell ALL, and B-cell ALL transplanted with measurable disease, primary refractory disease, or post-second HCT and who had adequate clinical conditions and access, received maintenance therapy. The maintenance therapies included tyrosine kinase inhibitors, blinatumomab, inotuzumab, hypomethylating agents and venetoclax. Data on demographics, treatment regimens, and clinical outcomes were retrospectively collected.

RESULTS

Characteristics of the patients and HCT are described in Table 1. Maintenance was administered to 38% of patients (Table 2). All but three were transplanted after 2020. The median start of maintenance was on D+52 and the duration 6 months. Of the 10 patients with T-ALL, 6 underwent maintenance therapy with only 1 relapse (16%), while 2 out of 4 (50%) who did not receive the prophylaxis relapsed. Of the 54 patients with B-ALL, 18 received maintenance and 5 relapsed (27%) after a median time of 273 days (137-535 days). Considering 10 patients who received blinatumomab, 2 relapsed (20%). Of the 36 patients who did not receive maintenance, 31% relapsed with a median time of 105 days (63-615 days). No patient had poor graft function or graft failure after maintenance. There was no mortality from infectious causes in this group. The overall survival, disease-free survival, and follow-up time for who did not receive maintenance therapy were 46%, 45%, and 56 months, and for who did, were 74%, 67%, and 22 months, respectively – Figure 1 and 2.

CONCLUSION

Maintenance therapy delayed relapse (median of 273 vs 105 days) and improved overall survival. Blinatumomab maintenance was notably effective, reducing the relapse rate to 20%. Similarly, patients with T-ALL who underwent venetoclax-based maintenance therapy also experienced significantly lower relapse rates (16% vs 50%). Our findings suggest a substantial benefit of maintenance therapy in enhancing DFS and OS in pediatric ALL post-HCT. These promising results support further research to refine maintenance strategi es and validate findings in a larger cohort.

Table 1 – Patients and HCT characteristics

Characteristic	Number (%) (n=64)	Maintenance (n=24)	W/o Maintenance (n=40)
Age (median)	8 (1-16)	10 (1-18)	7 (1-16)
Female sex	23 (26%)	7 (29%)	16 (40%)
Disease status pre-HCT			
Measurable disease	29 (45%)	12 (50%)	17 (42%)
MRD negative	35 (55%)	12 (50%)	23 (58%)
Second HCT	8 (13%)	2 (8%)	6 (15%)
HLA-matching/Donor type			
Matched sibling donor	6 (9%)	3 (12%)	3 (7%)
Unrelated donor	26 (41%)	4` (17%)	22 (55%)
Haploidentical donor	32 (50%)	17 (71%)	15 (38%)
Graft source			
Bone Marrow	26 (41%)	9 (37%)	17 (43%)
Peripheral blood	35 (55%)	15 (63%)	20 (50%)
Cord blood	3 (4%)	0	3 (7%)
TBI-based conditioning	47 (73%)	20 (83%)	27 (68%)
Neutrophil engraftment day (day post-HSCT), *n (range)*	18 (11-30)	18 (11-27)	18 (12-30)
GVHD			
Acute	43 (67%)	16 (67%)	27 (68%)
Chronic	26 (41%)	9 (37%)	17 (43%)

Table 2 – Maintenance strategies

Strategies	B-ALL (n=18)	T-ALL (n=6)
Blinatumomab	10 (56%)	0
Inotuzumab	2 (11%)	0
Venetoclax	6 (33%)	6 (100%)
Dasatinib	5 (28%)	0
Azacitidine/Decitabine	0	4 (67%)

OBS: More than one strategy in same patients

Figure 1 – Overall Survival

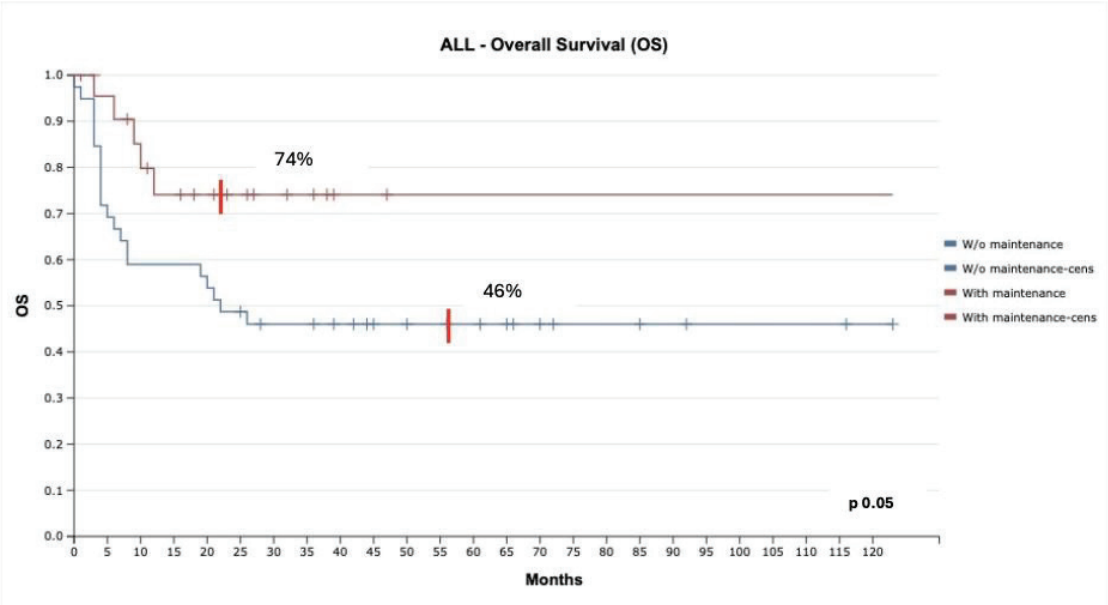
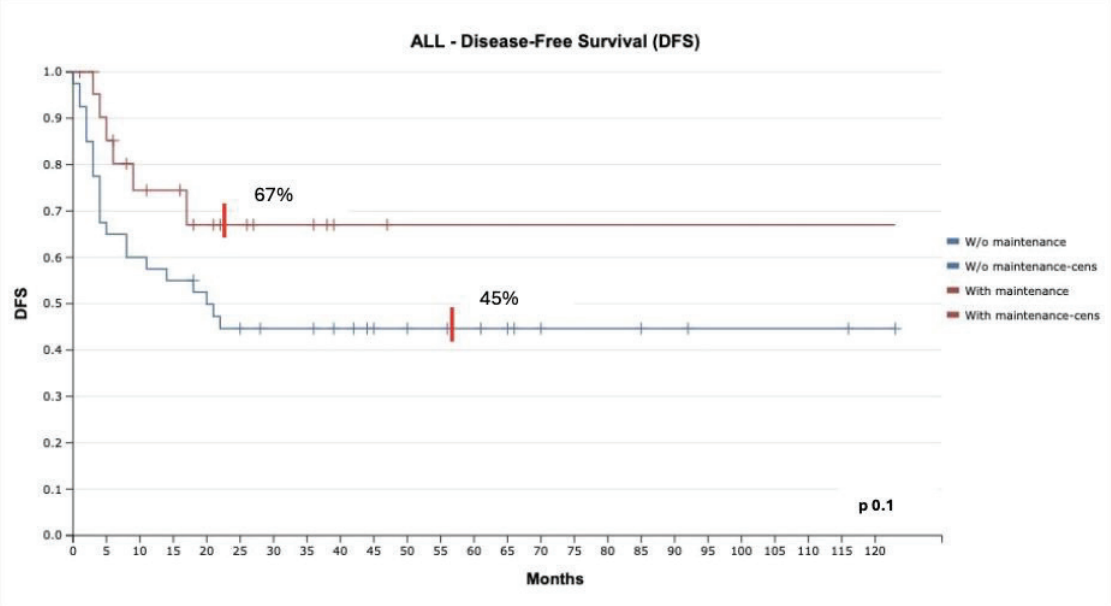


Figure 2 – Disease-Free Survival



IMPACT OF PEDIATRIC BUSULFAN PLASMA CONCENTRATION IN OUTCOMES AFTER HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

High-dose busulfan (BU) is widely used in pediatric HCT preparative regimens. Previous studies have linked systemic exposure to BU, as measured by the area under the plasma concentration versus time curve (AUC), with specific transplantation outcomes. Low systemic exposure has been associated with increased graft failure (GF), while high exposure has been associated with hepatic veno-occlusive disease (VOD).

OBJECTIVE

Describe the incidence of GF and VOD post-HCT in pediatric patients (pts), focusing on the correlation with the BU AUC during conditioning regimen.

METHODS

Retrospective analysis of medical charts.

RESULTS

93 pts were transplanted between March 2019 and December 2023 and had busulfan concentrations recorded. 73% were male, the median age was 2.2 years-old (range: 1 month-14,5 years) and the median weight was 12.7kg (range: 5.3-60kg). Diagnoses included Inborn Errors of Immunity (IEI, n=35), Malignant diseases (n=25), Hemoglobinopathies (n=14), Inborn errors of metabolism (n=13) and others (n=6). The majority received an allogeneic HCT with matched related (MRD=21), unrelated (URD=39), and haploidentical (n=28) donors while 5pts received autologous HCT for neuroblastoma. Most patients received a reduced intensity regimen (n=60) and serotherapy (n=75), with BU FLU ATG. Clinical outcomes were compared based on a cutoff value for busulfan AUC (low: <4500µM×min, n=47; high >4500µM×min, n=43). The 100-day cumulative incidence of VOD was 19% (95% CI, (0.09-0.31) in the low-dose group and 14% (95% CI, 0.05-0.26) in the high-dose group. Most IEI pts received low-dose BU dose (n=24%) and the incidence of VOD was 29% (95% CI, 0.14-0.44), though not statistically significant compared to others diagnostics (p=0.074). The 1-year cumulative incidence of GF was 13% (95% CI: 0.06-0.21). No significant differences in GF incidence were observed based on diagnosis, busulfan concentration, number of infused CD34 cells, or cell source. Twelve pts underwent a 2nd HCT, all of whom survived. The 1-year overall survival (OS) was 91,4% (95% CI, 0.83-0.95) with a significant variation based on donor types (MRD=100%, URD=97%, haploidentical=75%, p=0.0004). No significant difference was observed in OS according to diagnosis and busulfan concentration. Among the 12 deaths, causes included relapse (n=6), infection (n=3), VOD (n=1), thrombotic microangiopathy (n=1) and hemorrhagic stroke (n=1).

CONCLUSION

Analyzing busulfan concentration in the pediatric population is critical due to their unique metabolism. Although this cohort suggested a potential association between IEI and higher VOD incidence, no significant correlation with BU concentration was found. Additionally, the incidence of GF did not correlate with BU-AUC. Further studies with a more homogeneous population diagnosis are necessary, particularly in Brazil, to establish robust pharmacokinetics data.

KEYWORD - busulfan, pediatric hematopoietic stem cell transplantation.

REVOLUTIONIZING POST-TRANSPLANT CARE IN PEDIATRIC ACUTE MYELOID LEUKEMIA (AML) WITH TAILORED MAINTENANCE THERAPIES: A LEAP TOWARDS ENHANCED SURVIVAL AGAINST ACTIVE DISEASE

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Pediatric Acute Myeloid Leukemia (AML) presents significant treatment challenges, particularly post-transplant relapses. The use of the only specific immunotherapy for AML may increase transplant-related toxicities due to the calicheamicin. This scarcity of effective post-transplant strategies underscores a critical need for innovative approaches to improve survival, especially for those undergoing transplantation with active disease. The objective of his study is to describe the experience and effectiveness of the tailored post-transplant maintenance therapy used in pediatric AML, particularly those who entered transplantation with active disease, to enhance survival and cure rates.

METHODS

Retrospective analysis of 30 pediatric AML patients transplanted between 2014 and 2024. From 2021 on, high risk or FLT3-ITD+ patients transplanted with active disease, received azacytidine or decitabine, FLT3 inhibitors and venetoclax. We collected demographic data, disease characteristics, treatment regimens, and clinical outcomes, using Kaplan-Meier survival estimates and log-rank test to assess the impact of maintenance therapy.

RESULTS

The median age of participants was 4 years, 63% male (Table 1). Most conditioning regimens were myeloablative and busulfan-based (63%). Twenty transplants were haploidentical (67%). Notably, 53% of the transplants were performed with > 5% marrow blasts. Among the total of 30 transplants, due to insurance restraints, only 8 (27%) received post-transplant maintenance therapy: 7 a hypomethylating agent, 5 in combination with venetoclax and 2 FLT3 inhibitors. Maintenance was started at a median of D+59 with a duration of 5 months (1-18 months). Of the 11 patients transplanted with negative MRD, 9 did not receive maintenance and 3 relapsed (33%). Two MRD negative patients received maintenance and remain in remission. Of the 19 patients with active disease or positive MRD, those who received maintenance had a much lower relapse rate (17% vs. 46%). No patient who received maintenance developed poor graft function or graft failure. There was no mortality from infectious causes in this group. The overall survival, relapse-free survival, and median follow-up time for who received maintenance therapy were 86%, 86% and 26 months, compared to 25%, 19% and 42 months for those who did not (p 0.02 and p 0.01 respectively) – Figure 1 and 2.

CONCLUSION

Preliminary results suggest that maintenance therapy post-transplant significantly enhances outcomes for children with AML, even those with traditionally poorer prognoses due to active disease at the time of transplant. These findings highlight the potential of tailored maintenance therapies to extend survival and reduce relapse rates, providing a new avenue for treatment protocols in a challenging patient subset. Further research is warranted to confirm these findings and potentially guide practice.

INFECTIOUS COMPLICATIONS

ANALYSIS OF ADHERENCE TO ANTIMICROBIAL THERAPEUTIC OPTIMIZATION STRATEGIES IN A BONE MARROW TRANSPLANT CENTER

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INTRODUCTION

Implementing Antimicrobial Stewardship Programs (ASP) among patients undergoing bone marrow transplantation (BMT) has posed challenges due to multiple risk factors in this population and the infections that affect them. The consideration of underlying immunosuppression and a higher risk for poor outcomes have shaped therapeutic decisions for these patients. In Brazil, applying care bundles within the scope of antimicrobial pharmacotherapy is still incipient, especially for these patients.

OBJECTIVES

This study aimed to analyze the adherence of prescribers of a Bone Marrow Transplant Center (BMTC) to the bundle of antimicrobial pharmacotherapeutic strategies of an ASP.

Methods: We conducted a cross-sectional study in which the ASP team (ASPT) suggested the bundle of antimicrobial strategies during the interdisciplinary round in a public BMTC in 2023. The ASPT proposes a systematization through literature searches, clinical protocols, interdisciplinary care committees, publication, and dissemination. The optimization included five categories: spectrum change (escalation, de-escalation, and step-down), time management (reduction, completion, and extension of treatment time), dosage monitoring (serum vancomycin concentration), antibiotic dosage adequacy (optimization, dose adjustment, and therapeutic switch), and others (oral sequential therapy and culture request). We calculate adherence by seeing the effectiveness of each patient's prescription of the strategy suggested in the round. This research was approved by the Research Ethics Committee, with approval number 3697674.

RESULTS

During the period evaluated, the ASPT proposed 1089 strategies for patients undergoing BMT, and the attending physician agreed to 1079. The ASPT obtained an adherence of 99.03% (1026/1036 strategies) with the following most frequent strategies: reduction of time (279; 24.8%), completion of time according to institutional protocol (228; 20.2%), escalation (171; 15.2%), dose adjustment (162; 14.4%) and prolongation of time (84; 7.5%). The reduction of time when the patient was already clinically well, completion of treatment following institutional protocol, and extension of time fall into the treatment time management category, directly affecting the patient's outcome and minimizing adverse events.

CONCLUSION

The study's findings underscore the importance of individualized care for patients undergoing BMT, a population that is particularly vulnerable to infections and requires tailored treatment approaches. The high degree of reliability among prescribers on the ASP team's suggestions in this scenario is a testament to the effectiveness of these strategies. The study also highlights that treatment time management is the most frequent and essential optimization tool for ensuring safe and effective patient care.

IMPACT OF LETERMOVIR PROPHYLAXIS FOR CYTOMEGALORVIRUS REACTIVATION AND HOSPITALIZATION AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Cytomegalovirus (CMV) is one the most clinically significant infections secondary to hematopoietic stem-cell transplantation (HSCT) immunosuppression, ranging from asymptomatic infection to fatal organ disease. Letermovir is an antiviral that inhibits CMV replication and has been approved for CMV prophylaxis following HSCT. Brazilian data regarding letermovir prophylaxis in HSCT, however, is scarce.

OBJECTIVE

To assess the impact of letermovir prophylaxis in the prevention of CMV reactivation and total length of hospitalization in the first 6 months following HSCT.

PATIENT POPULATION

71 adult patients who underwent allogeneic HSCT for hematological malignancies from January 2020 to July 2023 were included. Methods: This is a retrospective, single-center study conducted in a Brazilian transplant center. Primary outcomes were incidence of clinically significant CMV (CS-CMV) reactivation, defined as CMV plasma quantification ≥500 UI/mL or need for antiviral therapy; and total length of hospitalization, until 180 days after HSCT. Overall survival (OS) was the secondary outcome. Survival curves were built with the Kaplan-Meier method and compared with the logrank test, and cumulative incidence curves, the Gray method and test was used. Uni and multivariable analyses were carried out with Cox models. Hospital inpatient stay was compared with Poisson model, with total survival in the first 180 days included as the offset.

RESULTS

Of the 71 patients included, 33 received letermovir prophylaxis and 38 did not. Median age was 56,6 years old with an equal proportion of sexes (Table 1). Most received reduced intensity conditioning (63.4%), and the remaining, myeloablative. Matched-related donors accounted for 28.1%; unrelated, 39.4%; and haploidentical, 32.3%. With a median follow-up of 18.6 months, 6-months CS-CMV occurred in 17 (44,7%) in the no letermovir group and 6 (18.2%) in the letermovir group (p=0.01, Figure 1). Letermovir had no impact on hospitalization length after HSCT (HR 1.01, 95CI 0.95-1.09; p=0.59). Older recipient age (HR 1.05; 95CI 1.03-1.07); p<0,01) was associated with an increased length of hospitalization, as so as transplant with unrelated (HR 2.13; 95CI 1.94-2.33; p<0.001) and haploidentical (HR 2.15; 95CI 1.95-2.36; p<0.001] donor compared with matched related donor. 1-year OS was 62% in no letermovir and 72% in letermovir groups (p=0.20, Figure 2). Post-transplant cyclophosphamide (PTCy) was administered for 31 patients (43,7%) and CS-CMV reactivation occurred in 35,9% of them, versus 30% of the 40 patients in the no PTCy group.

CONCLUSION

Letermovir prophylaxis resulted in a significantly lower risk of CS-CMV reactivation. There was no association between letermovir prophylaxis and length of hospitalization or mortality in allogeneic HSCT.

KEYWORDS - Letermovir, Cytomegalovirus, Hematopoietic stem cell transplantation

PREVALENCE OF TRYPANOSOMA CRUZI INFECTION AND FREQUENCY OF REACTIVATION IN HEMATOPOIETIC CELL TRANSPLANTATION. RETROSPECTIVE SINGLE-CENTER STUDY

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INTRODUCTION

T.cruzi infection is endemic in 21 countries in the Americas. In Brazil, it is estimated that 1.0 to 2.4% of the population is infected. In 2005, a study showed a prevalence of 0.49% of T.cruzi infection in blood bank donors. Candidates for HCT and their donors must undergo pre-HCT Chagas serology to assess the risk of reactivation or to avoid transmission of Chagas by the donor (D). Post-HCT reactivation of T.cruzi is severe. Lethal cases of chagasic meningoencephalitis or myocarditis have been described in HCT recipients (R). Data from Argentina show reactivation rates of 17% and 40% in autologous and allogeneic HCT, respectively. There are no data on the prevalence or reactivation of T.cruzi infection in HCT in Brazil.

METHODS

Retrospective analysis of Chagas serology carried out in the pre-HCT evaluation of HCT candidates and their respective donors from a HCT Program in the interior of SP, from 2016 to 2023. Chagas serology was performed by chemiluminescence (kit Abbott Chagas). If serology was positive either in D or R, monitoring of T.cruzi reactivation was done by PCR (RealStar® Chagas PCR Kit 1.0) for 6 months and annually thereafter. Chagas serology was not performed on unrelated donors.

RESULTS

From 2016 to 2023, 1,673 HCTs were performed, of which 941 were allogeneic and 732 were autologous (AUTO). The median age of patients was 41 (1 to 74) years. Among the allogeneic HCT, 432 were related (MRD), 237 were unrelated (MUD), 271 were haploidentical (HAPLO) and one syngeneic. In the pre-transplant evaluation, Chagas serology was not performed in 9 candidates (6 MRD, 1 MUD and 2 AUTO) and in 240 donors (237 MUD, 2 MRD, 1 HAPLO). Therefore, Chagas serology from 1,664 HCT (934 allogeneic, 730 AUTO) and from 1,433 donors were analyzed. All donors tested negative in Chagas serology. Of the 1,664 HCT candidates, 7 (0.42%) with positive Chagas serology were identified (3 allogeneic and 4 AUTO HCT candidates). The prevalence of T.cruzi infection was 0.32% (3/934) and 0.5% (4/730) in allogeneic and autologous HCT candidates, respectively.

Chagas PCR monitoring was performed in 5 of the 7 seropositive recipients (3 allogeneic and 2 AUTO HCT). Reactivation was detected in one of the 5 monitored patients (20%). Considering only the allogeneic recipients, reactivation rate was 33.3%. The patient used benznidazole (5mg/kg/d) for 60 days with negative PCR results after two weeks of treatment, remaining negative and without symptoms related to Chagas until the end of surveillance, 8 months later. No reactivation was detected in the two AUTO recipients that were monitored.

CONCLUSION

Prevalence of T.cruzi infection in HCT candidates is similar to blood bank donors (0.42%). In seropositive patients, the risk of reactivation was 20%, reaching 33% in allogeneic HCT. Monitoring seropositive patients by PCR is necessary to prompt introduction of preemptive therapy with benznidazole to avoid serious complications of Chagas disease.

REACTIVATION OF CYTOMEGALOVIRUS IN AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION: EARLY DETECTION IN PATIENTS WITH MULTIPLE MYELOMA AND LYMPHOMA AND ITS IMPACT ON THE CLINICAL OUTCOME OF TRANSPLANT.

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INTRODUCTION

Clinically significant cytomegalovirus infection (CSI-CMV) is a relevant complication in patients undergoing allogeneic hematopoietic stem cell transplantation (HSCT). In the scenario of autologous HSCT, its incidence and clinical relevance is historically lower, however the presence of risk factors for its occurrence, such as the use of high doses of corticosteroids or new chemotherapy drugs (bendamustine, rituximab or bortezomib) may represent a new paradigm in the handling and clinical outcome of this type of transplant.

OBJECTIVE

To evaluate the incidence of CSI-CMV in a cohort of patients with multiple myeloma (MM) and lymphomas who underwent autologous HSCT and to describe the clinical impact of early detection and preemptive treatment strategies on transplant outcomes. Case series: Patients undergoing autologous HSCT at a private healthcare institution, in Fortaleza, Ceará, between 2019 and 2023.

METHOD

Retrospective cohort study of clinical data from medical records of patients who underwent the procedure during the studied period. The search for CSI-CMV using the quantitative real-time PCR method (TAQMAN system) was carried out after neutrophil engraftment, twice a week until D+30 and weekly until D+100. Results below 300 IU/ml were indicative of active viral replication, but did not represent CSI-CMV.

RESULTS

109 autologous HSCTs performed during the period were analyzed, including 74 cases of MM (67.9%) and 35 cases of lymphomas (32.1%). CMV reactivation was documented in 27 patients (24.7%), with active viral replication detected in 14 patients (12.8%), CSI-CMV was diagnosed in 11 cases (10.1%) and, in 02 cases (1.8%), CMV gastrointestinal disease (GI-CMV) occurred with negative PCR and was diagnosed through endoscopies with biopsy. Antiviral therapy was instituted in 07 patients (53.8%), 05 patients with CSI-CMV who presented febrile syndrome associated with exanthematous rash or acute diarrhea and in the 02 cases of GI-CMV, with total resolution of symptoms after treatment.

CONCLUSION

The current study demonstrated the importance of monitoring CMV reactivation in the context of autologous HSCT performed at a reference institution. The clinical impact of CSI-CMV occurred in 6.4% of transplant patients, implying the use of antiviral therapy and longer hospital stays. The identification of risk factors for CSI-CMV as part of the routine pre-autologous HSCT assessment and the monitoring of reactivation by PCR after grafting were important strategies that influenced the clinical outcome of this treatment modality.

KEYWORDS

Autologous hematopoietic stem cell transplantation. Cytomegalovirus. Post-transplant complications.

MULTIDISCIPLINARY

COMPARISON OF BONE MARROW TRANSPLANT DATA BETWEEN PROADI SUS AND HEALTH INSURANCE PROVIDERS

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INTRODUCTION

In Brazil, the National Transplant System (SNT) plays a fundamental role in providing health services, being responsible for over 90% of all transplants. HSCT is an essential procedure for the treatment of various onco-hematological diseases. A comparative analysis of outcomes among patients served by different health sources, such as PROADI and health insurance providers, is crucial to assess possible similarities or disparities among patient profiles.

OBJECTIVE

To compare HSCT data between patients served by PROADI-SUS and those receiving care through health insurance providers. Casuistry: A retrospective cohort study comprised of 121 patients of both sexes, aged between 0 and 77 years, undergoing HSCT, conducted between 01/08/2022 and 30/09/2023, including unrelated allogeneic, related, and haploidentical transplants. Exclusion criteria were relapsed disease, refusals due to social issues, and low performance status. PROADI-SUS patients were referred through SNT. As for patients from health insurance providers, they were referred by their attending physicians and by an oncology center while undergoing treatment. Demographic, clinical, comorbidity, disease, transplant, donor, infusion, engraftment, and GVHD data were collected from medical records. Descriptive analysis of the data was performed, and for outcomes such as death and relapse, overall survival (OS) and relapse-free survival (RFS) rates were calculated using Kaplan-Meier analysis, and curve comparison was done using the log-rank test.

RESULTS

Out of 121 analyzed patients, 66.1% (n=80) of the sample underwent HSCT through health insurance providers. The median age was similar between transplanted patients (42 versus 34 years, respectively, for providers and SUS; p=0.536). There were differences between the groups concerning race and education. The majority of patients transplanted through health insurance declared themselves as white (71%) compared to 39% from SUS (p<0.001). Regarding education, 44% of patients from health insurance providers had higher education compared to 18% from SUS (p=0.001). Clinical data, comorbidity, diagnosis, and follow-up time showed no significant difference between patients. OS rates for both groups were similar: at 30 days (96.3% vs. 91.1%), 100 days (88.6% vs. 87.2%), and 365 days (60.3% vs. 58.8%; p=0.710), respectively, for providers and PROADI-SUS. Regarding RFS rates, no significant difference was observed over 365 days (62.8% [providers] vs. 74.5% [PROADI-SUS]; p=0.740).

CONCLUSION

Despite the inherent socioeconomic disparities between public and private health systems, the quality of care and clinical outcomes for patients remain consistent. This underscores the importance of SUS in providing complex health services such as HSCT and highlights the effectiveness of PROADI-SUS in ensuring equal access to high-complexity treatments.

KEYWORDS

HSCT, SUS, PROADI, Bone Marrow Transplant

CORRELATION BETWEEN RISK OF FALLS AND FUNCTIONAL CAPACITY IN INDIVIDUALS WITH MULTIPLE MYELOMA UNDERGOING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) is a treatment to restore hematopoiesis and immune function in patients with diseased bone marrow. In the autologous HSCT modality, the recipient is infused with hematopoietic stem cells collected from himself. This method is not used in all bone marrow disorders, however, multiple myeloma is a robust indication.

OBJECTIVES

To analyze the correlation between the level of functional capacity and the risk of falling in patients with multiple myeloma undergoing autologous HSCT. Methods: Observational and quantitative cross-sectional study, developed in a hospital in southern Brazil. Patients diagnosed with multiple myeloma of both sexes admitted to undergo autologous HSCT were included in the sample. The risk of falling was assessed by the Timed Up and Go (TUG) test and functional capacity was stratified by the Eastern Cooperative Oncology Group (ECOG) performance scale, both performed at the time of hospital admission. Data were presented as means ± standard deviation and correlations between variables analyzed using Pearson's correlation coefficient. The correlation strength was classified according to the criteria of SCHOBER et al., 2018, where |0.10 – 0.39| represents weak correlation; |0.40 – 0.69| moderate correlation; |0.70 – 0.89| strong correlation; |0.90 – 0.99| very strong correlation and 1.00 perfect correlation. The sample normality test was calculated using the Shapiro-Wilk test. Outliers were identified and removed using the Rout method (with Q set at 1%) and the significance level adopted was $p<0.05$.

RESULTS

The sample consisted of 42 patients, 60% (n=25) male and 40% (n=17) female, with a mean age of 57.9 ± 10.3 years. The risk of falling was found in 28.5% of the sample, with no statistically significant difference between genders (p=0.16). The level of functional capacity was low in 100% of the sample, with 90.4% of individuals classified as mild reduction, 7.2% moderate reduction and 2.4% severe reduction. The level of functional capacity and the risk of falling showed a strong correlation (Pearson r |0.72|) (Figure 1) and a statistically significant difference (p=0.001).

CONCLUSION

The risk of falling in patients undergoing HSCT was mild, with no difference between sexes, therefore, no association between the risk of falling and sex. Furthermore, it was found that Pearson's correlation coefficient demonstrated that subjects at risk of falling had a reduced index of functional capacity, that is, a strong correlation between these variables. Considering the relevance of the topic and the scarcity of previous studies, additional research is needed to identify and treat changes in functional capacity and the risk of falling in patients undergoing HSCT and diagnosed with multiple myeloma.

KEYWORDS

Hematopoietic Stem Cell Transplantation. Physical Functional Performance. Multiple Myeloma.

EVALUATION OF BIOELECTRICAL PARAMETERS IN PATIENTS UNDERGOING ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

The bioimpedance technique is used to obtain an important indicator of cellular health known as the phase angle (PA), which has been shown in the literature to be an independent prognostic marker in solid tumors, hematological malignancies, and hematopoietic stem cell transplantation (HSCT). Moreover, a positive correlation was observed among PA, body cell mass (BCM), and muscle mass. BCM represents metabolically active tissue of the body. Given the complex nature of HSCT and its varied nutritional implications, assessing PA and BCM can be useful for determining cellular integrity during this process. Targeted nutritional interventions can be implemented by evaluating these indicators at various HSCT stages, leading to improved patient outcomes.

OBJECTIVE

To describe and compare the bioelectrical parameters PA and BCM at various stages before and after hematopoietic stem cell transplantation (HSCT), specifically on the day of hematopoietic stem cell (HSC) infusion (D0), on D+21, and on D+100. Methods: This ongoing multicenter study included individuals of both sexes aged between 18 and 60 years who underwent allogeneic HSCT. The research ethics committees of CAAE 93806418.4.0000.5440 and 93806418.4.2001.5437 approved this study. PA and BCM were estimated using impedance spectroscopy. Friedman's non-parametric test was used to evaluate the differences in times, while the Wilcoxon non-parametric test was used to identify any significant differences. The significance level was set at $p \leq 0.05$.

RESULTS

27 participants, 63% male and 37% female, with an average age of 38 years old (SD±10.4) and a prevalent diagnosis of acute leukemia (66.6%). Among these patients, 3.7% relapsed and 3.7% died. The mean pre-HSCT PA value was 5.8° (SD ±0.9), with values of 5.5° (SD ±1) on D0, 4.9° (SD ±1.2) on D+21, and 5° (SD ±0.9) on D+100. The results showed a significant difference (p=0.00), with lower PA values after HSCT (D+21 and D+100) compared to pre-HSCT and the day of HSC infusion. The BCM average was 20.7 kg (SD±6.8) pre-HSCT, 20 kg (SD±7) on D0, 19.2 kg (SD±7.4) on D+21, and 18.9 kg (SD±6.5)

on D+100. A significant difference (p=0.03) was observed, with higher values in the pre-HSCT period than in D+21 and D+100.

CONCLUSION

The findings of this study indicated that the average levels of both PA and BCM decreased following allogeneic HSCT, which could be indicative of disease remission. This study was the first to explore the relationship between bioelectrical parameters and treatment outcomes, suggesting their potential as indicators of disease progression and treatment success. However, it is important to recognize that the sample size of the study was limited, which may have affected the broader applicability of the results.

KEYWORDS

Impedance spectroscopy. Allogeneic hematopoietic stem cell transplantation. Phase angle. Body cell mass.

MORE THAN A MATCH – TRENDS AND CHALLENGES ON "FINDING" UNRELATED DONORS

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INTRODUCTION

The maintenance of a registry of committed and available voluntary hematopoietic stem cell donors is one of the greatest challenges in the process of unrelated donor search. According to the World Marrow Donor Association (WMDA), around 90% of patients worldwide have a matched potential donor but, many times, after identifying a match among 41 million voluntary donors, finding this donor is a real challenge. Several strategies are used to ensure the best result of this process, but few data are available in the literature on this topic and its results.

OBJECTIVE

To analyze the use of various communication channels destinated to voluntary donors and the obtained results, throughout 2023, in relation to effective contact with donors and their availability.

METHODS

: Data were obtained from the information systems used to maintain the registry of voluntary donors (REDOMEWEB) and from unrelated search (SISMATCH).

RESULTS

Considering the main communication channels used to assist voluntary donors, in 2023, 35,560 consultations were carried out (Table 1) with an average of 2963 consultations per month. The use of the chatbot channel, that provides automated responses is noteworthy, which carried out 27,570 of these consultations and only 11% of these queries required human intervention. The most frequent topics in contact by e-mail or telephone included updating registration data and obtaining a donor declaration or "donor ID document". Updating the personal data of previously registered voluntary donors corresponds to an essential action for unrelated HSCT and, in 2023, 193,429 donors updated their data, using the available channels – application (43%) and website (57%), because of several communication actions with this approach. The availability data of donors potentially compatible with a patient and selected for complementary histocompatibility tests, indicate that in 2023, of the 15,112 donors selected, 9,805 were located, representing 65% of demand. In turn, of the donors contacted, 7,626 donors were available, and the main cause of unavailability (also known as attrition) was represented by donor health issues. The mean time of contact with previously selected donors was 4.6 days, ranging from 4 to 5.22 days.

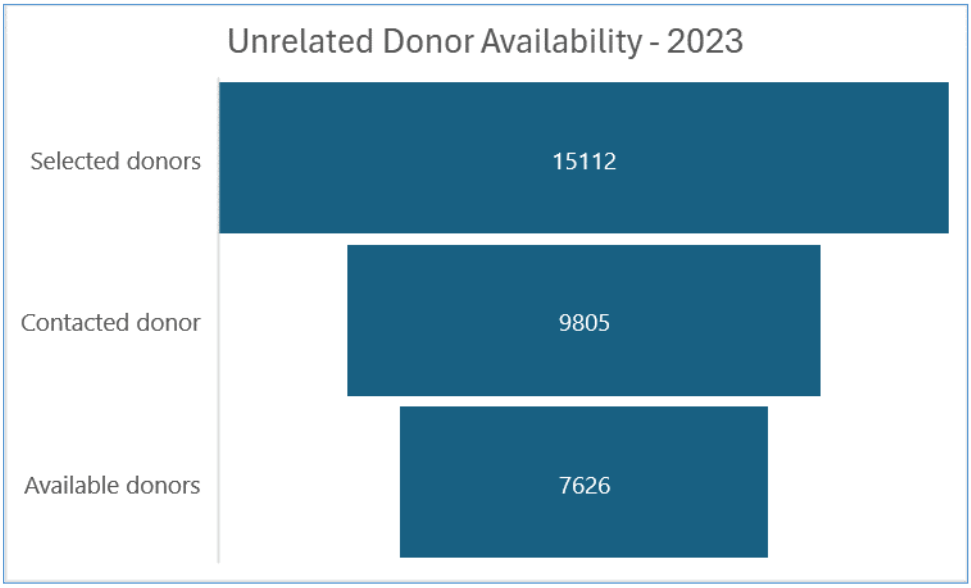
CONCLUSION

Despite the absence of published data on the unavailability of voluntary donors around the world, the results obtained in Brazil can be compared to the best numbers obtained from informal reports, which reinforces the importance of developing specialized approaches dedicated to donor assistance and expanding communication channels, defining strategies aimed at the current demographic profile of donors, with emphasis on the implementation of communication through social networks. These actions should be considered as essential on unrelated HSCT scenario, and all the stakeholders should work together to assure the continuous improvement on donor availability.

TABLE 1 – The Use of Unrelated donor communication channels in 2023

Unrelated donor communication channels	2023
Chatbot	27570
E-mail	3894
Phone calls	4096
Total	35560

FIGURE 1 – Unrelated donor availability - 2023



PROFILE OF BONE MARROW DONORS IN BRAZIL AND THE PREVALENCE OF INDIVIDUAL VARIABLES

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INTRODUCTION

The National Registry of Voluntary Bone Marrow Donors (Redome) boasts over 5.5 million registered donors and stands as the third-largest donor bank globally. Hematopoietic stem cell transplantation (HSCT) is pivotal for treating approximately 80 different diseases across various stages and age groups. In this context, the Ministry of Health emphasizes the need to keep registry information up-to-date. In cases of compatibility between a donor and a transplant-requiring patient, every second counts, and establishing contact as swiftly as possible becomes essential. By participating in an international collaboration network, Brazilian individuals registered with Redome facilitate bone marrow transplants for patients both within the national territory and across diverse nations. It is conceivable that donors may be called upon to donate even many years after their initial registration.

OBJECTIVES

This study aims to analyze the desirable profile of bone marrow donors and investigate the prevalence of individual variables, including sex, race, and age, among those registered in the National Registry of Voluntary Bone Marrow Donors (REDOME).

METHODS

Data collection occurred through information available on the REDOME website. Data analysis relied on prevalence calculations. The sample included 5,712,359 bone marrow donors registered in Brazil until December 2023, with data collection conducted in April 2024. The research followed a quantitative approach. Followed the Resolution 466/2012 of the National Health Council (CNS). The data and information used in the study are in the public domain, exempting submission to the Research Ethics Committee (CEP).

RESULTS

The ideal donor profile encompasses the following requirements: good health, no history of cancer, absence of infectious or incapacitating diseases (including hematological or immune system conditions), and an age range between 18 and 55 years. Notably, 57.33% of donors are female, while 42.67% are male. Regarding self-declared ethnicity, 53.59% identify as white, 25.95% as mixed-race, 3% as yellow, 7.26% as Black, 0.39% as indigenous, and 9.81% did not specify. In terms of age, 27.71% fall within the 18–34 age group, 56.70% are aged 35–54, 9.68% are between 55 and 60 years old, and 6.51% are over 60 years old (with the last two age groups excluded from donation eligibility).

CONCLUSIONS

The study highlights a higher prevalence of female donors, individuals self-identifying as white, and those aged between 35 and 54 years. Overall, donors should exhibit good health. This research underscores the importance of gathering information from willing bone marrow donors to benefit those in need of transplants. Despite Brazil possessing the world's third-largest bone marrow donor bank, it remains crucial to emphasize that this practice significantly contributes to treating approximately 80 diseases across various stages and age groups.

KEYWORDS - Donor, Hematopoietic stem cell transplant, Prevalence.

PROMOTING CHILD PROTAGONISM IN HSCT: PROPOSAL OF A CUSTOMIZABLE PAIN SELF-ASSESSMENT SCALE APP FOR HOSPITALIZED CHILDREN

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INTRODUCTION

Regular pain assessment is a fundamental practice in the care of hospitalized children for Hematopoietic Stem Cell Transplantation (HSCT). However, existing self-assessment scales are often not adaptable to individual pain perception. This may hinder communication between the child and the healthcare team, impairing the accuracy of pain assessment and consequently its effective control. In this context, there is a demand for pain self-assessment tools aimed at the pediatric population undergoing HSCT, in order to promote child protagonism in pain expression.

OBJECTIVE

To develop an app for pain self-assessment adaptable to the needs of children undergoing HSCT, and for monitoring pain evolution by the healthcare team. Method: The DSR methodology - Design Science Research, adapted for the design of digital artifacts, was employed, consisting of the following steps: 1. Exploration: conducting an integrative review of relevant literature; graphical analysis of 35 pain self-assessment scales resulting from internet searches; semi-structured interviews with two healthcare professionals from an HSCT service. Results were qualitatively analyzed, generating requirements for the app; 2. Proposition: development of a functional high-fidelity prototype of the app; 3. Evaluation: conducting a color and pain correlation test, app interaction/usability test, and post-test satisfaction interviews with 10 non-patient children, allowing adjustments/refinement of the app; and validation by three healthcare professionals from an HSCT service.

RESULTS

The main outcome was the development of the "AvaliaDor' (PainAssess) app, with differentiated access for children and healthcare professionals. It allows children to create/recreate their pain scale with five child facial expressions, customizing gender, skin color, eyes, with/without hair, hair types, clothes; and a nurse character guiding the child through the scale construction steps. The app allows professionals to visualize the pain scale data stored in the app through graphs. Overall, children's assessment results were positive in interaction and satisfaction with scale construction and use, but there were difficulties in instruction flow and expression selection, leading to adjustments in the final version of the app. The consulted healthcare professionals also positively evaluated the app, indicating satisfaction and interest in its use.

CONCLUSION

It is concluded that the app meets the objective of customizing the pain intensity self-assessment scale for pediatric patients undergoing HSCT, as well as facilitating the visualization of pain evolution by the healthcare team. However, the limited number of children and healthcare professionals in the app evaluation indicates a need for further studies. Despite this, the innovative nature of the app shows its potential contribution to the protagonism of pediatric patients in the context of HSCT.

KEYWORDS - Hematopoietic stem cell transplantation; Hospitalized child; Pain Measurement

Figure 1: The graphic interfaces of the "AvaliaDor' (PainAssess) app for health professionals and patients.

Figure 2: Graphic interface showing the nurse character guiding the child through the scale construction steps.

Figure 3: Graphic interface showing the data visualizations of the child's pain.

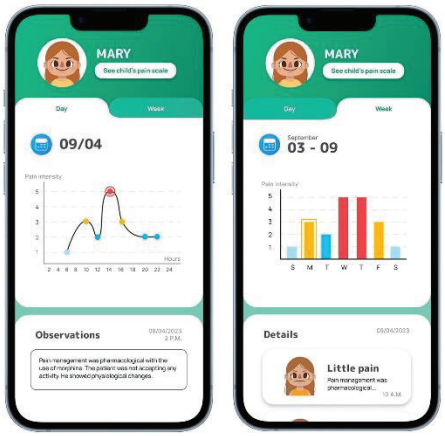


Figure 4: Results of the children's satisfaction with the app customization features.

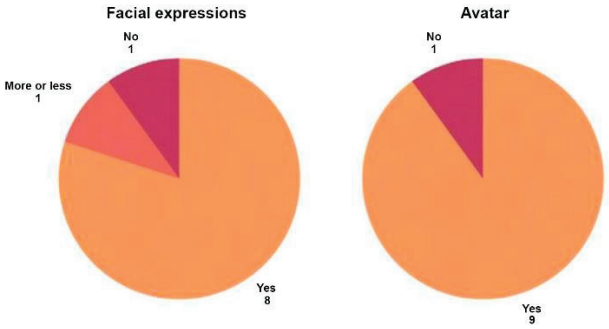
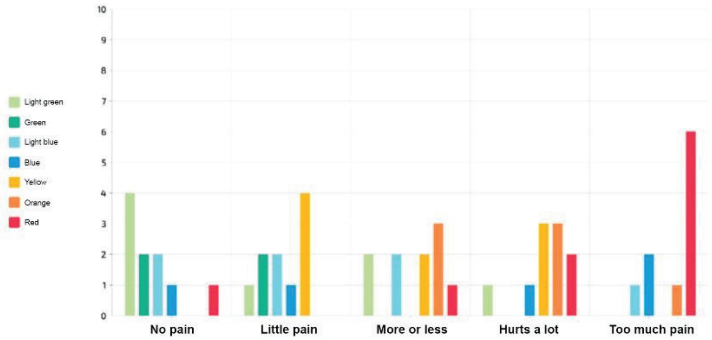


Figure 5: Results of the color and pain correlation test with children's participants.



GENERAL TOPICS

COMBINING CLASS I HLA PEPTIDE-BINDING MOTIF (PBM) MATCHING AND DONOR AGE TO OPTIMIZE PEDIATRIC UNRELATED HEMATOPOIETIC CELL TRANSPLANTATION FOR MALIGNANCIES: A VALIDATION STUDY USING A PUBLICLY AVAILABLE CIBMTR DATASET

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High-quality data to optimize unrelated donor (URD) selection in hematopoietic cell transplantation (HCT) for pediatric patients with malignancies is scarce. Recently, Mehta et al. used a publicly available CIBMTR dataset, previously published by Crivello et al. (JCO, 2023), to show that a combination of class I HLA peptide-binding motif (PBM) matching and URD age can optimize URD-HCT for adult patients with AML, ALL, and MDS (Blood Adv, 2024). Therefore, the present secondary analysis aimed to validate whether this combined model applies to the pediatric URD-HCT setting. Overall survival (OS) was the primary endpoint. Cox proportional hazards regression was used for the multivariable analysis of OS. All variables were tested for proportionality assumption, and all covariates met it. Random effects or frailties were introduced in the Cox model to adjust for a center effect. The most appropriate model was selected based on the lowest Akaike's information criterion value. A P-value ≤0.05 was considered statistically significant. In total, 1169 pediatric patients (≤18 years) were included. The median patient age was 11 years, while the most common indications were ALL (49.7%) and AML (42.1%). Most patients received myeloablative conditioning (95.8%); bone marrow (81.9%) was the primary graft source, and all patients received only calcineurin inhibitor-based GVHD prophylaxis. The age of 35 years was used as the cut-off to classify younger (≤35 years) or older (>35 years) URD. Based on PBM matching and URD age, six groups were created: 10/10 matched/Young URD (n=764), 10/10 matched/Old URD (n=248), 9/10 PBM matched/Young URD (n=33), 9/10 PBM-matched/Old URD (n=19), 9/10 PBM-mismatched/Young URD (n=77), and 9/10 PBM-mismatched/Old URD (n=28). Considering the entire cohort, 1-year, 3-year, and 5-year OS probabilities were 75.5%, 66.8%, and 65%, respectively. Interestingly, the final Cox model showed that 10/10 matched/Old URD (HR=1.09; 95% CI=0.85-1.41; P=0.49) and 9/10 PBM matched/Young URD (HR=0.96; 95% CI=0.52-1.76; P=0.89) groups had similar OS when compared to 10/10 matched/Young URD group. In contrast, 9/10 PBM-matched/Old URD (HR=2.01; 95% CI=1.06-3.82; P=0.034), 9/10 PBM-mismatched/Young URD (HR=2.13; 95% CI=1.52-2.98; P=0.00001), and 9/10 PBM-mismatched/Old URD (HR=2.21; 95% CI=1.35-3.60; P=0.0016) groups were significantly associated with poorer OS. In conclusion, our results indicate that 10/10-matched/Old URD and 9/10 PBM matched/Young URD showed similar OS compared to HLA 10/10-matched/young URD. In contrast to the findings of Mehta et al., we observed that 9/10 PBM-matched/Old URD, 9/10 PBM-mismatched/Young URD, and 9/10 PBM-mismatched/Old URD groups had similar worse OS outcomes, and should be avoided whenever possible. Moreover, validating these findings in other GVHD prophylaxis approaches, such as post-transplantation cyclophosphamide, is warranted.

COST ANALYSIS FOR ADULT PATIENTS WITH MYELOID DISEASES UNDERGOING ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic cell transplantation (HCT) is a medical procedure indicated for several malignant and non-malignant diseases. Despite its fundamental role in increasing efficiency in resource allocation by transplantation programs, few studies have been published about costs in HCT. Thus, economic evaluation studies in the transplant setting are extremely important to help better conduct the procedure worldwide.

OBJECTIVE

To analyze the cost of HCT performed in adult patients (≥18 years) with myeloid diseases.

METHODS

This is a single-center, retrospective, observational, cost cohort study of adult patients with myeloid diseases who underwent their the first related (MRD) 10x10, unrelated (UD) 10x10 and haploidentical allogeneic transplantation. Period of analysis 01/2010 to 12/2021 from D+90 and D+365. The method used for cost analysis at the hospital was absorption costing and the effect of inflation was eliminated by using the hospital's standard cost table in force in October 2023. The real currency was converted into dollars using the average of the daily monthly values for 2023 (R$4.99).

RESULTS

The study included 123 patients; median age was 61 years and there was a male predominance, 56% (69). There were 52 (42%) UD, 41 (34%) MRD, and 30 (24%) haploidentical transplants (table 1). The total median cost at D+90 was $77,026.7 ($55,479.75-$150,673.17) and at D+365 was $98,570.01 ($58,732.02-$224,283.26). When stratifying the median costs by service category, the biggest offenders were materials at D+90: $19,406.13 ($12,711.27- $40,874.97) and D+365: $20,017.96 ($13,438.85- $42. 323.42); daily hospitalization rate in D+90: $ 16,619.16 ($12,708.83- $24,799.24) and D+365: $ 18,826.65 ($13,261.5- $41,194.08) and medicines: $ 13,577.53 ($7,075.98- $30,768.1) and $ 21,496.35 ($8,299.11- $58,721.77), (table 2). When comparing the cost of myeloid diseases at D+90 and D+365 between the MRD 10x10 ($58,386.95 and $72,357.25); UD 10x10 ($133,816.98 and $181,449.60) and haploidentical ($79,189.19 and $113. 721.69), the values were statistically significant ($p<0.01$ and $p<0.01$), (table 3).

CONCLUSION

The biggest cost offenders for myeloid diseases were materials, hospitalization fees and medicines. This result is justified by the daily routine of examinations and the high use of materials to treat the patient. In addition, the median length of stay for patients was 30 days, which also justifies one of the highest cost categories being the daily rate. Because it is an allogeneic HCT, there is a greater likelihood of developing complications such as infections and neutropenia, due to being immunosuppressed, acute and chronic GVHD and SOS, requiring specific and expensive medications such as Defibrotide and Ruxolitinib. Another important finding was that MRD was less expensive than Haplo and UD, reinforcing the use of the gold standard (MRD 10x10).

KEYWORDS

Cost. Hematopoietic Cell Transplantation. Myeloid diseases

TABLE 1. Demographic data and HCT for myeloid diseases

		Related 10x10 (N=41)	Haploidentical (N=30)	Unrelated 10x10 (N=52)	Total	p-valor
Sex	Female	13 (32%)	16 (53%)	25 (48%)	54 (44%)	0,14
	Male	28 (68%)	14 (47%)	27 (52%)	69 (56%)	
Median age (IQR)*		61 (53 - 67)	54,50 (37,25 - 63,50)	63 (44,75 - 69,25)	61 (44 - 66,5)	<0,01
Median age onor (IQR)*		58 (55 - 65)	37 (30 - 49)	35 (28,5 - 39)	41 (30,5 - 57)	<0,01
Karnofsky Lansky	<= 80%	7 (17%)	10 (33%)	16 (31%)	33 (27%)	0,42
	90%	14 (34%)	9 (30%)	12 (23%)	35 (28%)	
	100%	20 (49%)	11 (37%)	24 (46%)	55 (45%)	
Median length of stay of hospitalization (IQR)*		31 (28 - 38)	46,50 (36,00 - 81,25)	37 (32 - 52)	30 (36 - 49)	<0,01
Cell Source	PBPC	18 (44%)	15 (50%)	35 (67%)	68 (55%)	0,06
	BM	23 (56%)	15 (50%)	17 (33%)	55 (45%)	
Classification	Reduced intensity	20 (49%)	20 (67%)	30 (58%)	70 (57%)	0,46
	Myeloablative	18 (44%)	9 (30%)	21 (40%)	48 (39%)	
	Non-myeloablative	3 (7%)	1 (3%)	1 (2%)	5 (4%)	

IQR* = Interquartile range

TABLE 2. Median cost by category of services for myeloid diseases

CATEGORIES SERVICES	D+90 -$	D+365 - $
DAILY (IQR)*	$ 16.619,16 ($12.708,83- $24.799,24)	$ 18.826,65 ($13.261,5- $41.194,08)
NURSING (IQR)*	$ 5.674,54 ($4.236,87- $10.262,59)	$ 6.559,49 ($4.569,16- $14.933)
EXAMS (IQR)*	$ 10.127,49 ($5.413,37- $15.313,46)	$ 14.284,18 ($6.415,37- $23.568,79)
GASTHERAPY (IQR)*	$ 2.927,34 ($1.968,93- $5.053,4)	$ 2.927,56 ($1.990,86- $5.096,81)
MATERIALS (IQR)*	$ 19.406,13 ($12.711,27- $40.874,97)	$ 20.017,96 ($13.438,85- $42.323,42)
DRUGS (IQR)*	$ 13.577,53 ($7.075,98- $30.768,1)	$ 21.496,35 ($8.299,11- $58.721,77)
PROCEDURES (IQR)*	$ 74,14 ($0- $886,36)	$ 296,47 ($0- $4.865,2)
SERVICES (IQR)*	$ 3.098,62 ($2315,21- $6249,69)	$ 3.124,27 ($2.367,78- $6.508,84)
RATES (IQR)*	$ 2.765,37 ($865,84- $4820,5)	$ 4.311,36 ($926,92- $7.883,49)
ATTENDANCE (IQR)*	$ 23,15 ($0,72- $345,7)	$ 90,44 ($0,72- $906,01)
BUNDLES (IQR)*	$ 168,84 ($49,32- $476,26)	$ 168,84 ($49,32- $476,26)
HONORARY (IQR)*	$ 0,00 ($0- $307,65)	$ 350,02 ($0- $842,92)
TOTAL COSTS (IQR)*	$ 77.026,7 ($55.479,75- $150.673,17)	$ 98.570,01 ($58.732,02- $224.283,26)

IQR* = Interquartile range

TABLE 3. Median cost for Related 10x10, Unrelated 10x10 and Haploidentical for myeloid diseases

	N	D+90 - $	p-valor	D+365 - $	p-valor
Related 10x10	41	$58.386,95 ($43.710,13 - $80.590,53)	<0,01	$72.357,25 ($49.399,49 - $162.315,92)	<0,01
Unrelated 10x10	52	$133.816,98 ($79.760,07 - $245.833,62)		$181.449,60 ($106.276,12 - $366.642,23)	
Haploidentical	30	$79.189,19 ($65.909,60 - $142.233,98)		$113.721,69 ($85.887,13 - $245.489,52)	
TOTAL	123	$79.518,70 ($59.289,85 - $155.098,24)		$115.071,45 ($71.943,72 - $262.550,52)	

GVHD PROPHYLAXIS WITH METHOTREXATE IN HAPLOIDENTICAL HCT USING POSTTRANSPLANT CYCLOPHOSPHAMIDE: A PHASE IB/II CLINICAL TRIAL (NCT04622956)

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INTRODUCTION

In haploidentical hematopoietic cell transplantation (Haplo-HCT), the prevailing graft-versus-host disease (GVHD) prophylaxis in Brazil consists of posttransplant cyclophosphamide (PTCY) with cyclosporine and mycophenolate mofetil (MMF). While comparisons between MMF and methotrexate (MTX) for GVHD prophylaxis have sparked debate in other donor types, some large studies indicate that MTX is linked to a reduced risk of GVHD and improved long-term outcomes. It's worth noting that MMF, a potent inhibitor of NK cells, could potentially interfere with the graft-versus-leukemia effect in Haplo-HCT. Additionally, the IV formulation of MMF is not available in Brazil, which may pose challenges for patients undergoing HCT.

OBJECTIVE

Our aim was to conduct a phase Ib/II study to assess the efficacy of MTX in adult patients with hematologic malignancies undergoing Haplo-HCT with PTCY. Herein, we present the findings from the phase I portion of this investigation.

METHODS

This ongoing single-arm, multicenter phase 1/2 study evaluates MTX administered on D+6 and +9 alongside PTCY at 50 mg/kg/day on D+3 and +4, with cyclosporine starting on day +5 until D +90 or beyond in the event of GVHD. The phase 1 part enrolled eligible adult patients with hematologic malignancies undegoing myeloablative Haplo-HCT. A 3+3 escalation design was employed to assess the safety and tolerability of three MTX dose levels: 0 (10 mg/m2 on D+6 and 7.5 mg/m2 on D+9), +1 (10 mg/m2 on D+6 and +9), and +2 (15 mg/m2 on D+6 and 10 mg/m2 on D+9). The primary objective was to determine the MTX dose for the phase 2 part of the study.

RESULTS

A total of 15 patients were enrolled in the interventional arm (n=6 at level 0, n=6 at +1, and n=3 at +2, Table 1). One dose-limiting toxicity (DLT) occurred at Level 0, and another at Level +1. The maximum tolerated dose (MTD) was not reached. Neutrophil engraftment was observed in all patients at a median of 19.5 (range 17-25), 19 (17-22), and 20 (17-22) days for Level 0, +1, and +2, respectively. Early transplant toxicities and infection rates are detailed in Tables 2 and 3. Other adverse events were consistent with this patient population. Grades 2 and 3 acute GVHD up to D+90 occurred in 3(50%)/2(33%), 1(17%)/1(17%), and 1(33%)/1(33%) patients at Level 0, +1, and +2, respectively. To date, moderate/severe chronic GVHD was diagnosed in one patient (17%) at Level 0 and two patients (34%) at Level +1. In Level 0, one patient with ALL previously exposed to anthracyclines developed heart failure on day +6 and died on D +56. All other patients are alive and on follow-up, with no reports of disease relapse to date.

CONCLUSIONS

GVHD prophylaxis with MTX in Haplo-PTCY appears to be safe and well tolerated in this myeloablative HCT population. No MTD was reached. These findings support the continuation of the phase 2 portion of this study. The MTX dose for phase 2 will soon be determined by the study DSMB. Updated data will be presented at the forthcoming meeting.

Table 1. Patient characteristics

Characteristic	Level 0, N = 6[1]	Level +1, N = 6[1]	Level +2, N = 3[1]
Age at HSCT			
Median (Range)	27 (20, 46)	28 (22, 59)	30 (20, 41)
Sex			
Male	4 (67%)	3 (50%)	0
Disease			
AML	1 (17%)	1 (17%)	2 (67%)
CML	2 (33%)	3 (50%)	0
AL	2 (33%)	2 (33%)	1 (33%)
MDS	1 (17%)	0	0
KPS at HSCT			
100	2 (33%)	4 (67%)	0
90	4 (67%)	2 (33%)	1 (33%)
≤ 80	0	0	2 (66%)
Cell source			
BM	0	2 (33%)	0
PB	6 (100%)	4 (67%)	3 (100%)
CD34 infusion (10^6/kg)			
Median (Range)	5.14 (4.96, 7.83)	4.86 (1.40, 6.64)	5.00 (5.00, 5.89)
Conditioning type			
MAC	6 (100%)	6 (100%)	3 (100%)
Follow up time (months)			
Median (Range)	24 (2, 25)	14 (12, 24)	6 (6, 6)

[1]n (%)

Table 2. Early grade 3-4 toxicities (up to D+30)

	Level 0, N = 6[1]	Level +1, N = 6[1]	Level +2, N = 3[1]
Any G3-4 toxicity	6 (100%)	4 (67%)	3 (100%)
Febrile neutropenia	6 (100%)	4 (67%)	3 (100%)
Oral mucositis	6 (100%)	4 (67%)	3 (100%)
Nausea	4 (67%)	2 (33%)	1 (33%)
Vomiting	1 (17%)	2 (33%)	1 (33%)
Diarrhea	3 (50%)	1 (17%)	2 (67%)
Hepatotoxicity	3 (50%)	1 (17%)	0
AKI	1 (17%)	0	0

[1]n (%)

Table 3. Infection density (number of events per patient per 100 days at risk)

	Level 0 (N = 6)[1]	Level +1 (N = 6)1	Level +2 (N = 3)[1]
Any infection	1.22 (46/3757)	1.41 (42/2971)	1.84 (8/435)
G3-4 infection	0.43 (16/3757)	0.37 (11/2971)	0.23 (1/435)
CMV reactivation	0.21 (8/3757)	0.34 (10/2971)	0.46 (2/435)

[1] density (events/total number of days at risk)

IMPACT OF AGE ON OUTCOMES OF HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT): LATIN AMERICAN REGISTRY OF HCT IN MYELODYSPLASTIC SYNDROME

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Myelodysplastic syndromes (MDS) are a heterogeneous group of clonal stem cell disorders characterized by cytopenias and dysplastic features in the blood and bone marrow, with an increased risk of transformation to acute myeloid leukemia. MDS is mainly diagnosed in elderly patients after the age of 60. Allogeneic hematopoietic cell transplantation (HCT) remains the only potentially curative therapy. The aim of this study is to analyze the characteristics and survival of patients with MDS undergoing HCT and to relate these findings to age. This is a retrospective study of 441 MDS patients from the Latin American Registry analysed since 1988 to May 2023 from the transplant registry of 32 centers in Latin America. Overall survival (OS) was analyzed by the Kaplan-Meier curve. A Cox regression model was using to delineate the risk of death. Statistical analyses were performed SPSS version23.1, with significance p<0.05. The age group with the most of patients was between 60-70 years old, with 105(22%) patients(Graph 1). There was a predominance of males(57,82%). Most patients were classified as intermediate (39%) in Prognosis Scoring System Revised. Myeloablative conditioning was performed in (68,75%) patients. Donor type were related (63,49%), non-related (24,04%) and haploidentical (12,47%). The main cell source was bone marrow (49,43%). The 5-years OS rate in patients aged ≥65 years was 46,30%, with a median of 3.15 years(p=0.27) (Graph 2). Relapse-free survival was significantly lower in patients aged ≥65 years compared to younger patients at 2 years (p=0.014), 5 years (p=0.043) (Graph 3), and 20 years (p=0.023). Regarding the risk related to death, transplantation using peripheral blood showed a 28% lower risk of death (HR=0.72; 95% CI 0.52-0.98;p=0.040). However, the age group ≥65 years conferred a 2.77 times higher risk of relapse compared to patients aged <65 years (HR=2.77; 95% CI 1.07–7.15;p=0.035). The characteristic profile of patients ≥65 years was evaluated by associating the age group with clinical variables. That post-HCT complications (p=0.003), chronic GVHD(p=0.027), and bone marrow cell source (p=0.006) were associated with the age group <65 years. The age group ≥65 years was associated with male sex (p=0.012), reduced-intensity conditioning (p<0.001), unrelated donor type (p<0.001) and transplantation with peripheral blood cell source (p=0.006). In conclusion, patients were eligible for HCT, and age was a determining factor, both below and above 65 years. The age group ≥65 years was associated with male sex, reduced-intensity conditioning, unrelated donor, and peripheral blood cell source. While younger individuals were associated with the presence of post-HCT comorbidities, chronic graft-versus-host disease, and bone marrow cell source. It is worth noting that, during the analyzed period, the geriatric assessment were not used, and that this refinement could increase the probability of HCT success.

KEYWORDS - Myelodysplastic syndromes; Hematopoietic Cell Transplantation; Age

FIGURE 1 - Age distribuition of patients with MDS undergoing HCT (n=441)

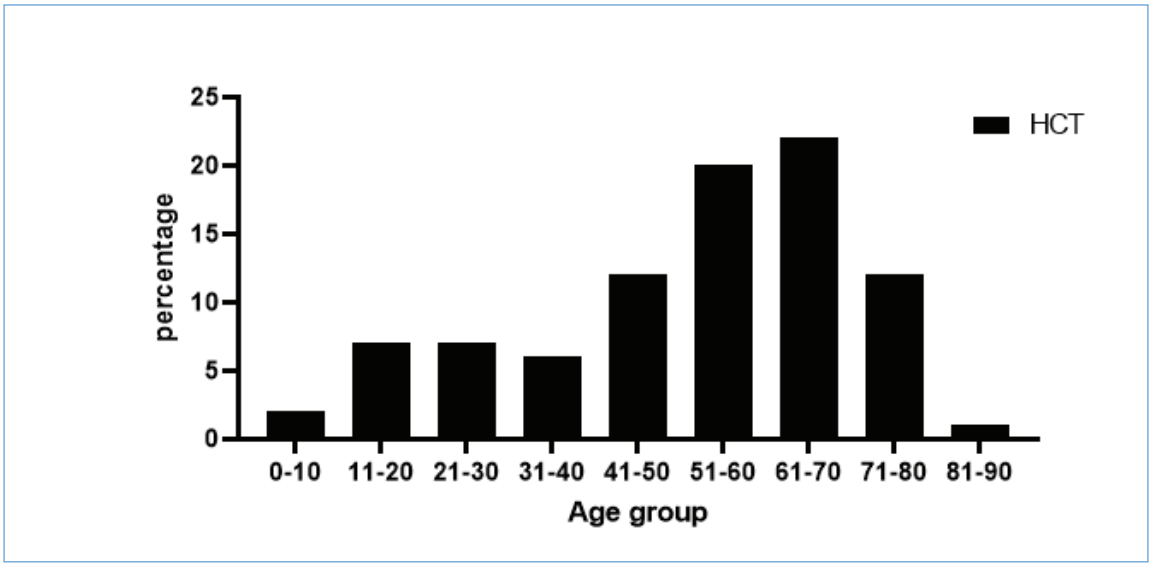
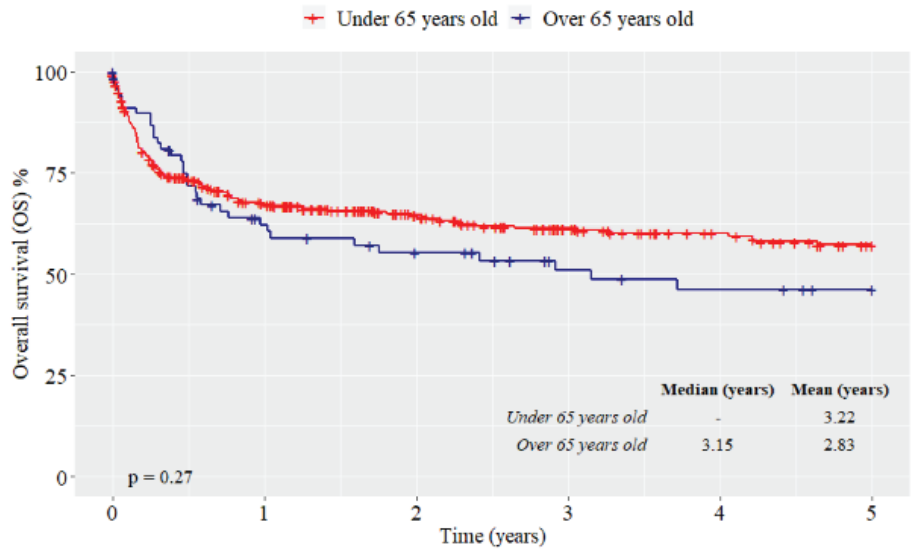
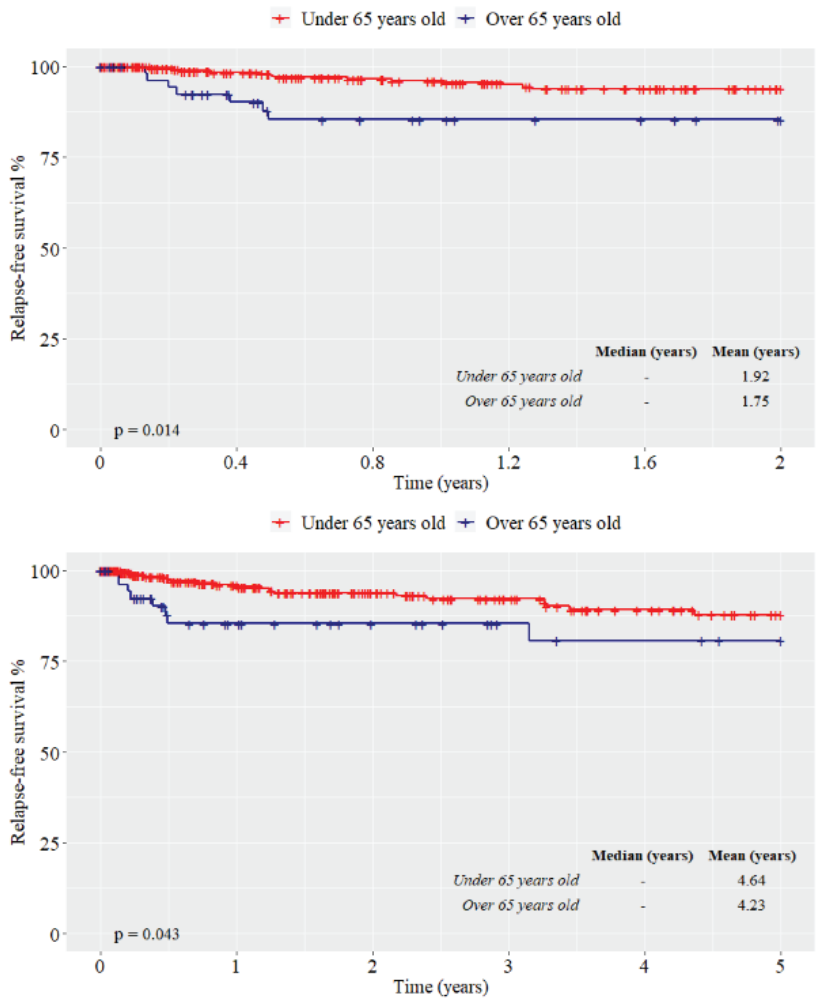


FIGURE 2 - General 5 years overall survival



Nota: Kaplan-meier survival curve. Statistical significance p<0,05.

FIGURE 3 - Relapse-free survival at 2 and 5 years



Nota: Kaplan-meier survival curve. Statistical significance p<0,05.

HEMOTHERAPY AND CELLULAR THERAPY

AUTOMATING BONE MARROW PROCESSING: AN ALTERNATIVE APPROACH TO THE USE OF BLOOD SEDIMENTANTS

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INTRODUCTION

Bone marrow transplantation (BMT) is widely used for treatment of hematological diseases. The challenges of allogeneic this infusion, include the need to reduce incompatible ABO red blood cells to avoid adverse effects. Deseritrocitation using Hydroxyethyl Starch is a well-established technique, due to its low cost and practicality of use. Given the current instability of the production of the supply in Brazil, the implementation of alternative techniques becomes essential to ensure the continuity of BMT incompatible ABO.

OBJECTIVE

To describe our experience in validating a semi-automated system for bone marrow processing, with a focus on deseritrocitation and recovery of total nucleated cells and CD34+.

CASUISTRY

To perform the validation, 4 allogeneic bone marrow collections were assessed for recovery of TNC (Total Nucleated Cells) and CD34+, evaluation of residual red blood cells and grafting time, pos processing in the Spectra Optia equipment (Terumo BCT®).

METHOD

The units were sent to the Cell Processing Center for deseritrocitation. Used the semi-automatic BMP (Bone Marrow Processing) centrifugation protocol in the Spectra Optia equipment, following the manufacturer's guidelines for the processing and preparation kits of the product. During the initial procedures, a significant improvement in product quality was noticed by adopting an inflow of 80 mL/min, collection volume of 2,0 mL/min and the performance of 10 processing cycles. The maintenance of constant homogenization proved to be crucial to ensure the stability of the interface, and the final hematocrit was estimated collecting cells in the penultimate layer of Colorgran, from right to left, with an expectation of 5%.

RESULTS

The initial and final TNC count revealed a median of 4.88 x108/Kg and 3.75 x108/Kg, with recovery of 74%. Collection and final volume revealed a median of 1220 and 240 mL, respectively. The initial and final hematocrit presented a median of 27% and 5%, stating a median of 0,22 mL/Kg red blood cells. The grafting time of the patients was 16 days median. In two of total samples were measured CD34+ immunophenotyping, the recovery of these samples was 100% and median values of final CD34+ analyzed were 2,76x106/Kg.

CONCLUSIONS

The data presented support the hypothesis that the use of the semi-automated Spectra Optia procedure is effective in reducing red blood cells in bone marrow products while maintaining a high CD34+ recovery rate, greater than the standard manual method. In terms of TNC recovery and grafting time, the semi-automated is comparable to the manual one. Despite the associated high costs, the system stands out regarding significant decrease in processing time and in terms of sterility, due to its closed-system nature.

KEYWORDS

Bone marrow processing, Erythrocyte depletion, automated processing bone marrow

TABLE 1 – Validation data of semi-automated bone marrow processing at Spectra Optia

Samples	Initial Volume	Final Volume	Initial TNC (10^8/Kg)	Final TNC (10^8/Kg)	TNC Recovery (%)	CD34+ (%) Recovery	Residual Red Blood Cells /Kg
1	1619	191	7,89	5,17	65,5	Não Realizado	0,11
2	1536	285	5,01	3,24	65,0	Não Realizado	0,21
3	967	241	3,83	3,62	94,5	100	0,42
4	1149,5	239	4,74	3,88	82,0	100	0,22

EXPRESSION OF CTLA-4 IN REGULATORY T CELLS OF PATIENTS WITH TYPE 1 DIABETES TREATED WITH AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Type 1 Diabetes (T1D) is an autoimmune disease characterized by destruction of insulin-producing pancreatic β-cells, resulting in insulin deficiency and impaired glucose metabolism. Most T1D patients treated with autologous Hematopoietic Stem Cell Transplantation (AHSCT) achieved insulin independency, remaining free of exogenous insulin replacement for a median time of 3 years. Mechanistic studies have suggested that clinical outcomes are associated with improved self-tolerance and immunoregulation.

OBJECTIVE

To assess Regulatory T Cell (Treg) populations and their expression of CTLA-4, a molecule that inhibits effector cell activation, before and after AHSCT in patients with T1D.

METHODS

Blood samples collected from 9 T1D patients had their Peripheral Blood Mononuclear Cells (PBMCs) assessed by Flow Cytometry to identify Treg populations (CD3+CD4+CD25+FOXP3+) and median fluorescence intensity (MFI) of CTLA-4. Results were retrospectively correlated with the patients' clinical outcomes of short (under 3 years) and long insulin independence (over 3 years).

RESULTS

Most patients were male (66.6%) with a median age of 18.6 years (16-23). After transplantation, patients became independent of exogenous insulin and had an increase in peptide C levels for up to a year after AHSCT. At baseline (pre-mobilization) the frequency of Treg (CD3+CD4+CD25+FOXP3+) was higher in patients who achieved longer insulin independence group than in those with short insulin independence ($p<0.05$). Treg frequencies also correlated positively with C-peptide levels ($r=0.673$; $p=0.028$). Immunological monitoring showed that the expression of CTLA-4 on Tregs was increased in both pre-mobilization and pre-conditioning periods when compared to samples from more than 6 months after transplantation ($p<0.01$). CTLA-4 expression on Tregs correlated with CTLA-4 MFI ($r=0.636$; $p=0.04$). CTLA-4 MFI in Tregs was higher ($p<0.001$) in samples collected at early time points after AHSCT (60, 100, 180 days) when compared to those from later follow-up time points (270, 360, 540 days). Due to the small number of samples, we were not able to detect differences in CTLA-4 expression between short and long insulin independence groups of patients. Significant correlation between CTLA-4 expression and C-peptide levels were not found.

CONCLUSIONS

Our initial results demonstrate that Treg frequencies before AHSCT associate with the duration of insulin independence, indicating that immunoregulatory mechanisms of Tregs could be involved with clinical outcomes. Although CTLA-4 MFI remains stable early after AHSCT, we detected a decline after the

6-month time point, which seems more pronounced in the group of patients with short insulin independence (Figure 3). This reduction in CTLA-4 MFI may be associated with the reactivation of immune-mediated beta-cell destruction. Further analyses will show how CTLA-4 is involved with immunological tolerance and metabolic outcomes after AHSCT.

KEYWORDS Type 1 Diabetes; Autologous Hematopoietic Stem Cell Transplantation; Regulatory Mechanisms.

Figure 1: Baseline CD4+CD25+FOXP3+ cell frequency in T1D patients after AHSCT

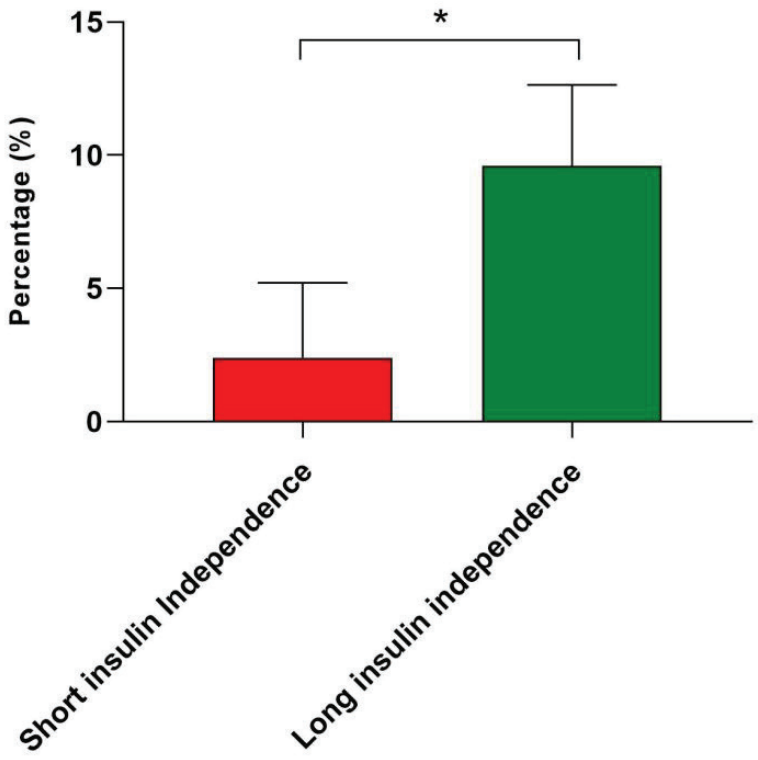


Figure 2: CTLA-4 expression in T1D patients after AHSCT

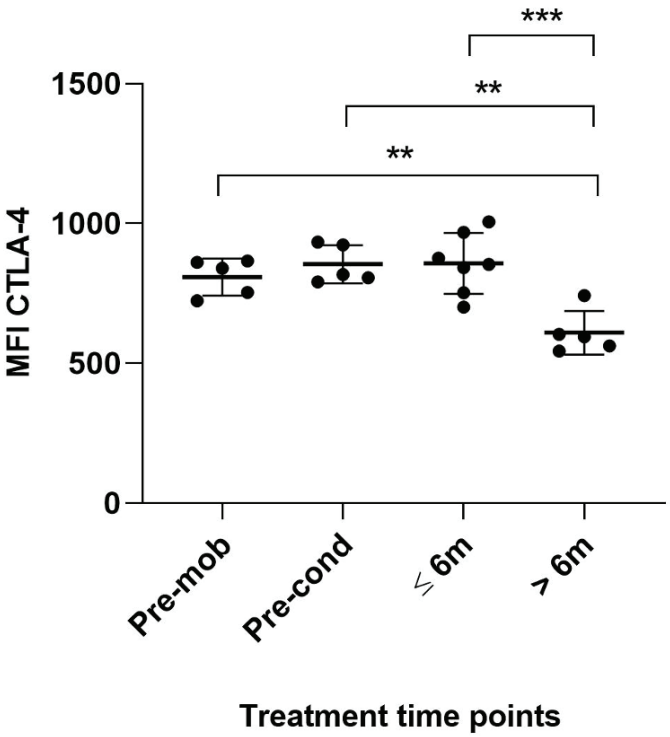
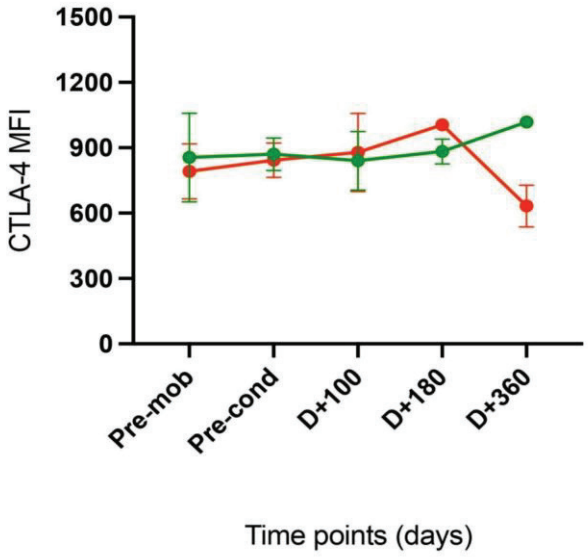


Figure 3: CTLA-4 expression in patientes with T1D in short insulin independence group (green) and long-term independence group (red).



STABILITY PLAN IN A CELL THERAPY CENTER (CTC): TOWARDS EXCELLENCE

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INTRODUCTION

BMT stands out as an essential therapeutic modality for the treatment of a range of hematological diseases. Consequently, ensuring the quality and safety of the products used in this procedure is of vital importance. In this context, a stability plan in the CTC emerges as an indispensable requirement to monitor and ensure the efficacy of therapeutic products, thus consolidating the foundations for a solid and reliable clinical practice.

OBJECTIVE

This study aims to describe the stability plan in the CTC and its results, highlighting its importance in ensuring the quality of cryopreserved products.

CASUISTRY

The study sample covered a total of 543 samples of Apheresis Hematopoietic Progenitor Cells – HPC (A) and 77 samples of Apheresis Mononuclear Cells – MNC(A), submitted to pre-infusion analysis or monthly quality control, during the time interval between 1996 and 2023.

METHODS

The stability plan was designed considering the different cryoprotectants used in the CTC for HPC and MNC(A), as well as storage in ultrafreezers at -80°C and nitrogen tanks at -150.0°C. To evaluate cell viability during storage, viability tests were performed by Trypan Blue and/or total cell viability, viability in CD34+ or CD3 cells by flow cytometry, using the 7-AAD method, considering the result ≥ 75%. In addition, clonogenic assays were conducted, when applicable, to evaluate the proliferative and functional capacity of the cells, whose reference value should be ≥ 1x104. Finally, the longitudinal follow-up of the patients was conducted until hematological reconstitution, allowing a complete evaluation of the clinical efficacy and safety of the transplanted HPC (A), considering the units with grafting up to 20 days to be appropriate. For the plan analyzing, it was considered at least 3 samples for each cryoprotector, with 80% of conformance on each reference values.

RESULTS

The analysis showed that, for HPC (A) units stored in freezers, the formulation HES maintained product stability for 20 years, followed by Plasma Lyte®/ Albumin/ Voluven/ DMSO5% for 3 years; Voluven/ Albumin/DMSO5% and Voluven/DMSO5%, both for 90 days. For nitrogen units, TC199 and Voluven/ DMSO10% formulations, both stable for 10 years; Voluven/Albumin/DMSO10% for 3 years and Plasma Lyte®/Albumin/DMSO5% for 30 days. Freezer MNC(A) units remained stable for 5 years in the formulation Voluven/ Albumin/DMSO5% and HES for 90 days. The data are shown in Graph 1.

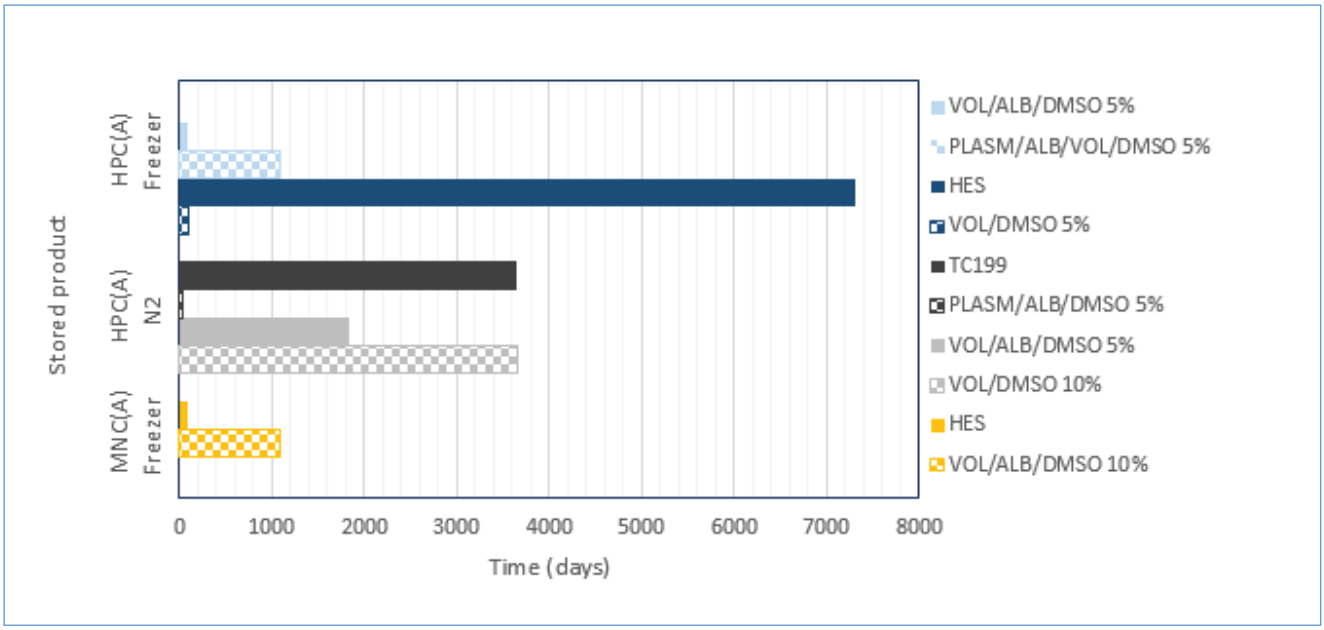
CONCLUSIONS

The implementation of the stability plan resulted in a better understanding of the behavior of cryoprotective solutions, playing a crucial role in ensuring the quality, safety and effectiveness of the products provided by CTC. By monitoring and evaluating this indicator, it is possible to mitigate potential risks and ensure that quality expectations are met. However, there is a continuous need to review and update the data.

KEYWORDS

Stability Plan; Cryopreservation; Storage;

FIGURE 1 - Analysis of different cryoprotectants used in a CTC



VALIDATION OF THE USE OF HYDROXYETHYL STARCH (VOLUVEN® 6%) TO REMOVE DIMETHYL SULFOXIDE FROM HEMATOPOIETIC STEM CELLS

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During the process of cryopreservation of hematopoietic stem cells (CTH), the dimelthyl sulfoxide (DMSO) is responsible for ensuring a better cell viability and a satisfactory engraftment but, at the time of the graft infusion, it can cause serious adverse events, particularly in young children, in patients with renal dysfunction, cardiac insufficiency, hemodynamic instability, or when the dose of DMSO is equal to or greater than 1g/DMSO/Kg of body weight. An effective way to avoid serious reactions is to remove the DMSO using a washing solution composed by 40% dextran and 4% albumin. We have used this protocol, initially developed by the New York Blood Bank to remove DMSO and improve engraftment of unrelated umbilical cord blood units, since 2011. However, in October, 2023 we were informed with a short notice about the discontinuity of the production of dextran40 (Laboratório de Insumos Farmacêuticos Ltda - LIFE).

OBJECTIVE

To describe the validation of the DMSO removal of hematopoietic stem cells in a Cellular Processing Laboratory using solution hydroxyethyl starch (HAES)-Voluven® 6% and albumin 4%, comparing the results of removal using dextran40 solution with 4% albumin.

METHODS

We used 22 bags from 7 patients: 16 from leukapheresis of deceased patients and 6 collected as donor leukocyte infusions (DLI) but unused due to the development of graft-versus-host disease (GVHD). All families gave authorization for the cells to be discarded or used in research. Two similar bags were chosen from the same patient, stem cell source, volume and cellularity for parallel thawing in a 37oC water bath and then adding one of the solutions (Dextran vs Voluven) in each bag at a 1:1 ratio. A sample was removed for nucleated cell count (CNT) and cell viability. The bags were centrifuged at 2,000 rpm or 805 g, 20 minutes, 4°C, with a brake. Using a manual extractor, the supernatant was transferred to another bag and the buffy coats were measured using a 50 ml syringe, resuspended with the same respective thawing solutions and counted again, as well as the supernatant to indicate a possible cell loss.

RESULTS

Nucleated cell recoveries – total cells (TNC), lymphocyte and monocytes using Voluven® and Dextran were similar (Table 1). There was no cell loss in the supernatant, median TNC 0.01x109 (0-0.39) and 0.06x109 (0-0.49), respectively.

CONCLUSION

The DMSO removal using HAES Voluven® 6% solution and albumin 4% was similar to Dextran40 and, therefore, validated in our service. It is worth to note that the cost is significantly reduced, R$3204,99 vs R$2358,03.

Nucleated cell recoveries – total cells (TNC), lymphocyte and monocyte using Voluven® and Dextran		
Median (Range)		
Recovery (%)	**Dextran**	**Voluven**
Total cells (TNC)	83 (77-92)	88 (75-100)
Lymphocyte	96 (78-100)	100 (83-100)
Granulocytes	71 (51-94)	71 (58-100)

HISTOCOMPATIBILITY

CHARACTERIZATION OF A DE NOVO RECIPIENT-SPECIFIC ANTI-HLA ANTIBODY FOLLOWING A SECOND HAPLOIDENTICAL HEMATOPOIETIC CELL TRANSPLANTATION

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The occurrence of recipient-specific anti-HLA antibodies (RSA) in hematopoietic cell transplantation (HCT) has been scarcely reported. Herein, we describe a rare de novo RSA emerging after a second haploidentical HCT. A 1-year-old patient with acute megakaryoblastic leukemia underwent haploidentical HCT with the father in 2020 and relapsed three years later. Therefore, a second haploidentical HCT with the mother was carried out in June 2023. The patient achieved hematologic recovery on day +15 and had complete donor chimerism, using STR and NGS, on day +29. Several Luminex Single Antigen (LSA) tests were performed, and no DSA was detected on days +41, +49, +57, +69, +86, and +108. On day +132, the patient experienced chronic graft-versus-host disease (cGVHD). A new LSA test was performed on day +155 and, surprisingly, an anti-DQ5 RSA was detected (MFI=24335) (Figure 1A). A new sample was requested to confirm the RSA reactivity, showing similar results (MFI=16991). In eplet analysis, the RSA was justified by eplets 52PQ/55R/77R. We performed an Adsorption/Elution test using a cell expressing DQ5 to rule out the RSA as a false-positive reaction. Remarkably, the eluate result showed that DQ5 was recovered, thereby validating the RSA reactivity (Figure 1B). Next, we examined a serum sample from the mother and conducted a new LSA test to assess whether the donor had been previously sensitized to DQ5. No RSAs (MFI<100) were detected in the mother's serum. Thus, we hypothesized that the RSA was associated with a de novo response. Another LSA test was performed using an anti-IgM secondary antibody, and reactivity against eplets 52PQ/55R/77R was also observed. This finding suggests that the emerging RSA could be related to a primary humoral response. The anti-DQ5 RSA was also detected on day +227 (MFI=10105). Indeed, the patient has presented 100% donor cells in STR and NGS chimerism assays on days +108, +174, +213, +241, and +280. Currently (day +312), the patient is in complete remission without evidence of disease relapse. Although it is tempting to speculate whether this de novo RSA was associated with a humoral graft-versus-host alloreactivity, leading to concomitant cGVHD and graft-versus-leukemia effect, previous evidence (Delbos, 2016; Umino, 2023) supports such hypothesis. In summary, we described an unusual case of de novo RSA after a second haploidentical HCT. Further studies are warranted to clarify the clinical impact of RSA on HCT outcomes.

FIGURE 1A - Anti-DQ5 RSA detected on day +155

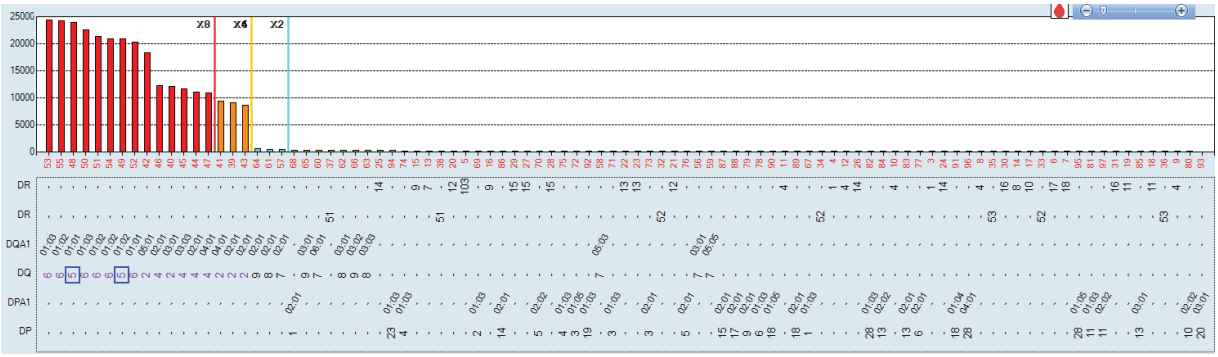
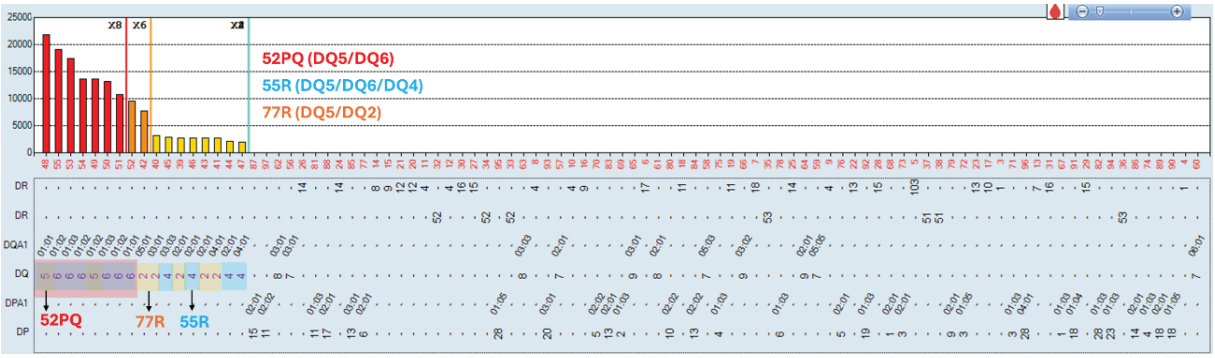


FIGURE 1B - Eluate reactivity after adsorption with a cell expressing HLA-DQ5



COMMON, INTERMEDIATE AND WELL-DOCUMENTED HLA ALLELES IN BRAZILIAN POPULATION

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INTRODUCTION

The absence of a comprehensive high-resolution HLA reference study encompassing the entire population presents challenges in comprehending genetic diversity, particularly within genetically heterogeneous populations like that of Brazil.

OBJECTIVE

This study aimed to systematically catalog HLA alleles based on their frequencies across diverse geographic, ancestral, and ethnic groups within the Brazilian population.

METHOD

The sample comprised 197,114 unrelated Brazilian Voluntary Bone Marrow donors. Frequency analysis of HLA-A, HLA-B, HLA-C, HLA-DRB1, HLA-DQB1, and HLA-DPB1 alleles, typified at high resolution using Next Generation Sequencing (NGS), was conducted. Only donors with six typed loci through NGS were included. Allele classification followed the guidelines of the 18th International HLA & Immunogenetics Workshop publication, categorizing alleles as Common, Intermediate, or Well-Documented (CIWD) based on the 2nd field of resolution, and compared with the CIWD 3.0 catalog.

RESULTS

A high allelic diversity was observed with 1,616 HLA alleles cataloged. Among these, 99 HLA-A, 131 HLA-B, 132 HLA-C, 62 HLA-DRB1, 58 HLA-DQB1, and 83 HLA-DPB1 were not classified into any of the CIWD categories. Table 1 showcases HLA alleles with frequencies greater than 1/10,000 (Common) in the Brazilian population that were outside the categories of the CIWD 3.0 catalog (frequency less than 1/100,000).

CONCLUSION

This data provides a comprehensive overview of HLA diversity within the Brazilian population, crucial for both health practices and research. Furthermore, this catalog serves as a valuable tool to assist laboratories in the analysis of HLA typing and formulation of registry policies.

KEYWORDS

Brazilian population, cataloging, allele frequency, HLA alleles, genetic diversity, CIWD, LCPorto was granted by FAPERJ and CNPq

TABLE 1- Brazilian Common Alleles outside Common and Intermediate categories in the CIWD 3.0 catalog

HLA Locos	HLA alleles	Brazilian frequencies	CIWD frequencies	CIWD 3.0 status
A	A*02:158	0.000114	0.000007	WD
A	A*02:481	0.000292	0.000001	WD
A	A*02:52	0.000244	0.000006	WD
A	A*02:724	0.000129		out-CIWD
A	A*24:314	0.000228	0.000000	not-CIWD
A	A*24:352	0.000160	0.000000	not-CIWD
A	A*32:106	0.000170		out-CIWD
B	B*07:20	0.000231	0.000003	WD
B	B*18:145	0.000165		out-CIWD
B	B*39:37	0.000236	0.000004	WD
B	B*40:129	0.000320	0.000001	WD
B	B*51:04	0.001382	0.000009	WD
B	B*51:193	0.000885	0.000005	WD
B	B*51:32	0.000523	0.000002	WD
B	B*51:65	0.000117	0.000007	WD
B	B*51:75	0.000226	0.000005	WD
C	C*01:22	0.000246	0.000002	WD
C	C*03:38	0.000198	0.000006	WD
C	C*05:37	0.000185	0.000007	WD
C	C*15:03	0.000419	0.000003	WD
C	C*15:08	0.000309	0.000006	WD
DPB1	DPB1*1072:01	0.000444		out-CIWD
DPB1	DPB1*162:01	0.000178	0.000002	WD
DPB1	DPB1*352:01	0.000104	0.000003	WD
DPB1	DPB1*417:01	0.000185	0.000001	WD
DPB1	DPB1*61:01N	0.000129	0.000009	WD
DPB1	DPB1*665:01	0.001177		out-CIWD
DPB1	DPB1*835:01	0.000698		out-CIWD
DQB1	DQB1*02:122	0.000124		out-CIWD
DQB1	DQB1*02:180	0.000249		out-CIWD
DQB1	DQB1*03:106	0.000114	0.000002	WD
DQB1	DQB1*03:21	0.000134	0.000009	WD
DQB1	DQB1*03:243	0.000112	0.000001	WD
DQB1	DQB1*03:264	0.000545		out-CIWD
DQB1	DQB1*05:103	0.000218	0.000003	WD
DQB1	DQB1*06:52	0.000205	0.000001	WD
DRB1	DRB1*04:201	0.000147	0.000001	WD
DRB1	DRB1*13:40	0.000375	0.000005	WD
DRB1	DRB1*13:56	0.000132	0.000002	WD
DRB1	DRB1*14:13	0.000213	0.000002	WD
DRB1	DRB1*14:21	0.000114	0.000006	WD

NONPERMISSIVE HLA-DPB1 MISMATCHES ARE ASSOCIATED WITH POOR GRAFT-VERSUS-HOST DISEASE FREE / REJECTION FREE SURVIVAL AFTER UNRELATED DONOR HEMATOPOIETIC CELL TRANSPLANTATION FOR NONMALIGANT DISEASES

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INTRODUCTION

GVHD-free/Rejection-free survival (GRFS) is a crucial endpoint in unrelated donor hematopoietic cell transplantation (URD-HCT) for non-malignant diseases (NMD), as patients with NMD present increased risks of graft rejection and any acute or chronic GVHD is highly detrimental.

OBJECTIVE

In this sense, the impact of T-cell epitope (TCE) permissiveness of HLA-DPB1 mismatches in GRFS in the NMD context is currently unknown. Thus, the present study aimed to evaluate whether TCE permissiveness status impacts GRFS in 151 patients with NMD who received URD-HCT from January 2007 to January 2022 at our institution.

METHODS

Patients/URD pairs were HLA typed in high resolution at HLA-A, -B, -C, -DRB1, -DQB1, and -DPB1. The TCE3 v2.0 algorithm was used to classify HLA-DPB1 mismatches into permissive (PM) and non-permissive (NPM). Cox proportional hazard regression was used for the multivariable analysis of GRFS.

RESULTS

The patient's median age was 9 years (range: 0-51 years). The primary indications for HSCT were inherited bone marrow failures (n=72; 47.7%) and acquired severe aplastic anemia (n=49; 32.4%). Bone marrow was the graft source for all patients, and 145 (96%) received in vivo T-cell depletion using ATG. Patient-URD pairs were 10/10 HLA matched for HLA-A, -B, -C, -DRB1, and -DQB1. Among these pairs, 29 (19.2%) were DPB1 matched, while 122 (80.8%) were DPB1 mismatched. Because of a Cox regression proportional hazard assumption violation, follow-up was split around day +660 after HSCT. Overall, the DPB1 mismatch was associated with a reduced probability of GRFS (HR: 4.21; 95% CI: 1.51-11.71; P=0.0059) compared to the DPB1 match. Before day +660, the Cox regression model showed that NPM had a stronger effect in reducing GRFS than PM (NPM – HR: 6.01; 95% CI: 2.08-17.39; P=0.0009 vs PM – HR: 3.29; 95% CI: 1.14-9.48; P=0.028), when compared to the HLA 12/12 match group. When stratifying NPM in Host-versus-Graft (HvG) and Graft-versus-Host (GvH), the analysis by Cox regression showed that both vectors had a comparable inferior impact on GRFS (NPM-HvG – HR: 6.06; 95% CI: 1.91-19.21; P=0.0022 vs NPM-GvH - HR: 5.98; 95% CI: 1.96-18.25; P=0.0017). In contrast, after day +660, no significant difference in GRFS was observed between NPM, PM, and 12/12 match.

CONCLUSIONS

Our study outlines that DPB1 mismatches are detrimental to GRFS. However, NPM denotes an even worse scenario for GRFS. Therefore, DPB1 mismatches should be avoided for patients with non-malignant diseases whenever possible and opting for a 12/12 HLA-matched URD remains the best choice for such patients. These findings should be confirmed in independent cohorts.

KEYWORDS - GvHD free/Rejection free survival; DPB1 mismatch; Nonmalignant diseases.

THE PRESENCE OF PIRCHE IN HOST-VERSUS-GRAFT DIRECTION IS NOT ASSOCIATED WITH GRAFT FAILURE AND HEMATOLOGIC RECOVERY AFTER UNRELATED DONOR TRANSPLANTATION FOR NONMALIGNANT DISEASES

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INTRODUCTION

The presence of Predicted Indirectly Recognizable HLA epitopes (PIRCHE), an in silico model of indirect alloreactivity, is associated with graft failure (GF) and donor-specific antibody (DSA) development after solid organ transplantation. Nonetheless, the impact of PIRCHE in bone marrow transplantation (BMT) has been poorly investigated. As patients with nonmalignant diseases present an increased risk of engraftment failure, we hypothesized that the PIRCHE model could improve the risk stratification in unrelated donor (URD) transplantation for NMD. Objective: To describe the impact of PIRCHE-I (mismatched peptides presented by shared class I HLA) and -II (mismatched peptides presented by shared class II HLA) in GF, neutrophil, and platelet recovery after URD-BMT for NMD.

METHODS

A retrospective observational study with 154 submitted to URD 10/10 transplantation for nonmalignant diseases between 2007-2022. PIRCHE in the Host-versus-Graft (HvG) direction scores were calculated on the PIRCHE website (https://pirche.com). According to the HvG-PIRCHE-I/II scores, patient/donor pairs were classified into two groups: PIRCHE-present (score>0) and PIRCHE-absent (score=0). The endpoints were GF, 28-day neutrophil, and platelet recovery analyzed by cumulative incidence accommodating the competing risks and compared with Gray's test. The competing risk was death before GF or hematological recovery.

RESULTS

The patient's median age was ten years (range: 0-51), and all received bone marrow as a stem cell source. The main indications for the transplant were bone marrow failures (n=74, 48%) and severe aplastic anemia (n=50, 32,5%). All transplants were 10/10 HLA-A, -B, -C, -DRB1 and -DQB1 matched. Among them, 29 (18,8%) of the patient/donor pairs were DPB1-matched, while 125 (81,2%) were DPB1-mismatched. The total incidence of GF was 13%, an expected result considering the cohort of NMD. Importantly, there was no GF event in the full-matched group. The presence of HvG-PIRCHE-I had no association with GF (0.105, 95% CI, 0.051-0.180, p=0,9). The same was seen in HvG-PIRCHE-II (0.111, 95% CI, 0.059-0.182, p=0,666). Neutrophil and platelet recovery also had no association with the presence of HvG-PIRCHE-I (0.963, 95% CI, 0.879-0.989%, p=0,052; 0.829, 95% CI, 0.721-0.898, p=0,899, respectively), or HvG-PIRCHE-II (0.968, 95% CI, 0.895-0.990, p=0,985; 0.843, 95% CI, 0.747-0.905, p=0,866, respectively).

CONCLUSION

Our data confirm the higher incidence of GF in patients submitted to BMT for NMD. The indirect T-cell alloreactivity to HLA-DPB1 incompatibilities in the HvG direction had no impact on the engraftment outcomes. Despite that, a full-matched donor is always the best option for NMD, as no GF event occurred in that group. Further studies are necessary to validate these findings.

KEYWORDS - PIRCHE, DPBI-mismatch, Graft Failure.

ACADEMIC LEAGUES

ANALYZING THE GROWTH AND TRENDS OF SCIENTIFIC PRODUCTION IN MYELODYSPLASTIC SYNDROME TRANSPLANTATION ACROSS LATIN AMERICA

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INTRODUCTION

Myelodysplastic Syndrome (MDS) represents a heterogeneous group of hematological diseases, characterized by clonal stem cell disorders, which progress with hypercellularity in the bone marrow (BM), peripheral cytopenias and dysplastic characteristics in the blood and BM. In this context, hematopoietic stem cell transplantation (HSCT) represents a crucial modality for patients with myelodysplastic syndromes, being the only curative option available.

Thus, we understand the continued need for scientific production on this topic that is so relevant to clinical practice. In Latin America, the existence of proprietary data is crucial to better understand the epidemiology of the disease in the region, identify patterns of response to treatment and understand the particularities of the region's population.

In this scenario, this review aims to explore the growth of scientific publications on HSCT in MDS in Latin America, given that due to human, social and economic origin factors, the existence of proprietary data is necessary.

MATERIAL AND METHODS

A bibliometric study was conducted to analyze the scientific literature related to Hematopoietic Stem Cell Transplantation (HSCT) in patients diagnosed with Myelodysplastic Syndrome (MDS) in the Latin American region, focusing on publications indexed in the prestigious MEDLINE database /PubMed. Using an elaborate and refined search strategy, specific descriptors were employed in a Boolean combination: ("Myelodysplastic syndrome" OR MDS OR "Myelodysplastic syndromes") AND (HSCT OR "Bone Marrow Transplant" OR "Hematopoietic Stem Cell Transplantation") AND (Argentina OR Bolivia OR Brazil OR Chile OR Colombia OR Costa Rica OR Cuba OR Ecuador OR El Salvador OR Guatemala OR Haiti OR Honduras OR Mexico OR Nicararagua OR Panama OR Paraguay OR Peru OR Dominican Republic OR Uruguay OR Venezuela). After careful application of the inclusion and exclusion criteria, a total of 27 articles were initially identified. However, 15of these were excluded due to their lack of compliance with pre-established selection criteria, consisting mainly of tangential citations or those that did not directly address the scope of the study. Therefore, a sample of 12 articles was finally selected for detailed analysis, thus representing the primary research corpus for this bibliometric analysis.

RESULTS AND DISCUSSION

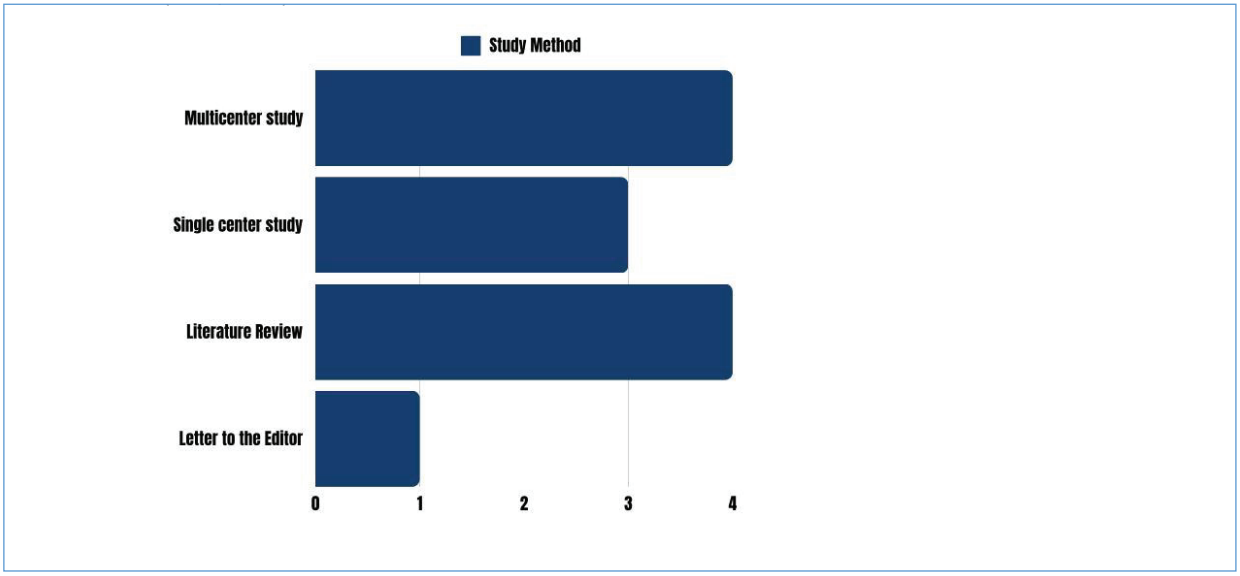
In the present study, a comprehensive analysis of 12 studies was carried out. Of these, four were conducted in multiple centers (representing 33% of the total), three were single-center cohort studies (25%), four were literature reviews (33%), and one was a Letter to the Editor (8%) (Graphic 1). Notably, among these studies, six were conducted in Argentina (constituting 50% of the total), of which three were multicenter, one was a Letter to the Editor, and two were literature reviews. In Mexico, four studies were identified, two of which were literature reviews and two were single-center studies. As for Brazil,

two studies were registered, both multicenter. The countries Chile and Uruguay contributed one study each; Chile presented a single-center study, while Uruguay contributed a multicenter study in collaboration with Brazilian centers (Graphic 2 and 3). It is pertinent to highlight that the substantial number of Argentine and Mexican studies derives, in large part, from literature reviews of European and North American studies, thus emphasizing the need and importance of conducting original studies within the Latin American context.

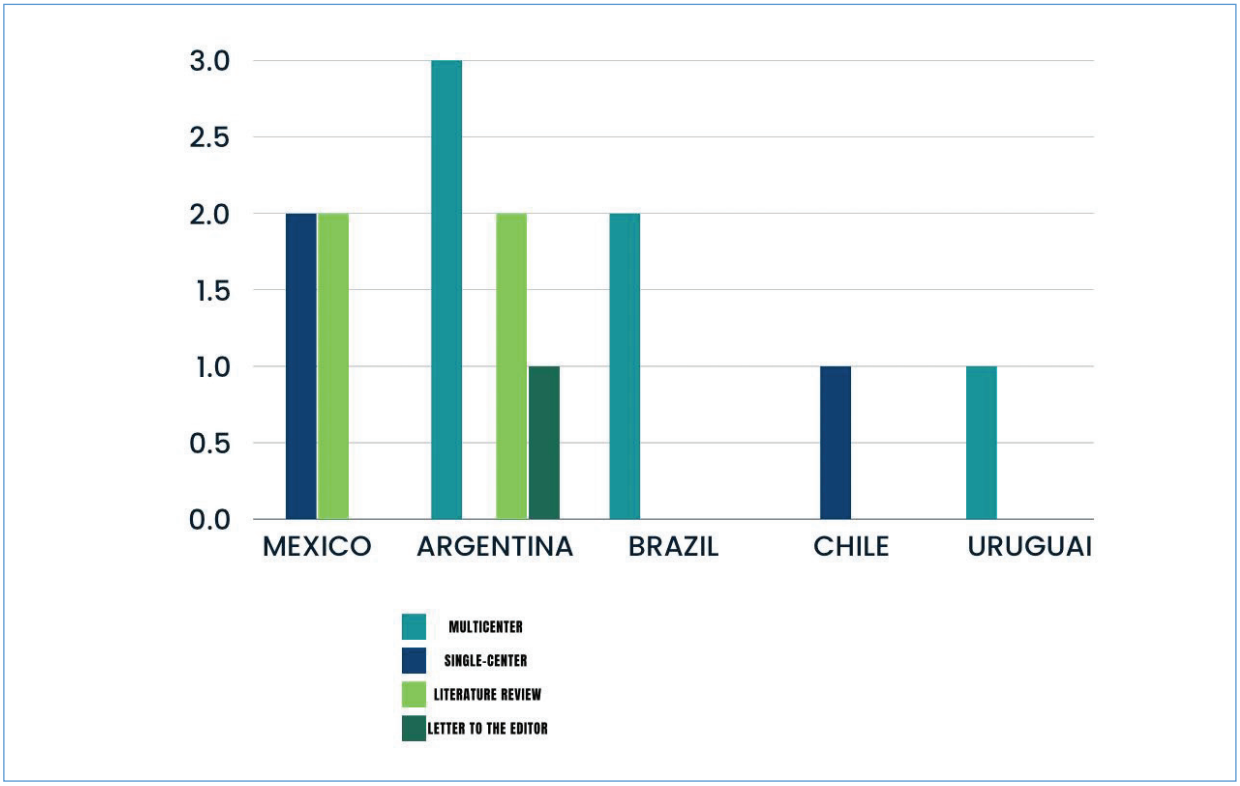
CONCLUSION

We conclude, therefore, that the growth of scientific production in transplantation in MDS in Latin America reflects the commitment of the regional scientific community to address relevant clinical issues and promote significant advances in the treatment of this complex disease. This analysis highlights the continued need for investment in research and international collaboration to improve clinical outcomes and quality of life for MDS patients in Latin America.

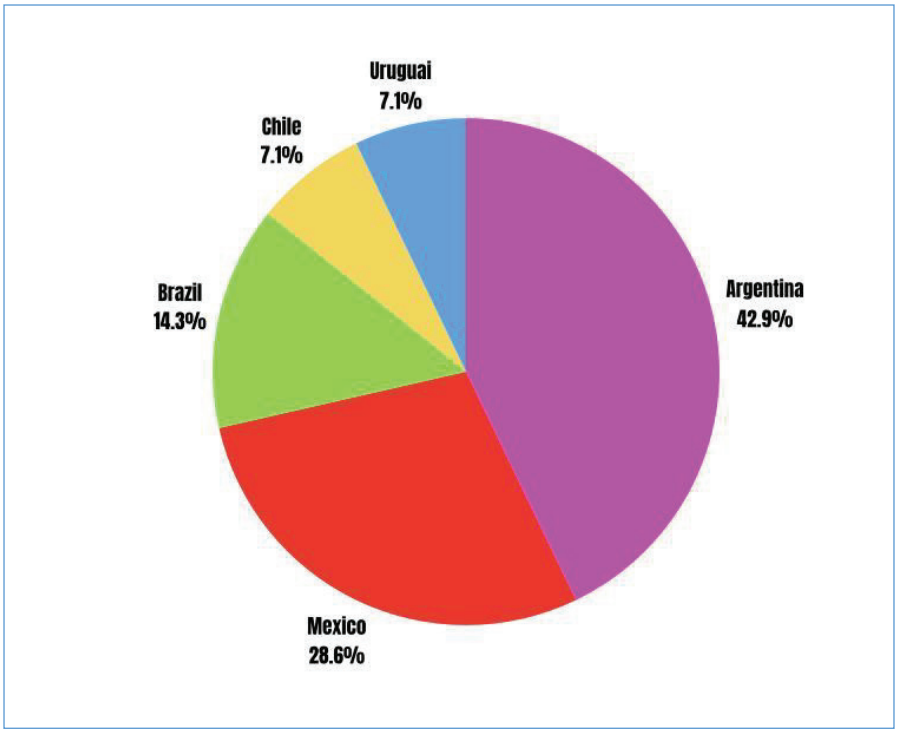
GRAPHIC 1



GRAPHIC 2



GRAPHIC 2



REACTIVE OXYGEN SPECIES (ROS), MUTATIONS IN THE ROS1 GENE AND MYELODYSPLASTIC DISEASES: HOW IMPORTANT IS ITS CORRELATION?

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INTRODUCTION

Reactive oxygen species are typical by-products of cellular metabolism, being present in the pathogenesis of several oncological disorders. Their oncogenic nature is mainly related to disorders related to failures in cell proliferation and differentiation, so their correlation with Myelodysplastic Syndrome (MDS) and Acute Myeloid Leukemia (AML).

GOALS

Understand the correlation between mutations in the ROS1 gene and the pathogenesis of myeloproliferative diseases.

METHODS

This is a cross-sectional study, in which, through a sample of patients (N=14) with MDS/AML who underwent a Next-Generation Sequencing(NGS) study, quantitative and qualitative genetic data were obtained for an epidemiological analysis regarding of the correlation between the pathogenesis of myeloproliferative diseases.

RESULTS

Within the sample used (N=14), a prevalence of 57.1% mutations in the ROS1 gene was found, presenting an average of 2.1 number of mutations per patient and 44% of the allelic fraction involved. Among the types of mutations found, 47 % were of the synonymous type, 29.4% of the splicing type, 17% of the missense type and 5.8% of the non frameshift deletion type.

DISCUSSION

The ROS1 proto-oncogene, found with great prevalence in the sample analyzed, is a gene known to be involved in the pathogenesis of cancer, but its relationship with myeloproliferative diseases is still poorly studied. Its expression encodes a tyrosine kinase receptor, but its physiological function in cellular metabolism is still uncertain, what is known is that its activation is related to the activity of reactive oxygen species, which have the potential to contribute to disease progression of MDS and AML through the activation of thighers for the ROS1 gene , being the driver event of the hematopoietic disease and causing ineffective repair of DNA damage and acquisition of oncogenic mutations by the metabolic pathway of pathogenesis.

Another important fact is the fact that only 12.5% of patients with a mutation in the ROS1 gene were indicated for Hematologic stem cell transplantation(H-SCT), which may indicate a certain trend in patients affected by this mutation.

CONCLUSION

Therefore, even with the pathogenesis pathway not fully defined, the relationship between the ROS1 gene and the development of myeloproliferative diseases is evident, especially when we look at the data presented in the sample used, in which more than half of the patients undergoing the genomic study presented a mutation of this segment of DNA.

Furthermore, it is of great value to encourage further studies on the topic addressed, as there are target therapies for the highlighted mutation, which could possibly be studied and used in the management of MDS and AML, aiming to improve the survival rate of these hematological diseases.

POSTERS

ALLOGENEIC HSCT

A CASE OF FLT3 POSITIVE ACUTE MYELOID LEUKEMIA RELAPSED AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION WITH REMISSION ACHIEVED USING GILTERITINIB ASSOCIATED WITH DONOR LYMPHOCYTE INFUSION

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INTRODUCTION

Acute myeloid leukemia (AML) with FLT3 mutation is a common subtype that implies an increased risk of relapse. Treatment for fit patients after achieving remission is allogeneic hematopoietic stem cell transplantation (HSCT), and relapse may occur even after transplantation. In this context, although controversial, post-transplant maintenance treatments with FLT3 inhibitors aim to reduce the risk of relapse.

OBJECTIVE

To describe a 49-year-old patient who experienced relapse with partial loss of chimerism after haploidentical HSCT, achieving remission and chimerism recovery with gilteritinib and donor lymphocyte infusions (DLI).

MATERIAL AND METHODS

Case report, observational.

RESULTS

A 49-year-old female patient with FLT3-mutated AML secondary to myelodysplastic syndrome, admitted through the intensive care unit with multiple complications, was refractory to 3 lines of chemotherapy treatment (daunorubicin and cytarabine, FLAG and MEC), experiencing toxicity associated with the 4th line with cytarabine and sorafenib. Finally, achieving complete remission after using gilteritinib, with negative minimal residual disease (MRD), she underwent haploidentical HSCT with the initial proposal of maintenance with gilteritinib associated with preemptive DLI. However, she experienced disease relapse on day +60 with 25% blasts in bone marrow and 84% chimerism. A rescue treatment with increased gilteritinib and 5 DLIs was performed. She achieved complete chimerism on day +96 and negative MRD on day +123, maintaining this status until day +1y2m post-transplant, while continuing the use of gilteritinib.

CONCLUSIONS

As literature demonstrates, FLT3 mutation results in a high risk of relapse and in this patient's case, may have contributed to the refractoriness to multiple lines of chemotherapy. Intolerance to sorafenib makes it difficult to assess whether the patient would respond to this therapeutic line; however, targeted therapy with gilteritinib played an important role in inducing complete remission and the possibility of rescue with chimerism recovery in association with DLIs in relapse post-HSCT. Individualization of targeted therapies according to the patient's mutational profile may allow better responses pre-HSCT, as well as maintenance therapies as a bridge to achieving graft-versus-leukemia effect, solidifying treatment response, and reducing relapse rates.

KEYWORDS

Acute Myeloid Leukemia, Allogeneic Stem Cell Transplantation, Donor Lymphocyte Infusion.

ACUTE LYMPHOBLASTIC LEUKEMIA RELAPSE POST-HEMATOPOIETIC STEM CELL TRANSPLANTATION WITH ISOLATED CRANIAL NERVES INFILTRATION: A CASE REPORT

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INTRODUCTION

Despite advances in the therapy of acute leukemias and hematopoietic stem cell transplantation (HSCT) in recent decades, infiltration of the central nervous system (CNS) remains one of the main complications and is considered one of the leading causes of mortality. Objective: To report a case of CNS relapse of T-cell acute lymphoblastic leukemia (T-ALL) post-HSCT with initial isolated cranial nerves involvement and with the first immunophenotyping of cerebrospinal fluid (CSF) showing no alterations.

METHODS - Case report.

RESULTS

A 28-year-old male patient diagnosed with precursor T-cell ALL without evidence of CNS infiltration at diagnosis. After primary refractoriness to the Hyper-CVAD protocol, the patient underwent the GRAAL protocol. The patient was treated with haploidentical allogeneic transplantation (donor: mother), with the transplant conducted in the context of negative measurable residual disease (MRD). Conditioning regimen was carried out with a fludarabine and melphalan combination, total body irradiation (TBI), and post-transplant cyclophosphamide. At the reassessment on day +148, the patient reported diplopia that started a week ago, but did not relate any other symptoms such as vertigo, nausea, vomiting, headache, or other neurological deficits. On this occasion, the patient was on a cyclosporine tapering schedule. At disease reassessment, MRD remained negative in bone marrow, and complete chimerism was maintained. Neurological evaluation showed right medial rectus paresis, associated with binocular diplopia worsening when looking to the left. Cranial MRI showed thickening with anomalous enhancement of the oculomotor and trigeminal nerves, attributable to a possible CNS relapse. Immunophenotyping of CSF did not reveal populations with anomalous immunophenotype. Neuroinfection was ruled out after screening for expected viral agents and other important agents for the context. Therefore, considering the possibility of an early and incipient relapse in the CNS, with no meningeal involvement on imaging and no circulating neoplastic cells in CSF on initial evaluation, a second CSF collection was planned for prospective analysis. A new immunophenotyping of CSF performed 4 days later identified cells with an anomalous precursor T-cell immunophenotype, consistent with CNS infiltration by T-ALL.

CONCLUSION

In the context of suspected relapse of ALL in the CNS with isolated involvement of cranial nerves and no meningeal involvement on imaging and no circulating neoplastic cells in CSF on initial evaluation, we emphasize the need for prospective CSF evaluation with immunophenotyping when the hypothesis of possible CNS neoplastic involvement persists, always considering feasible differential diagnoses and neuroinfection, especially in the post-HSCT context.

KEYWORDS

Acute lymphoblastic leukemia; Hematopoietic stem cell transplantation; Immunophenotyping

ACUTE MYELOID LEUKEMIA POST KIDNEY TRANSPLANT: HOW TO INDICATE HEMATOPOIETIC CELL TRANSPLANTATION?

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INTRODUCTION

Skin cancer and post-transplant lymphoproliferative diseases (PTLD) account for up to 80% of all cases of post-solid organ transplant malignancies, but much less is known about the risks for hematologic malignancies of myeloid origin. The physiopathology of post-transplant AML (PT-AML) is probably multifactorial (immunosuppression, antigenic graft stimulation and direct drug mutagenicity), which can act in combination to help AML cells evade attack by the immune system. Donor-derived cancer transmission is reported in about 0.01% to 0.2% of solid organ recipients. Our literature review focusing on PT-AML found only 2 multicenter studies and 4 case series.

OBJECTIVE - To present a clinical case of AML in a patient post kidney transplant.

METHOD: Case report and literature review.

CASE REPORT

A 32-year-old woman who received a kidney transplant and immunosuppressed with mycophenolate sodium and tacrolimus developed progressive cytopenias. Bone marrow aspiration and immunophenotyping showed leukemic infiltration with 51% blasts, suggestive of Acute Myeloid Leukemia. Our patient was stratified as an adverse risk due to complex karyotyping and underwent induction chemotherapy with cytarabine and daunorubicin, and the immunosuppression was reduced, with no renal graft rejection. On the 28th day post-induction, achieved complete remission (CR) and on day 30 post-consolidation the measurable residual disease (MRD) was negative. She was referred for evaluation by the bone marrow transplant team and has an alternative donor (haploidentical).

DISCUSSION

Diagnosis of PT-AML was incidental in 40% of reported cases and median overall survival was 3-6 months. The two multicenter studies showed a standardized incidence ratio for the development of AML among kidney transplant recipients of 1.90, suggesting that immunosuppression severe and prolonged increases this risk and that azathioprine is the highest known risk immunosuppressive. Ineffective immune surveillance is part of the immunopathology of PT-AML. Immunosuppressive microenvironment and leukaemia cells mediate immune suppression to promote immune evasion, including altered antigen presentation, inhibitory ligands/receptors and immunosuppressive molecules. These mechanisms are reinforced, for example, by the fact that allogeneic T-cell-depleted hematopoietic cell transplant recipients (allo-HCT) and recipients without graft-versus-host disease (GVHD) have higher risks of AML recurrence than those receiving T-cell-filled grafts and those with GVHD. Gradual reduction of immunosuppression is necessary for treatment, but it is often insufficient. However, although allo-HCT is indicated in patients with high-risk therapy- or cytogenetics-related AML, the treatment of these cases have been heterogeneous with or without allo-HCT.

CONCLUSION

PT-AML is a rare entity and the optimal treatment approaches are not known yet.

KEYWORDS- 'Acute myeloid leukemia', 'myeloid neoplasms', 'kidney transplantation'.

ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION IN PATIENTS AGED 60 YEARS AND OLDER: ANALYSIS OF 11 YEARS OF DATA FROM THE BRAZILIAN REGISTRY SBTMO/CIBMTR

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7 A.C. Camargo Cancer Center
8 Associação Hospitalar Moinhos de Vento
9 Bio Sana's Serviços Médicos
10 Centro De Pesquisa Clinica Hospital 9 De Julho
11 Centro de Pesquisas Oncológicas Dr. Alfredo Daura Jorge (CEPON)
12 CTMO-HCFMUSP
13 Fundação Faculdade Regional de Medicina de São José do Rio Preto (FUNFARME)
14 Fundação Pio XII - Hospital de Câncer de Barretos
15 Hospital Amaral Carvalho
16 Hospital de Clínicas – UFPR
17 Hospital Erasto Gaertner
18 Hospital Leforte Liberdade
19 Hospital Monte Sinai
20 Hospital Samaritano
21 Hospital São Camilo – Mooca
22 Hospital São Camilo – Pompéia
23 Hospital Sírio Libanês
24 Instituto Nacional de Câncer
25 Natal Hospital Center
26 Real e Benemérita Sociedade de Beneficiência Portuguesa de São Paulo
27 Real Hospital Português
28 UFMG Hospital das Clínicas Servico de Transplante de Medula Óssea
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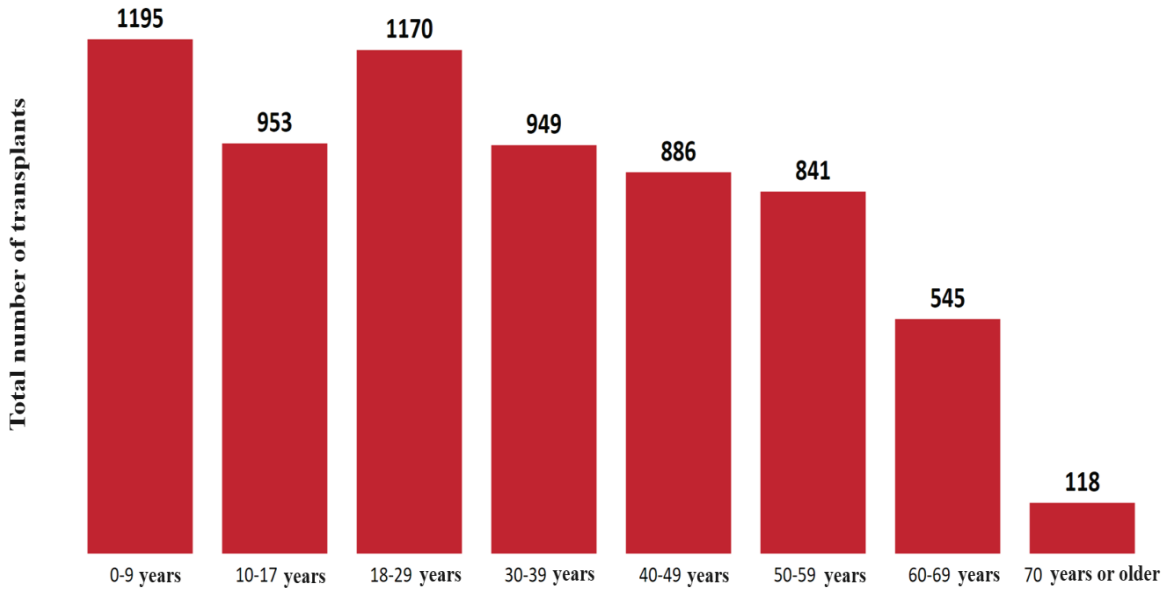
ABSTRACT

Allogeneic hematopoietic cell transplantation (HCT) represents a potential curative option for patients with hematologic malignancies. Advances in reducing transplant toxicity have made HCT a viable option for elderly patients. The aim of this study is to describe the outcomes and overall survival (OS) of patients over the age of 60 years treated with allogeneic HCT in Brazil for acute myeloid leukemia (AML), myelodysplastic syndrome and myeloproliferative diseases. This retrospective included 444 patients >60 years who received a first allogeneic HCT, between 2012 and 2023, and reported to the Brazilian Society of Cell Therapy and Bone Marrow Transplantation/ Center for International Blood & Marrow Transplant Research Registry. Descriptive statistics were performed. Survival analyses were using Kaplan-Meier and log-rank test. Univariate analysis used logistic regression, while multivariate analysis was using Cox Method regression with p<0.1. The statistical program was SPSSv.23.1. Of the total of 6657 allogeneic HCT reported, 444 were performed in patients aged >60 years. We observed an increase in the number of transplants in the last 5-years. (9.9%) of patients were >60 years old (Graph 1) and the most were male (59%). AML was the most frequent indication for HCT (52.25%). Most received grafts from matched related donors (41.7%), followed by mismatched related donor (33.1%) and then matched unrelated donor (25.2%). Peripheral blood stem cells were the major graft source (75%) and reduced intensity the predominant conditioning regimen type (70%). Death occurred in 23.42% in the first 100 days post-HCT. Infections were the leading cause of death, with 50% of cases both in the first 100 days and after this period. The 25-month overall survival rate was 39.6% (Graph 2a). OS was significantly lower with related mismatched donors (23.9%, p<0.001) (Graph 2b). OS was lower in 2021-2023 (25.6%, p=0.002). Patients receiving transplants from matched unrelated had worse survival in 2012-2014 (33%, p=0.007). In the univariate analysis, the risk factors for OS were a mismatched related donor (p<0.01), Karnofsky Performance Status<80% (p=0.034) and acute GVHD (grade III-IV) (p=0.0052). In the multivariate analysis, a mismatched related donor (p<0.001) and the presence of acute GVHD (grade III-IV) (p=0.005), were identified risk factors for OS in patients >60 years old undergoing HCT. This study demonstrated a gradual increase in cases of HCT in individuals aged >60 years the 11 years analyzed. The OS in this patient group was acceptable. However, factors such as donor type, cell source, GVHD, and functional status contributed to poorer survival. In recent years, there has been a trend towards decreased survival in elderly patients, underscoring the need for further studies for more comprehensively. These results may be related to several factors, including a heterogeneous cohort, the COVID-19 pandemic, and increase in the number of haploidentical donor transplants.

KEYWORDS allogeneic hematopoietic cell transplantation; elderly; myeloproliferative diseases.

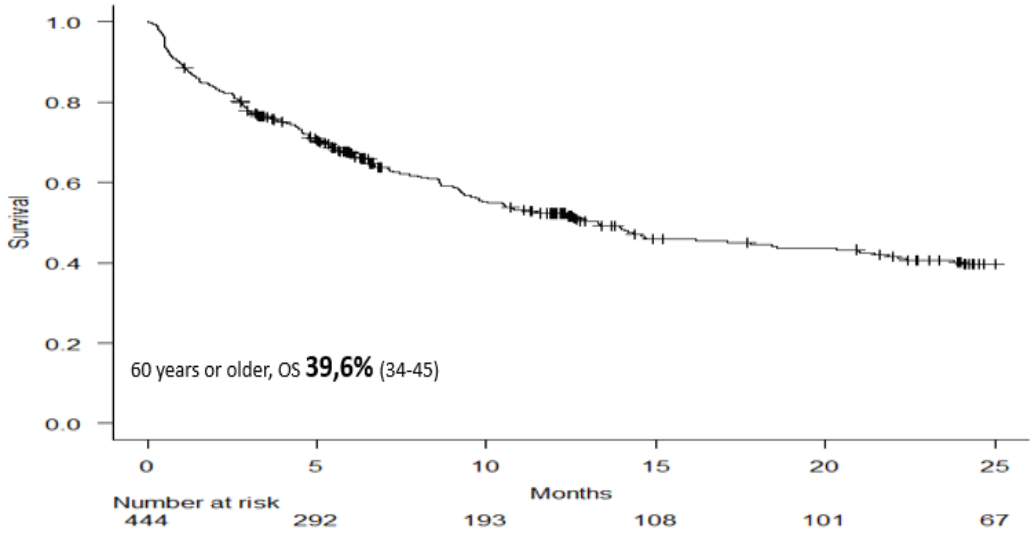
GRAPH 1 - HCT by age group (n=6657).



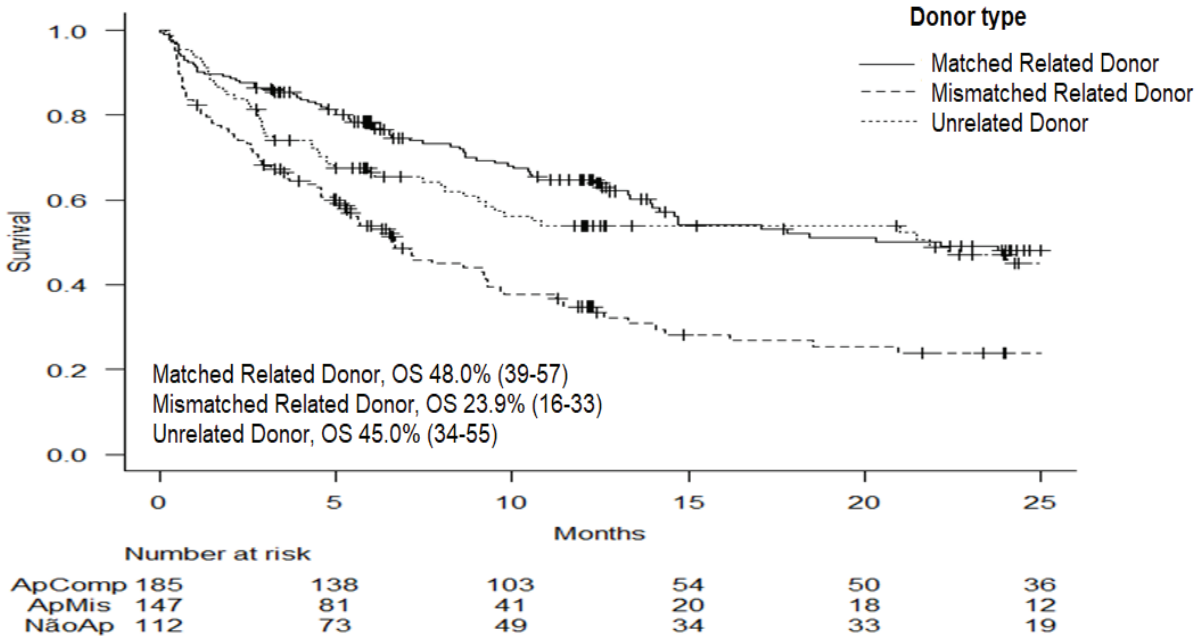
Note: *CIBMTR – Data Back to Center*

GRAPH 2 - Survival curves in patients aged 60 years

a)



b)



Note: Kaplan-Meier curves. a) Overall Survival (OS) after first allogeneic HCT in patients aged 60 years or older. b) OS after first allogeneic HCT in patients aged 60 years or older by donor type.

ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION REDUCES INFLAMMATION AND ENDOTHELIAL DAMAGE IN SICKLE CELL DISEASE

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INTRODUCTION

HLA-identical sibling hematopoietic stem cell transplantation (HSCT) is a well-established curative therapy for sickle cell disease (SCD). Endothelium is a commonly affected organ in SCD and allogeneic HSCT complications, including graft-versus-host disease (GVHD). Nevertheless, excellent outcomes have been demonstrated in this scenario.

OBJECTIVE - To evaluate the impact of HSCT on inflammatory markers and endothelial function in SCD.

METHODS

Twenty-one SCD patients received myeloablative conditioning regimen (fludarabine 120-150mg/m2, busulfan 9,6-12,8mg/kg and ATG 4.5-10.0 mg/kg); bone marrow as the hematopoietic stem cell (HSC) source, and cyclosporine plus methotrexate as GVHD prophylaxis. Inflammation (IL-6, IL-33, IL-18, IL-6Rα, TNF-α, TNF-RI, CD163, and pentraxin-3), coagulation (D-dimer, thrombomodulin and vWF-A2), and endothelial (ICAM-1, VCAM-1, P-selectin, E-selectin, endothelin-1 and VEGF-A) plasma markers were prospectively analyzed, before, 1, 6 and 24 months after HSCT, using multiplex assay. The patients were retrospectively assigned into two groups: good graft function (GG) and graft failure (GF). Statistical analyses were performed with Mann-Whitney, Friedman, and Fisher's exact tests; significance was set at $p< 0.05$.

RESULTS

Patient and transplant characteristics are detailed in Table 1. GG and GF groups were similar, but the CD34+ cell dose was lower in the GF group. Median (range) time for neutrophil engraftment was 21 (16-28) days after HSC infusion. Five patients (23.8%) had secondary graft failure, with autologous recovery, except for one who died of sepsis. In the GG group, 87.5% of patients maintained mixed chimerism, 17.7% had complete donor chimera; 25% of patients had grades II-III acute GVHD and one had mild chronic GVHD (all responded to corticosteroid therapy). Before HSCT, median levels of vWF-A2 and E-selectin were higher in children [383.9 (362.7-463.7); 76.2 (50.7-98.6), respectively), than in adults [320.3 (271.6-369.5), $p= 0.027$; 44.8 (36.3-59.7), $p= 0.036$; respectively) and, 24 months post-HSCT, median levels of IL-6, D-dimer, and P-selectin were lower in isogroup/major incompatibility group [9.3 (8.3-11.1); 2.8 (2.3-5.1); 28.2 (24.0-36.0), respectively] than in minor/bidirectional group [13.25 (9.6-15.6), $p= 0.044$; 6.15 (3.75-10.3), $p= 0.044$; 38.9 (34.2-70.9), $p= 0.039$; respectively]. Table 2 shows marker levels in the GG group, at different time points. At 24 months post-HSCT, median (IQR) plasma levels of E-selectin, VCAM-1, endothelin-1, D-dimer, IL-33, pentraxin-3, and IL-18 were lower than the baseline (pre-HSCT), while thrombomodulin levels increased. Patients in GF group had higher plasma levels of TNF-α, pentraxin-3, D-dimer, E-selectin, IL-33, and CD163 at 24 months post-HSCT than patients in GG group. Conclusion: This study demonstrates that HLA-identical sibling HSCT for SCD reduces inflammation and endothelial dysfunction in patients who maintain good graft function.

Table 1: Patient and transplant characteristics

Characteristic	Total (N=21)	Good graft function (N=16)	Graft failure (N=5)	*P*-value
Age, years*	14 (7–33)	14 (7–33)	13 (10–32)	0.67
Phenotype, n (%)				
SS/Sβ-Thalassemia	19 (76.2)	14 (87.5)	5 (100)	1.0
SC	2 (9.5)	2 (12.5)	0	
Male, n (%)	15 (71.4)	12 (75.0)	3 (60)	0.60
Indication for HSCT, n (%)				
Neurological	12 (57.1)	10 (62.5)	2 (40)	0.61
Non-neurological	9 (42.9)	6 (3.7)	3 (60)	
ABO compatibility, n (%)				
Isogroup or major incompatibility	14 (66.7)	10 (62.5)	4 (80)	0.62
Minor or bidirectional incompatibility	7 (33.3)	6 (37.5)	1 (20)	
TNC dose (x10^8/kg) *	3.29 (1.63 – 6.38)	3.19 (1.63 – 5.20)	3.29 (1.92 – 6.38)	0.72
CD34+ cell dose (x10^6/kg) *	3.74 (1.16 – 8.79)	4.05 (1.83 – 8.79)	2.77 (1.16 – 3.74)	0.03

*Median (range); TCN, total nuclear cell

Table 2. Plasma marker levels at different times, in patients with good graft function

Markers, median (IQR)	Pre HSCT	1 month post-HSCT	6 months post-HSCT	24 months post-HSCT	*P* value
TNF-α (pg/ml)	47.6 (40.8-58.8)	40.7 (33.2-46.0)	47.1 (44. -52.3)	43.6 (38.3-48.0)	0.103
IL-6 (pg/ml)	13.5 (10.6-15.5)	12.1 (9.0-16.7)	11.8 (10.4-15.5)	9.8 (9.0-12.6)	0.125
IL-33 (pg/ml)	71.2 (58.1-78.7)	55.0 (44.6-65.4)	69.8 (53.4-76.5)	59.6 (50.3-66.1)	**0.006**
vW-A2 (pg/ml)	364.3 (317.5-421.7)	370.6 (326.0-445.8)	377.0 (349.0-475.4)	352.0 (278.0-430.8)	0.633
VEGF-A (pg/ml)	83.3 (68.7-91.9)	60.2 (52.8-70.7)	75.8 (67.1-87.7)	68.3 (64.6-94.8)	**0.003**
IL-6Rα (ng/ml)	40.4 (31.6-48.6)	42.3 (36.3-46.0)	46.0 (39.8-48.2)	45.4 (40.1-48.6)	**0.031**
CD163 (ng/ml)	374.1 (251.9-566.7)	554.6 (232.7-1145.1)	531.7 (302.7-1057.9)	373.6 (313.8-702.1)	**0.007**
Pentraxin-3 (ng/ml)	1.3 (1-1.6)	2.9 (1.3-4.5)	1.5 (1.0-1.7)	0.9 (0.7-1.1)	**< 0.001**
D-dimer (µg/ml)	8.3 (7.1-13.8)	8.9 (6.4-9.8)	6.1 (4.5-7.4)	3.6 (2.4-8.3)	**0.001**
E-selectin (ng/ml)	57.1 (41.9-77.7)	36.5 (26.4-45.6)	44.8 (33.5-52.3)	41.2 (32.6-42.6)	**0.001**
Thrombomodulin (ng/ml)	4.7 (3.8-6.1)	5.9 (5.4-7.7)	8.1 (6.8-9.7)	6.8 (5.4-7.5)	**< 0.001**
P-selectin (ng/ml)	36.1 (28.8-45.4)	27.7 (17.5-37.1)	35.4 (29.7-51.7)	34.7 (26.1-40.3)	**0.003**
VCAM-1 (ng/ml)	2667.4 (1507.0–3832.4)	2642.5 (1300.0–3694.4)	1381.1 (1098.8- 1677.7)	927.6 (734.8-1346.7)	**< 0.001**
ICAM-1 (ng/ml)	441.6 (337.2-601.75)	520.3 (284.7-659.1)	576.2 (306.5-793.0)	479.1 (277.9-645.4)	0.107
TNF-RI (pg/ml)	1160.9 (961.8-1360.2)	1664.2 (1308.8-1909.3)	1830.0 (1396.6-2172.0)	1160.5 (1007.9-1540.5)	**< 0.001**
Endothelin-1 (pg/ml)	19.9 (19.0-21.8)	18,8 (17.6-20.1)	20.6 (18.3-22.5)	18,8 (18.3-20.2)	**0.034**
IL-18 (pg/ml)	523.9 (379.6-792.8)	330.9 (240.2-483.1)	222.2 (156.2-463.5)	187.35 (143.3-292.9)	**< 0.001**

HSCT, hematopoietic stem cell transplantation

ALLOGENIC RELATED BONE MARROW TRANSPLANTATION FOR B ACUTE LYMPHOBLASTIC LEUKEMIA (B ALL) PERFORMED ON AN OUTPATIENT BASIS IN A BRAZILIAN CENTER.

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INTRODUCTION

Allogeneic bone marrow transplantation is a widely used therapy indicated for patients with Acute Myeloid Leukemia eligible for transplantation. It is carried out, in the vast majority of transplant centers, on an inpatient basis, from conditioning to neutrophil grafting. Objective: To report the case of a patient who underwent a related allogeneic bone marrow transplant, HLA 12x12, for Acute Lymphoblastic Leukemia, with positive pre-transplant MRD, in 2023, whose conditioning was carried out on an outpatient basis with the FluBuMel protocol and GVHD prophylaxis with Cyclophosphamide, Cyclosporine and Mycophenolate, with good clinical evolution, requiring hospitalization only on D+10 due to febrile neutropenia.

METHOD

The patient underwent conditioning and infusion of hematopoietic progenitor cells on an outpatient basis, using oral ciprofloxacin as antibacterial prophylaxis. She presented grade 2 mucositis (CTCAE) in the gastrointestinal tract during the outpatient period, being managed by the multidisciplinary team. She required hospitalization on the tenth day after transplatation, and was admitted for parenteral antibiotic therapy. After neutrophilic grafting on D+20, antibiotics were suspended and the patient was discharged for follow-up at Hospital Dia, during which time she presented grade 1 skin GVHD, treated with topical corticosteroids. She was discharged to her home center on D+ 100.

RESULTS

The patient who underwent allogeneic bone marrow transplantation for B-ALL required hospitalization on D+10, with the toxicities associated with mucositis well managed on an outpatient basis with the support of the multidisciplinary team, and was admitted due to on expected complication in the post-transplant period. Conclusion: Allogeneic Related Bone Marrow Transplant for B-ALL can be performed on an outpatien basis depending on the patient's performance, transplant modality, HLA compatibility, among other factors, which reduces the risk associated with hiospital admission, keeps the patient in you family life routine, in addition to reducing the costs associated with the transplant process.

KEYWORDS - Transplantation, Homologous; leukemia; Bone Marrow Transplantation

AZACITIDINE PLUS VENETOCLAX AND DONOR LYMPHOCYTE INFUSION IN RELAPSED ACUTE MYELOID LEUKEMIA AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: A CASE REPORT

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INTRODUCTION

Acute myeloid leukemia (AML) is the most common type of acute leukemia in adults, with up to 30% of 5-year overall survival. Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a potential curative therapy for patients with intermediate or high-risk AML. Nevertheless, approximately 40% of adults relapse after allo-HSCT. In this scenario, post-transplant azacitidine followed by donor lymphocyte infusion (DLI) is a feasible option, with or without the addition of venetoclax.

OBJECTIVE - To report the treatment strategy for a 42-year-old man with relapsed AML 11 months after allo-HSCT.

METHOD - Case report, data obtained via clinical records, retrospective, observational.

RESULTS

A 42-year-old male with intermediate-risk AML and positive minimal residual disease (MRD) by multiparameter flow cytometry underwent HLA-matched sibling allo-HSCT in 2023. The reduced intensity conditioning regimen, due to previous pulmonary infectious complications, consisted of fludarabine, melphalan, and anti-thymocyte globulin, followed by the infusion of 9.62 x 10^6 CD34+/kg, from a peripheral blood source. Methotrexate and cyclosporine were used as graft-versus-host disease (GVHD) prophylaxis. At 6 months after allo-HSCT, the bone marrow evaluation showed a positive MRD without morphological relapse. As a strategy to enhance the graft-versus-leukemia effect, cyclosporine was withdrawn and the patient presented grade 2 (MAGIC classification) acute skin GVHD, which was completely resolved with topical steroids. At 11 months after allo-HSCT, morphological relapse (9% of blasts in bone marrow aspirate) and reduction of chimerism (from 95% to 91%) were documented. Relapse treatment was initiated with 28-day cycles of subcutaneous azacitidine 75 mg/m^2/day (from day 1 to 5), associated with oral venetoclax 100 mg/day (reduced dose due to concomitant voriconazole use), and 1 x 106 CD3 cells/kg donor lymphocyte infusion (DLI) on the eighth day. At the end of the first cycle, complete donor chimerism was reestablished (100%), but the bone marrow evaluation still demonstrated positive MRD. Adverse events included grade 3 neutropenia, without symptoms or signs of infection, and grade 1 nausea which was controlled with symptomatic treatment. In the second cycle DLI dose was 5 x 106 CD3 cells/kg, without any adverse events. At the end of the second cycle, MRD was negative, the patient sustained complete donor chimerism, and did not present any signs of GVHD. He was in complete remission 3 months after.

CONCLUSIONS

This case represents a successful treatment for relapsed low-burden AML after allo-HSCT, using a combination of azacitidine, venetoclax and DLI. Complete remission, with negative MRD and complete donor chimera, was achieved after 2 cycles of azacitidine plus venetoclax and DLI, with no severe adverse events and no development of GVHD, demonstrating that this strategy is safe and feasible in this challenging scenario.

KEYWORDS - Acute myeloid leukemia; allogeneic hematopoietic stem cell transplantation; venetoclax; azacitidine; donor lymphocyte infusion.

BONE MARROW TRANSPLANTATION AS A TREATMENT FOR WHIM SYNDROME

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INTRODUCTION

WHIM syndrome is a rare, autosomal dominant immunodeficiency which is named for the four key manifestations: Warts, Hypogammaglobulinemia, Infections, and Myelokathexis. It results from heterozygous gain-of-function mutations in the chemokine receptor CXCR4. The incidence is estimated to be about one in 4.3 million live births.

Since CXCR4 is involved in retention of neutrophils and other leukocyte subtypes in the bone marrow, the mutations exaggerate this process, resulting in myelokathectic neutropenia and increased susceptibility to bacterial and viral infections.

Therapy with immunoglobulin replacement, G-CSF, and plerixafor does not provide complete control of infectious and autoimmune episodes in WHIM patients and cannot prevent malignancies. Besides that, plerixafor needs to be injected frequently for life and it is quite expensive.

The expression of CXCR4 is strongest on hematopoietic cells. Therefore, hematopoietic stem cell transplantation (HSCT) holds promise as a potential long-term treatment.

OBJECTIVE

Analyze the effectiveness of HSCT in the treatment of WHIM syndrome.

METHODS

The present study is a literature review, in which searches were conducted in the MEDLINE and EMBASE databases using the MeSH and EMTREE descriptors “bone marrow transplant” and “hematopoietic stem cell transplant,” combined through the Boolean operator OR and “WHIM syndrome,” coordinated through the Boolean operator AND. Original articles published in Portuguese and English in the last 10 years, pertinent to the study's subject, were included, and 4 studies were selected to compose this review.

RESULTS

The articles analyzed stated that allogeneic HSCT is the only treatment option capable of preventing the WHIM syndrome course, which can include malignancies and infections, and it remains the only curative option.

The other options available, like conservative therapy with immunoglobulin replacement, G-CSF, and plerixafor cannot control infectious and autoimmune episodes in WHIM patients and cannot prevent malignancies.

However, it was shown that this treatment cannot be considered as a completely safe treatment and risks of life-threatening transplant-related complications and death still remain.

CONCLUSION

While HSCT was demonstrated to be promising in treating the disease and also preventing various consequences of it, there were published a few studies reporting this subject.

Based on this review, although promising results were shown regarding this treatment, HSCT is not a completely safe treatment and it cannot yet be considered effective for all the patients with WHIM syndrome, because, in addition to the limited number of studies on the subject, few patients have undergone this treatment, and none of the studies included long-term follow-up of the patients. Therefore, more studies need to be conducted to make this assessment and evaluate the safety and efficacy of HSCT.

KEYWORDS - SHIM syndrome, Bone marrow transplant and Treatment.

COMPARATIVE ANALYSIS OF THE INCIDENCE OF ACUTE AND CHRONIC GRAFT-VERSUS-HOST DISEASE IN PATIENTS UNDERGOING BONE MARROW TRANSPLANTATION WITH UNRELATED DONORS WITH AND WITHOUT MISMATCH AT SÃO PAULO HOSPITAL-UNIFESP

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation (HSCT) offers a curative approach for various malignant and non-malignant hematological diseases. However, graft-versus-host disease (GVHD) remains a significant complication following HSCT. Primary graft failure is strongly correlated with the number of human leukocyte antigen (HLA) mismatches. A higher number of mismatches increases the risk of GVHD and mortality but decreases the risk of disease relapse. For HLA-DPB1, mismatch can be classified as permissive or non-permissive based on established risks, and two mismatches is associated with higher risks than just one.

OBJECTIVE

This study investigated the impact of HLA mismatches on the incidence of acute and chronic GVHD in patients receiving unrelated donor HSCT.

PATIENTS AND METHODS

A retrospective analysis was conducted using electronic medical records of 149 patients who underwent transplantation from April 2019 until May 2023.

RESULTS

Most donors were haploidentical (n=86), 35 were matched sibling donors (MSD), 11 matched unrelated donors (MUD), and 22 mismatched unrelated donors (MMUD). Median age was 52, most patients were female, the underlying disease was AML in most cases, peripheral blood was the most common stem cell source, and most received reduced-intensity conditioning (RIC) regimens. Patients were categorized based on donor type: unrelated and mismatched donors, matched donors, and haploidentical donors. Cyclophosphamide post-transplant (CyPT) was administered to 83% of patients in the MSD/MUD group and 53% in the MMUD group. Additionally, ATG was utilized in 21% of patients in the MSD/MUD cohort and 47% in the MMUD group. Overall survival at 2 years was 63%. There were no significant differences in overall survival, progression-free survival, non-relapse mortality, relapse, neutrophil engraftment, and chronic GVHD, between MSD/MUD and MMUD cohorts. However, a higher rate of acute GVHD was noted in the MMUD group as compared to MSD/MUD (39% vs. 19%, p=0.045).

CONCLUSION

Despite comparable outcomes between MSD/MUD and MMUD cohorts, we observed a higher incidence of acute GVHD in MMUD group. The utilization of post-transplant cyclophosphamide and ATG varied between the two groups, potentially influencing clinical outcomes. These findings underscore the importance of donor selection and highlight the need for further investigation into the impact of HLA compatibility and the use of CyPT.

COMPARISON OF HAPLOIDENTICAL AND MATCHED-UNRELATED DONORS TRANSPLANTS WITH UNIVERSAL POST-TRANSPLANT CYCLOPHOSPHAMIDE-BASED PROPHYLAXIS FOR ALL PATIENTS

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The use of post-transplant cyclophosphamide (PTCy) is an effective GVHD prophylaxis and has expanded haploidentical (Haplo) hematopoietic cell transplantation (HCT). Subsequent studies have shown that PTCy produces at least comparable outcomes with other graft-versus-host disease (GVHD) prophylactic regimens in matched and mismatched donors. Recentely, a phase 3 trial has shown that PTCy reduces the incidence of severe acute GVHD and chronic GVHD in patients undergoing allogeneic HLA-matched HSCT with reduced-intensity conditioning.

OBJECTIVE

To compare the outcomes of Haplo and 10/10 HLA-matched unrelated (MUD) HCT with PTCy combined CNI/MMF for GVHD prophylaxis for hematologic malignancy diseases.

METHODS

This is a single-center study conducted in a Brazilian Bone Marrow Unit. Patients above 16 years of age who received their first allogeneic HCT between 12/2014 and 03/2024 were included. Patients with refractory leukemia were excluded. Disease relapse, progression, and death were treated as events. The endpoints included progression-free survival (PFS), overall survival (OS), nonrelapse mortality (NRM) and acute GVHD incidence. Nonrelapse mortality was defined as time to death without relapse or progression. Disease-free survival was defined as being alive without relapse.

RESULTS

A total of 80 patients (52 Haplo and 28 MUD, with a median follow-up of 26 and 14 months, respectively) were included. The median ages were similar in both groups: 49.6y (Haplo) and 43.7y (MUD), but the median age of donors was higher in Haplo group: 37.5y vs 30.0y (p=0.008). Myeloablative conditioning regimens were more common in MUD: 92% vs 19%, (p<0.001). Peripheral blood cells were the main (55%) stem cell source. Neutrophil recoveries were similar in both groups. There were no significant differences between Haplo and MUD groups in 1-year OS (74% vs 78%, respectively, P = 0.27); 1-year PFS (67% vs 72%, P=0.09); 1-year NRM (19% vs 16%, P = 0.35), 1-year relapse (17% vs 12%, P = 0.23). The 6-month grades II-IV acute GVHD were 48% for Haplo and 31% for MUD (P = 0.26) and grades III-IV acute GVHD III–IV were 10% vs 0%, respectively (P = 0.1). When we analyzed only patients treated with myeloablative conditioning, the 1-year OS, 1-year PFS and NRM were not different between both group. There was a trend towards a higher relapse rate with Haplo: 30% vs 13%, P=0.07.

CONCLUSION

Our results suggest HCT from either haploidentical or 10/10 MUD both with PTCy prophylaxis achieve comparable outcomes and support the use of PTCy-based regimens as a viable option for GVHD prophylaxis in MUD transplants, independent of conditioning regimen intensity. Prospective or registry multicenter data including a larger sample with longer follow-up might be able to identify non-HLA-related factors to help prioritize donors and optimize outcomes.

DLI PROMOTES LONG TERM SUVIVAL IN CHILDREN WITH HIGH-RISK AND RELAPSED LEUKEMIA

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INTRODUCTION

Donor leukocyte infusions (DLI) are a form of immunotherapy that can induce durable remission by enhancing the graft-versus-leukemia (GVL) effect. They may be used to prevent and treat leukemic relapse after hematopoietic cell transplantation (HCT). Access and cost are the main barriers to CAR-T cell therapy to treat relapsed leukemia, but DLI is an economical, feasible, and timely treatment option to treat and prevent relapse post HCT.

OBJECTIVE

To evaluate the long-term survival of patients with high risk leukemias treated with DLI.

METHODS

Patients with high-risk myeloid malignancies (AML/MDS/CML with active disease or positive MRD before HCT) or second HCT received prophylactic DLI starting on D+21 (Jaiswall, et al. 2016) in patients who have not had any graft versus host disease (GVHD): 1x106 CD3/kg on D+21 and 5 x106 CD3/ kg on D+35 for all donot types. On D+60 patients repeated 5 x106 CD3/ kg with haploidentical donors and received 1x107 CD3/kg for MRD and MUD. Relapse was suspected in the presence of mixed chimerism, positive MRD or confirmed with hematological disease at any time after HCT. They were treated with fast withdraw of immunosuppressors and in patients without GVHD, escalating doses of DLI according to donor type and disease burden, usually in MSD 1x108 CD3/kg followed by 5x108 CD3/kg. In MUD/Haplo, 1x107 CD3/kg, 5x107 CD3/kg, 1x108 CD3/kg, 5x108 CD3/kg. Other therapies were associated whenever indicated and possible, e.g. TKI, anti CD19-CD3 engager or anti-CD22-calicheamycin. We evaluated overall survival and the development of moderate/severe GVHD after DLI.

RESULTS

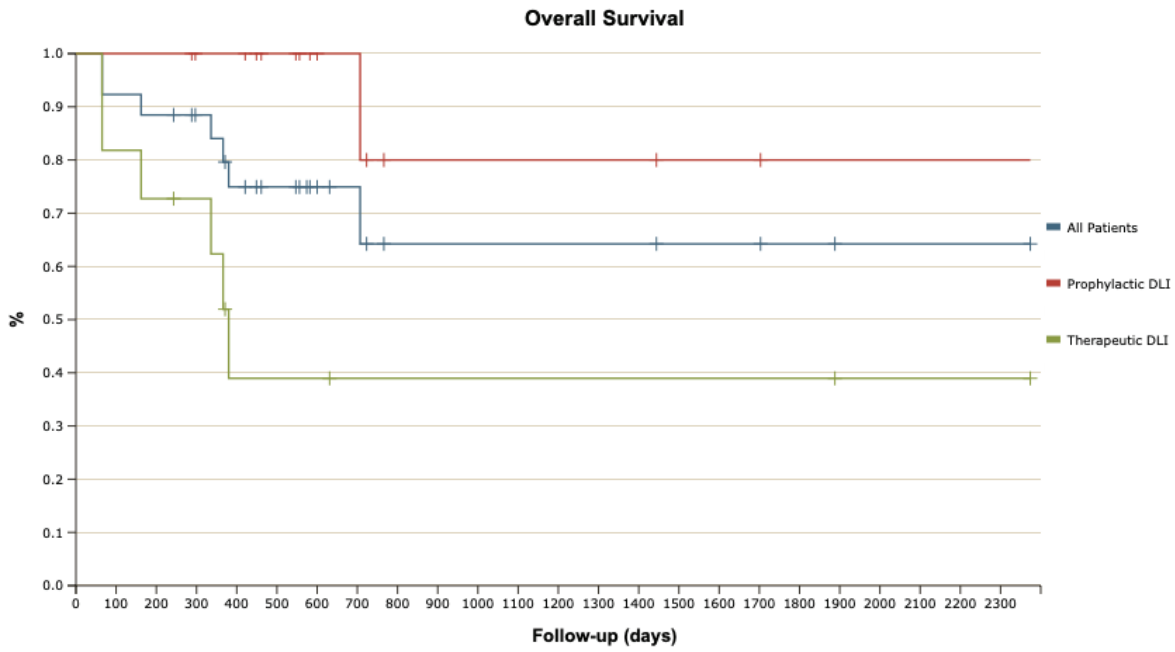
Retrospective analysis of 25 children treated with DLI. Patient characteristics are shown in Table 1: 9 females, median age of 11.6 years (1.3-17.2). Underlying diseases were AML (n=10), ALL (n=12), MDS (n=1), CML (n =1), and infant leukemia (n =1). Haplo was performed in 17 children, MRD in 2 and MUD in 6. The majority of the conditioning regimens were TBI-based (n=12), followed by BuFluMel (n=10), flamsa (n=1) and thiotepa (n=2). The median number of DLI doses was one (1-4). Eleven (44%) DLIs were therapeutic and 14 (56%) prophylactic. Twenty-one (84%) of the children developed GVHD, 13 of them (61%) classified as moderate-severe. There were 6 deaths: 4 due to active disease and 2 due to infections (COVID and adenovirus). The median follow up was 38.4 months (2.1 - 80). Overall survival was 72%: 93% after prophylactic DLI (13/14) and 45%after therapeutic DLI (5/11).

CONCLUSION

DLI is a feasible and good option for prophylaxis in high risk leukemias and to treat relapses after HCT in patients without other curative treatment option. DLI can be associated to other therapies to improve efficacy, but moderate-severe GVHD is still the main complication.

TABLE 1- Patients caracteristics (n = 25)

Gender	9 female and 16 male
Age – median (range)	11. 6 years (1.3 – 7.2)
Disease caracteristics and Status before HCT	AML (10) - active disease (4) - MRD 0,1 – 1% (2) - MRD negative (4)
	Secondary AML (1) - MRD negative
	ALL (11) - B precursor (9) - Ph+ or Ph like (3) - relapse after 1st HCT (1) - T precursor (3) - relapse after 1st HCT (2) - MRD negative (7) - MRD >0,1% (2) - MRD 0,01 – 0,1% (1) - Molecular MRD (1)
	Secundary ALL (1) - MRD negative
	MDS (1) - > 20% marrow blasts
	Infant leukemia (1) - MRD negative
	CML Lymphoid blastic crisis (1) - MRD negative
Donors	MRD (2) MUD (6) Haplo (17)
Conditioning	BuFluMel (10) BuFluTT (2) TBI+VP (5) TBI+Flu (6) TBI+Cy (1) Flamsa (1)
GVHD prophylaxis	CyPT + MMF + CSA (17) ATG + CSA + MTX (6) CSA alone (2)
DLI	Prophylactic (14) Therapeutic (11) - relapse (3) - mixed chimerism (5) - mixed chimerism + MRD+ (3)
Other therapies	- TKI (3) - Blinatumomab (1) - Blinatumomab + Inotuzumab (1)
GVHD moderate – severe	Prophylactic (9) Therapeutic (4)
Deaths	Prophylactic - active disease (1) Therapeutic - active disease (4) - Non relapse mortality (2) - COVID (1) - adenovirus (1)
Median follow-up	38 months (2.1 – 80)


Overall Survival
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
%
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300
Follow-up (days)
All Patients
Prophylactic DLI
Therapeutic DLI

DONOR LYMPHOCYTE INFUSION FOR ACUTE MYELOID NEOPLASMS: A SINGLE CENTER EXPERIENCE

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INTRODUCTION

Allogeneic bone marrow stem cell transplant is an effective treatment for acute myeloid neoplasms even in advanced stages. Allogeneic lymphocytes produce a potent graft-versus-tumor effect. Objective: To evaluate the role of donor lymphocyte infusion in controlling acute myeloid neoplasms.

CASUISTIC

Patients who underwent allogeneic transplantation for acute myeloid leukemia and myelodysplastic syndrome in an academic hospital who received donor lymphocyte infusion between 2021 and 2022.

METHODS

Retrospective study with data analysis and presentation by descriptive statistics .

RESULTS

Among the patients, 50% were male, with a mean age of 40.2 years. High-risk disease was characterized in 84.6% of the cases, and of these, 22% had positive MRD before conditioning. 65% donors were male, with a mean age of 38.3 years. Eighteen were HLA identical, 6 haploidentical and 2 were 10/10 unrelated, with myeloablative conditioning in 30% of cases, 58% with RIC and the remainder non-myeloablative. The source was peripheral blood in all cases. Lymphocyte infusions were prophylactic in 34.6% of the cases and the rest preemptive, with a mean time to first infusion on day +95.7. The mean dose of the first DLI was 1.13x106 CD3+, with an average of 2.9 infusions per patient, and a mean interval of 7 weeks. 30.7% of patients received maintenance therapy associated with DLI, with sorafenib or azacitidine. 7.7% of patients developed acute GVHD grade III/IV post-DLI and 30.7% developed moderate/severe chronic GVHD post-DLI. Of the analyzed patients in this study, 69.3% remained alive and in disease remission as of march 2024. Conclusions: Allogeneic lymphocyte infusions remain a safe and effective cellular therapy in controlling acute myeloid neoplasms.

KEYWORDS

Donor Lymphocyte infusion, cellular therapy, acute myeloid leukemia, myelodysplastic syndrome.

EFFECT OF SIROLIMUS EXPOSURE AND THE OCCURRENCE OF CYTOMEGALOVIRUS REACTIVATION AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: A COHORT ANALYSIS

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INTRODUCTION

: The impact of cytomegalovirus (CMV) infection has been significantly reduced with the therapeutic use of deoxyguanosine analogs - such as ganciclovir - and the implementation of preemptive treatment based on systematic monitoring of CMV serum antigens. Nevertheless, CMV reactivation remains a challenge after allogeneic hematopoietic stem cell transplantation (Allo-HSCT) due to toxicity, cost, and other complications associated with both antiviral drugs and the infection itself. The use of sirolimus appears to protect against CMV by modulating T lymphocytes and blocking mTORC pathways necessary for viral replication.

OBJECTIVE

To describe the effect of sirolimus exposure on the incidence of CMV reactivation after Allo-HSCT at a tertiary care facility.

METHODS

Observational mixed cohort study conducted from January 2018 to April 2024, comprising all patients undergoing Allo-HSCT who changed their immunosuppressive regimen to Sirolimus. Patients with no prior CMV reactivation episodes or those receiving sirolimus for less than 30 days were excluded. Numerical variables were described using the median and categorical variables using frequency and percentage measures. Correlations between variables were assessed using Fisher's exact test or Wilcoxon, with statistical significance at value of $p < 0.05$.

RESULTS

17 patients were included in the cohort, with a median age of 22 years, the majority of whom presented with onco-hematologic disease. Most donors were related, with 30% being haploidentical. Regarding GVHD, 9 (53%) received anti-thymocyte human immunoglobulin (ATG) while 5 (30%) received post-infusion cyclophosphamide (PTCy). The median CMV reactivation was 2 before the initiation of Sirolimus, compared to 1 episode after its introduction. The median time of the first reactivation was 30 days, and Sirolimus was started at a median of 120 days post-transplant. In 3 patients (18%), the switch to Sirolimus was due to sustained CMV viremia or multiple reactivations, with a median viremia of 198, 928, and 1137 IU/mL prior, compared to 15, 173, and 15 IU/mL afterward. The Wilcoxon Matched-Pairs test shows that, regardless of the reason for the immunosuppressant switch, previous immunosuppressant, exposure to ATG or PTCy, the use of Sirolimus showed a trend towards a lower chance of CMV reactivation with $Z=-2.521$ ($p=0.012$).

CONCLUSION

In this studied cohort, the use of Sirolimus shows a tendency towards reduced reactivation and CMV viremia, suggesting a protective effect in line with its theoretical rationale. However, structured clinical trials are needed to properly assess the magnitude and validate this effect. Nevertheless, Sirolimus appears to be an important alternative for healthcare facilities with limited access to treatment and supportive measures and a high incidence of CMV.

TABLE 1 - Sample Characteristics

Cohort – n (%)	17 (100)
Sex Male – n (%)	11 (65)
Age – median (range)	22 (0 – 59)
Primary Disease – n (%)	
AML or ALL	6 (34)
MDS	2 (12)
Other	9 (53)
Disease Status – n (%)	
Relapsed or Refractory	5 (30)
Complete Remission	4 (24)
N/A	8 (46)
CMV Serostatus – n (%)	
CMV IgG Donor +/Recipient-	1 (6)
CMV IgG Donor -/ Recipient +	3 (17)
CMV IgG Donor +/ Recipient +	13 (77)
HLA match – n (%)	
Matched Donor	9 (53)
Haploidentical Donor	5 (30)
Donor relatedness – n (%)	
Related Donor	8 (47)
Unrelated Donor	9 (53)
Stem cell source – n (%)	
Peripheral blood	8 (47)
Bone Marrow	9 (53)
Conditioning regimen – n (%)	
Reduced-Intensity	5 (30)
Myeloablative	10 (58)
Non-Myeloablative	2 (12)
Reason for switch immunosuppressants – n (%)	
GVHD	6 (35)
Kidney disease	3 (17)
CMV disease	3 (17)
Other	5 (30)
CMV Reactivation - median (range)	
Without Sirolimus	2 (1-5)
With Sirolimus	1 (0-4)
Days to first reactivation	31 (3-71)
Days to start Sirolimus	120 (60-286)

Abbreviations:AML, Acute Myelogenous Leukemia; ALL, Acute Lymphocytic Leukemia; MDS, Myelodysplastic Neoplasm;N/A, not applicable; GVHD, Graft versus Host Disease.

EFFECTS CRYOPRESERVATION IN ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION DURING THE COVID-19 PANDEMIC- A SINGLE CENTER EXPERIENCE

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INTRODUCTION

During Coronavirus 19 (COVID-19) pandemic, the cryopreservation of allogeneic hematopoietic stem cells was recommended by several societies and health authorities worldwide, including Brazil. The impact of hematopoietic stem cell cryopreservation on the outcomes of allogeneic HSCT recipients has not yet been fully established.

METHODOLOGY

Data from all patients undergoing allogeneic transplantation of cryopreserved hematopoietic stem cells during the period between March 2020 and December 2022 were retrospectively analyzed.

RESULTS

73 patients who underwent allogeneic HSCT using cryopreserved cells within the established period were evaluated. The median age was 28 years, 49.3% were male. The predominant race was white, 86.3% of cases. The most common diseases were acute leukemias with 46.5% of cases, with AML being the most common disease (23.3%) 39.7% of patients received myeloablative conditioning AND 69.9% of patients used G-CSF . The majority of transplants were performed with a haploidentical donor (28.8%), followed by a 100% compatible AP donor (26%), a 10x10 or 12x12 NAP donor (24.7%), a mismatch NAP donor (19.2%) and AP donor with mismatch (1.4%).

The main source of CPH was peripheral blood (52.1%). More than half of the patients (58.9%) had aGVHD, with a predominance of grade I/II aGVHD (50.7%). The median CNT was 6.97 x 10^8/kg and the median CD34 was 5.92 x10^6/kg, with a median cell viability of 97%. The median DMSO concentration was 0.28 g/kg. The median number of days post-HSCT in which patients reached neutrophilic status was 16 post-infusion; and the median number of days to confirm platelet retention was 23. On D+30 post-transplant, the majority of patients (75.4%) showed complete chimerism, however, on D+100, 60.3% showed chimerism complete. Only 1 patient had latch failure, 3 patients had disease relapse before D+100 and 3 patients required a second HSCT. The probability of surviving more than 100 days after allogeneic HSCT using cryopreserved cells is 74% according to the Kaplan Maier curve. 61.6% of patients had some type of adverse reaction related to the DMSO infusion, 52.1% had mild reactions, 9.6% had moderate reactions and none of them had serious reactions. The most common gastrointestinal adverse reaction was vomiting (12.3%). The most common cardiovascular adverse reaction was arterial hypertension (8.2%). Regarding respiratory adverse reactions, 8.2% presented mild desaturation, however, 2.7% presented ventilatory failure requiring non-invasive mechanical ventilation. The most common neurological adverse reaction was headache. Conclusion: The use of cryopreserved HSC in allogeneic HSCT may be a safe and viable option for selected cases where for some reason a fresh infusion cannot be performed, taking into account that the use of HSC may increase the possibility of adverse reactions. Future prospective randomized clinical trials are needed to evaluate graft behavior and long-term toxicity.

FLT3 MUTATION IN ACUTE MYELOID LEUKEMIA: EPIDEMIOLOGICAL PROFILE IN A PUBLIC TERTIARY CENTER

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INTRODUCTION

Acute myeloid leukemia (AML) is the subtype with the highest mortality. Mutations in the FMS-like tyrosine kinase 3 (FLT3) gene occur in approximately 25-45% of new AML diagnoses. The addition of FLT3 inhibitors to conventional protocols showed improved overall survival.

OBJECTIVES

To evaluate the incidence of FLT3 gene mutation among patients diagnosed with AML at a tertiary hospital in northeastern Brazil; Describe access to FLT3 inhibitors and hematopoietic cell transplantation (HCT), and the overall survival of this group.

METHODS

Retrospective evaluation of medical records of patients diagnosed with AML between 2020 and 2022. Statistical analysis was performed using the Kaplan-Meier method for survival probability estimation, and comparison was performed using the Logrank test.

RESULTS

47 patients were diagnosed with AML during this period, of whom 17% (n=8) had FLT3pos mutation. 3/8 patients obtained access to FLT3 inhibitors. The median survival for FLT3pos mutation was 9.1 months vs. 12.9 months in FLT3neg ($p = 0.196$). The overall survival of AML patients was 30.9% at 2 years. 11/47 patients underwent allogeneic HCT with matched sibling donors (54.5%), unrelated donors (18.2%), and haploidentical donors (27.3%). Most patients underwent reduced-intensity conditioning (54.5%). The main reasons for not transplanting were lack of sustained response (38.9%), therapy-related death (25%), and clinical contraindication (19.4%). Disease progression was the main cause of death (83%), followed by infectious and hemorrhagic complications (34% and 11%, respectively). The early death rate (within 60 days after diagnosis) was 20.8%. There was better survival in patients under 60 years (13.5 vs. 1.4 months, $p = 0.004$) and those undergoing HCT (median not reached vs. 8.6 months, $p = 0.0001$).

CONCLUSION

Acute myeloid leukemia has a high mortality - the use of targeted therapies and allogeneic HCT can mitigate its lethality.

KEYWORDS

Acute Myeloid Leukemia. Bone Marrow Transplantation. Mortality.

GASTROINTESTINAL INVASIVE FUNGAL INFECTION AFTER HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Invasive fungal infections (IFIs) are an important cause of morbidity and mortality in hematopoietic stem cell transplantation (HSCT). The global incidence of IFIs in post-HSCT patients is on average 4%, mortality in the allogeneic type reaches 13%. The type of HSCT, conditioning and degree of immunosuppression are risk factors that impact IFIs. In one Brazilian work from the south/southeast region, documented IFIs are represented by Fusarium in 5.2%, candidiasis in 2.4% and aspergillosis in 2.3%.

OBJECTIVE

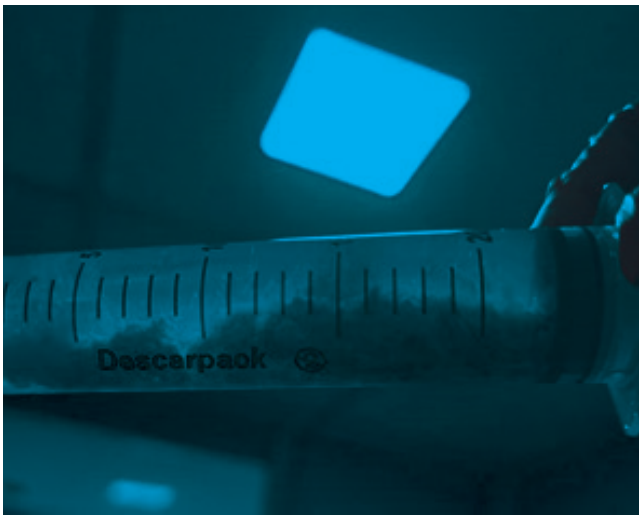
To report the case of a patient with gastrointestinal tract (GIT) IFI after haploidentical HSCT desensitized to donor-specific anti-HLA antibody (DSA)

METHOD:

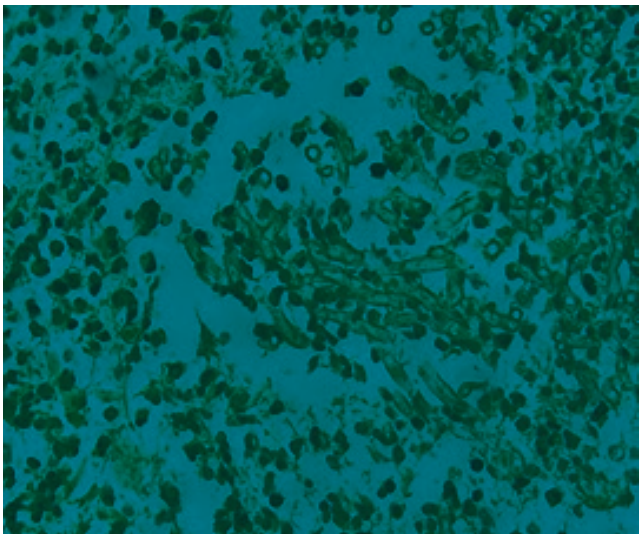
Data obtained via clinical records. Retrospective. Observational.

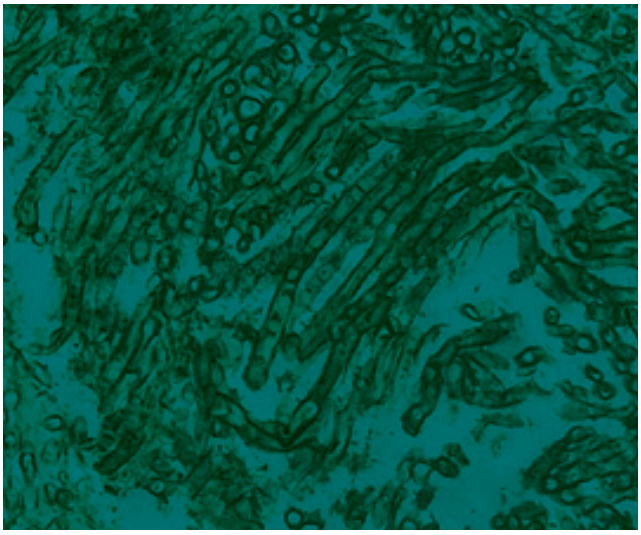
CASE REPORT:

Male, 53 years old, high-risk myelodysplastic syndrome. Chemotherapy with Azacitidine and Venetoclax for 3 cycles, followed by haploidentical HSCT. Female donor (daughter), without ABO incompatibility. Desensitized to DSA in intermediate titer with: plasmapheresis, immunoglobulin and tacrolimus. Myeloablative conditioning with busulfan, fludarabine and cyclophosphamide. Graft vs. host disease prophylaxis host with cyclosporine, mycophenolate and cyclophosphamide powders. Febrile neutropenia on D+6, starting piperacillin-tazobactam. The fever persisted and was escalated to meropenem and teicoplanin due to severe mucositis and previous use of quinolones. Neutrophilic engraftment at D+16. Levofloxacin was started on D+17 due to stenotrophomonas in blood culture. On D+24, dysphagia, whitish-colored oral ulcers, pain and abdominal distension began. On D+25, esophagogastroduodenoscopy (EGD) with intense erosive esophagitis associated with friable mucosa covered by whitish material, forming plaques, and echinocandin was started empirically. On D+30, an abdominal tomography was performed without significant findings. On D+31, new EGD for passing a nasoenteric tube with thick, cottony, white content coming out (image 1).



On D+32, histopathological (images 2 and 3) examination showed numerous thick hyphae, few septa and occasional sharp, right-angled branches, characterizing a filamentous fungus. It was not possible to etiological identification of the fungus, classified only as filamentous.





Liposomal Amphotericin B was started, with clinical improvement and return to diet after 96 hours. Patient was discharged from hospital on D+44.

CONCLUSION

IFIs are associated with unsatisfactory results in allogeneic transplants. The primary infection is most common in the respiratory tract (sinuses and lungs), followed by the skin, for some genera of fungi, the brain is the most frequent site of extrapulmonary involvement, with GIT involvement being a rare and potentially fatal clinical presentation.

KEYWORDS - HAPLOIDENTIC, IMMUNOSPRESSION, FUNGAL INFECTION

GRAFT FAILURE AND POOR GRAFT FUNCTION AFTER ALLOGENEIC STEM CELL TRANSPLANTATION AT HOSPITAL SÃO PAULO - UNIFESP

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation (HSCT) is the only curative therapy for several hematological diseases. However, graft failure remains a significant and potentially life-threatening complication. Therapeutic options are limited. While several risk factors for graft failure have been proposed, including underlying disease, low stem cell dose, ABO incompatibility, human leukocyte antigen (HLA) disparity between donor and recipient, and cytomegalovirus (CMV) infection, the precise pathogenesis remains incompletely understood

OBJECTIVE

To evaluate the outcomes of patients undergoing HSCT and to identify potential risk factors associated with graft failure and poor graft function.

PATIENTS AND METHODS

We conducted a retrospective, single-center study, including patients who underwent HSCT at Hospital São Paulo from January 2019 to August 2023.

RESULTS

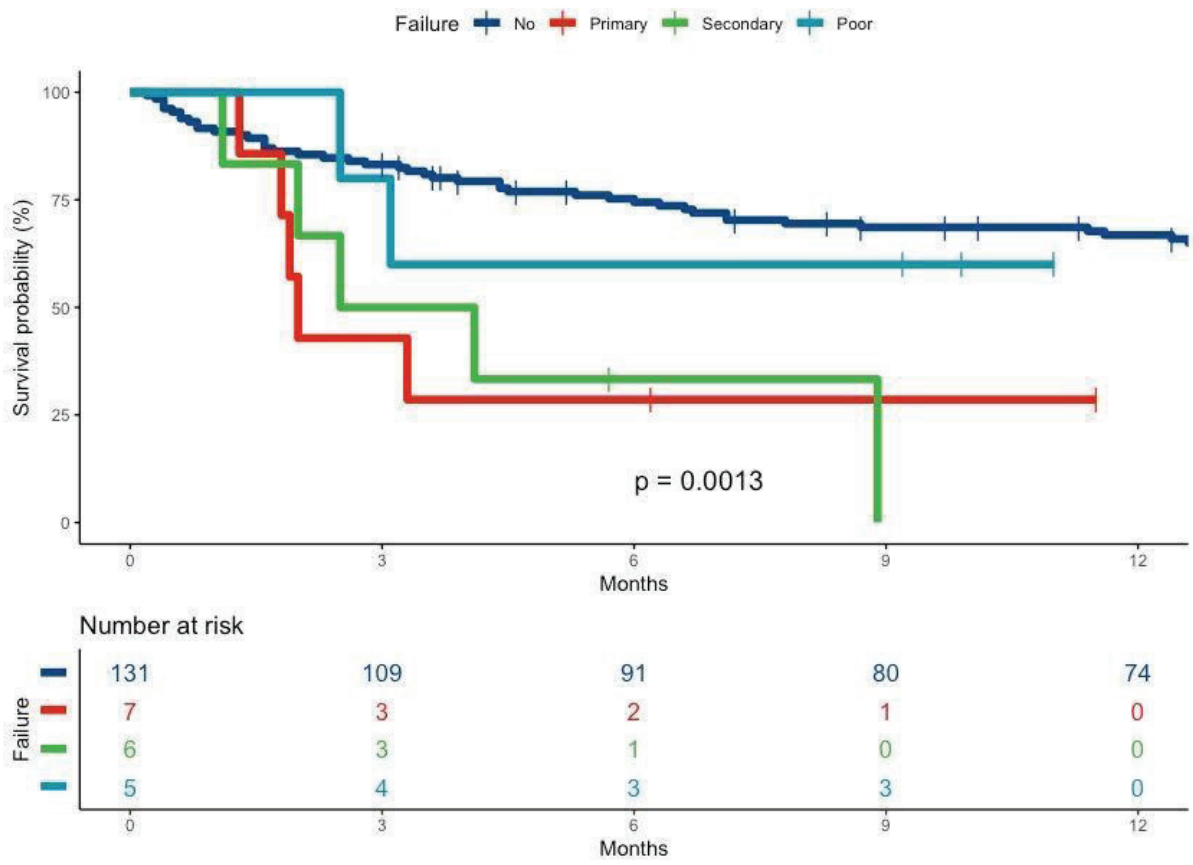
A total of 149 patients were included in this analysis, with a median follow-up of 29 months. The median age at transplantation was 44 years (range: 16-83), 77 (51.6%) male sex. The median donor age was 36 years (range: 0-62 years), with 54 patients (36.2%) having donors older than 40 years. The median CD34+ cell dose was 5.8x10^6/kg, with 30 patients (20.1%) receiving a CD34+ cell dose less than 3.0 x 10^6/kg. Ten patients (6.7%) had undergone prior autologous transplantation, and seven patients (4.7%) had received a previous allogeneic transplant. In our data, we identified 7 cases (4.7%) of primary graft failure, 6 cases (4.0%) of secondary graft failure, and 5 cases (3.4%) of poor graft function. The median survival for patients with primary and secondary graft failure was 2 months and 3.3 months, respectively. Median survival for patients with poor graft function was not reached at the time of analysis. Graft failure (n=13) was greater in males. We observed no statistically significant associations between graft failure or poor graft function and underlying disease (benign vs. malignant), stem cell source (bone marrow vs. peripheral blood), conditioning regimen intensity, CD34+ cell dose, or donor type (related vs. unrelated).

CONCLUSIONS

Our study reports a lower incidence of graft failure and poor graft function compared to previously published data, which suggest a rate of 5.6% for graft failure and up to 27% for poor graft function. Several limitations are acknowledged, including the retrospective nature of the study, reliance on medical record review, and the relatively small number of graft failure events. Furthermore, the potential influence of managing complex cases within the constraints of the Brazilian public healthcare system cannot be excluded. These findings highlight the need for further studies with larger patient populations to definitively identify risk factors associated with graft failure and poor graft function. Elucidating these factors is crucial for developing more effective preventive and therapeutic strategies to improve outcomes after allogeneic HSCT.

KEYWORDS

Bone marrow transplantation, graft failure, poor graft function


Failure No Primary Secondary Poor
Survival probability (%)
100
75
50
25
0
p = 0.0013
0
3
6
9
12
Months
Number at risk
Failure
131 109 91 80 74
7 3 2 1 0
6 3 1 0 0
5 4 3 3 0
0
3
6
9
12
Months

GRAFT-VERSUS-HOST DISEASE (GVHD) MUSCULOSKELETAL INVOLVEMENT AS A COMPLICATION OF ALLOGENEIC BONE MARROW TRANSPLANTATION AND ITS RESOLUTION AFTER TREATMENT: 3 CASE REPORTS AND LITERATURE REVIEW

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INTRODUCTION

Musculoskeletal GVHD is a rare event with diverse clinical presentations and variable severity, such as myositis, fasciitis, joint stiffness, contractures, limited range of motion, or edema. Risk factors include total body irradiation, history of acute GVHD, and donor characteristics. Disease detection relies on clinical evaluation, laboratory screening, imaging, and biopsy. Autoimmune, viral, and drug-induced myopathies should be considered in the differential diagnosis. Prognosis varies, emphasizing the importance of early detection to prevent permanent sequelae. Treatment involves immunosuppression and multidisciplinary follow-up.

OBJECTIVE

To describe 3 cases of musculoskeletal GVHD detected and treated in our service and review literature.

Methods: Case reports, retrospective, observational, and literature review on musculoskeletal GVHD.

RESULTS

Patient 1: A 57-year-old man with myelodysplastic syndrome underwent allogeneic unrelated hematopoietic stem cell transplantation (HSCT), HLA 10x10 matched, developing muscle pain on D+99 with elevated creatine phosphokinase (CPK), treated with corticosteroids with symptom resolution and normalization of laboratory parameters by D+110. Patient 2: A 56-year-old man with refractory high-risk chronic lymphocytic leukemia underwent matched sibling allogeneic HSCT. On D+54, he developed a CPK and liver enzymes elevation, followed by myalgia and weakness, managed with corticosteroids with symptom resolution and laboratory improvement by D+84. Patient 3: A 50-year-old woman with adult T-cell leukemia/lymphoma underwent haploidentical transplantation. On D+97, she presented with myalgia, asthenia, and generalized muscle pain with markedly elevated CPK, treated with corticosteroids with symptom resolution and CPK normalization by D+112. Conclusions: Musculoskeletal GVHD is a rare manifestation with heterogeneous presentation, challenging diagnosis, and requires early detection and treatment to prevent sequelae.

KEYWORDS

Graft-versus-host disease. Allogeneic hematopoietic stem cell transplantation. Case Report.

HEMATOPOIETIC STEM CELL TRANSPLANT (SCT) – 10 YEARS OF DATA FROM A SINGLE PRIVATE CENTER

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INTRODUCTION

Despite the success and progressive improvement in response rates to chemotherapy and immunotherapy treatments, consolidation with autologous stem cell transplantation (ASCTH) can be improve the rates of treatment success or in others disease just allogenic can provide cure, besides new drugs.

AIM

The aim of the study is describing our data and results of related allogenic and autologous stem cell transplants in a single private BMT center.

MATERIAL AND METHODS

Database analysis of 114 patients underwent ASCT or Allo-SCT in the period 2014-2023.

RESULTS

Of the 114 patients treated at our Center, 98 underwent ASCT and 16 Allo-SCT, all related, full-match. 57.9% of those are male. The median age was 53 years (24 – 71y). Among patients undergoing ASCT, the most prevalent disease was multiple myeloma (58%), therefore, the most used conditioning was high doses of melphalan, with 5 patients using a reduced dose due to renal dysfunction or age. Other diseases also treated were: DLBCL, Hodgkin's disease, T-cell lymphoma and germ cell tumor. The median graft among patients was on D+ 12 (D+10 – D+18). Among allogeneic transplants, the majority of patients had acute myeloid leukemia (43.75%), with the most frequent conditioning being the combination of bulsufan and fludarabine. Other diseases also treated were: ALL, MDS, CML. The median graft was D+16 (D+12 - D+22). All patients presented some degree of acute GVHD at some point post-BMT, and the severity of GVHD reduced after the protocol introduction of post-cyclophosphamide. 23 patients died during this period, 17 had disease progression, 2 patients died from infectious complications 100 days after transplantation, and 4 patients died during the process (3 in the autologous and 1 in the allogeneic).

CONCLUSION

After 10 years of experience in our service, it shows growing and commitment from the medical and multidisciplinary team. There are much challenges and goals to be achieved in the near future, with prospects for expanding cell therapy care, as well as consolidating patient records treated at our center.

KEYWORDS

Database, stem cell transplant, single-center.

HIGHER CD3 DOSE IS ASSOCIATED WITH INCREASED CHRONIC GRAFT-VERSUS-HOST DISEASE INCIDENCE IN ALLOGENEIC PERIPHERAL BLOOD STEM CELL TRANSPLANTATION: A SINGLE-CENTER ANALYSIS

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INTRODUCTION

Research has shown the impact of donor graft cell composition on hematopoietic stem cell transplantation (HSCT) outcomes, highlighting the critical role of CD34 cell dose in engraftment kinetics and clinical results. However, implications of the immune content of allografts are not fully understood. Investigation into non-CD34 graft cells may enhance the understanding of their influence on outcomes, especially when the CD34 product is obtained from peripheral blood (PB), previously associated with a higher rate of GVHD.

OBJECTIVE

Considering that donor T cells are major contributors to graft-versus-tumor effect and involved in the pathophysiology of acute (aGVHD) and chronic GVHD (cGVHD), we aimed to evaluate the impact of CD3 cell dose, as an independent variable, on the occurrence of GVHD, relapse, and overall survival in recipients of HSCT.

METHODS

A retrospective analysis from 60 patients who underwent allogeneic HSCT with PB allografts between 2007 and 2013 was performed. Patients were stratified into two groups based on CD3 cell doses: above and below the median (33.35 x 107/kg as measured by flow cytometry). The outcomes aGVHD and cGVHD were evaluated in patients who survived beyond day 30 and 100, respectively.

RESULTS

Demographic and transplantation data are depicted in Table 1. The groups receiving higher and lower CD3 doses were homogeneous regarding variables known to increase cGVHD, such as female donor to male recipient and transplant modality. The products containing higher proportions of CD3 lymphocytes also exhibited higher total nucleated cells with increased quantities of lymphocytes and their subtypes (CD19+ and CD56+/CD16+ cells). Of note, acute leukemias comprised most of the diagnosis in both groups, but aplastic anemia cases were only included in the lower CD3+ group (Table 1). Most importantly, higher incidence of cGVHD was observed in patients receiving higher doses than lower doses of CD3 cells (52% vs 21.7%, respectively, p= 0.04). Both CD3+CD4+ and CD3+CD8+ graft frequencies were higher in patients who developed cGVHD as compared to those who did not (Figure 1). In contrast, no significant difference was detected in aGVHD between groups (33.3% vs 42.3%, p= 0.58). The relapse rate was 10.3% in patients receiving lower CD3 doses and 17.2% in those receiving higher doses (p= 0.71). No difference was observed in time-to-engraftment or survival between patients of the two groups. No discernible difference was observed in survival curves between patients receiving higher or lower quantities of CD3+ (Figure 2).

CONCLUSION

In conclusion, higher CD3 doses were shown to be associated with increased rates of chronic but not acute GVHD. These results highlight that the immune content of peripheral blood grafts for HSCT is associated with GVHD risk and, together with other risk factors for such complication, may guide pre and post-transplant immunosuppressive strategies.

Table 1: Patients and transplants characteristics based on CD3+ cell count.

	Lower CD3+ (n = 30)	Higher CD3+ (n = 30)	*p-value*
Patients with aGVHD	11/26	9/27	0.58
Patients with cGVHD	5/23	13/25	0.04
Age in years (mean ± SD)	33.7 ± 14.3	36.1 ± 16.1	0.56
Male (%)	20/30 (66.7%)	17/30 (56.7%)	0.81
Diagnostic			
Acute leukemia / MDS	17 (56.7%)	24 (80%)	
Chronic leukemia	6 (20%)	4 (13.3%)	0.05
Lymphoma / Myeloma	1 (3.3%)	2 (6.7%)	
Severe Aplastic Anemia	6 (20%)	0	
CD34+ cell doses (median) *	4.00 (2.24-12.95)	5.54 (2.51-15.83)	0.015
CD19+ cell doses (mean ± SD) *	5.59 ± 3.35	10.69 ± 4.18	<0.00001
CD56+|CD16+ cell doses (mean ± SD) *	3.32 ±1.84	6.43 ± 3.27	<0.00001
Day of neutrophil engraftment (median)	15 (5-23)	14 (7-21)	0.69
Female donor → Male receptor (n)	6 (23%)	6 (21%)	>0.99
ABO incompatibility (n)	18 (60%)	20 (66.7%)	0.79
Transplant modality			
Haploidentical (n)	3 (10%)	2 (6.7%)	
Unrelated donor (n)	4 (13.3%)	3 (10%)	0.81
Match sibling donor (n)	23 (76.7%)	25 (83.3%)	
Relapse rate (%)	3/26 (11.5%)	6/25 (24%)	0.29

* x 10^7 cells/kg.

Figure 1: Frequencies of CD3 subpopulations in peripheral blood stem cells allografts in patients who presented chroı graft-versus-host disease (cGVHD).

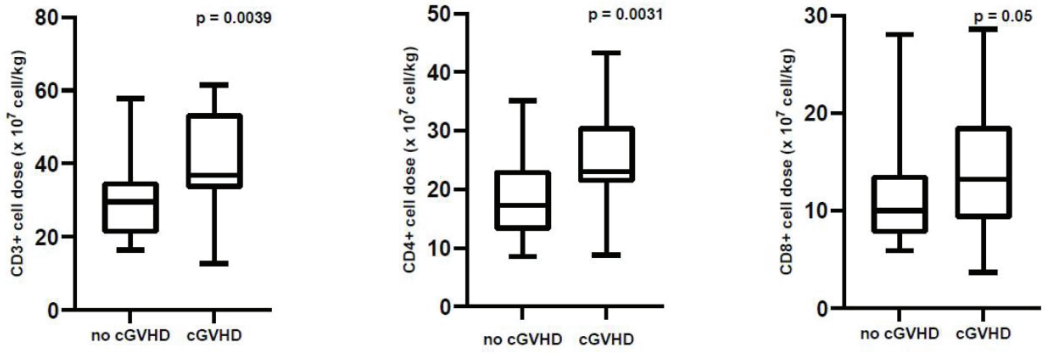
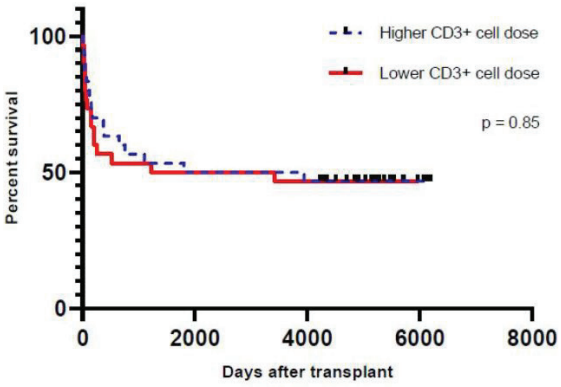


Figure 2: Survival curves of patients who received higher and lower CD3+ cell doses



HIV INFECTION IS ASSOCIATED WITH DELAYED PLATELET ENGRAFTMENT AFTER AUTOLOGOUS PERIPHERAL BLOOD STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) stands as a cornerstone in the treatment of various disorders. The kinetics of hematopoietic recovery after autologous stem cell transplantation (ASCT) may be affected by clinical characteristics, including the coexistence of infectious diseases. In 2022, data from the World Health Organization estimated that approximately 39 million people were living with human immunodeficiency virus (HIV) worldwide. The interplay between HIV infection and HSCT outcomes requires better understanding. Aim: In this study, we evaluated the association of HIV infection with ASCT outcomes in Minas Gerais, Brazil. Casuistry: This nested case-control study included individuals with hematological and non-hematological diseases who underwent ASCT.

METHODS

Cryopreservation was conducted at a single processing facility between 2014 and 2023, and patients received clinical care at six transplant centers. Covariates and outcome data were retrieved from participants' records. HIV-positive participants were compared to age, gender, center, and disease-matched HIV-negative participants (ratio 1:5). Infusion-related adverse effects were recorded using standard forms. Time of engraftment refers to the interval between cell infusion (Day 0) and the first day with a neutrophil count higher than 0.5 × 10^9 per L or a platelet count higher than 20 × 10^9 per L, respectively. Delayed engraftment was defined as unsuccessful recovery within 14 days after the infusion.

RESULTS

Fourteen HIV-positive participants were included. Most of the HIV-positive participants had multiple myeloma (35.7%; n=5) followed by Hodgkin's lymphoma (28.6%; n=4), and non-Hodgkin lymphoma (21.4%; n=3); eleven (78.6%) were male, and the mean age was 47 ± 20 years. As expected, the HIV-positive and HIV-negative groups were similar with respect to the matching variables of age, gender, disease, and transplant center. The median time to platelet engraftment was 14 days for participants with HIV and 11 days for those without HIV (P=0.017; figure 1).

HIV-positive participants had significantly five times higher odds of delayed platelet engraftment compared to the HIV-negative group (OR=5.0; 95%CI 1.3–19.9; P=0.028). The association between HIV infection and time to platelet engraftment, as well as delayed platelet engraftment, remained significant after adjusting for infused CD34+ cell dose (P=0.008 and P=0.024, respectively). There was no association between HIV infection and time to neutrophil engraftment or delayed neutrophil engraftment. The frequency of adverse effects during infusion was similar in HIV-positive and HIV-negative participants.

CONCLUSION

In summary, HIV infection was associated with an increased risk of delayed platelet engraftment in patients undergoing ASCT. Understanding the dynamics between HIV infection and HSCT outcomes is imperative for optimizing transplant strategies and post-transplant care, including transfusion support.

KEYWORDS

Autologous stem cell transplantation, HIV, Disease interaction

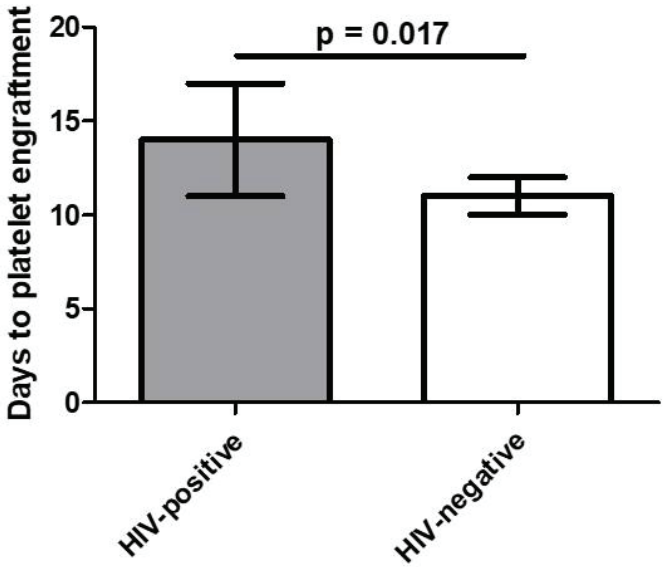

Figure 1 - Number of days to platelet engraftment after autologous peripheral blood stem cell transplantation in patients with and without coexistence of HIV infection. Each figure horizontal's bars show median and interquartile ranges (25th percentile - 75th percentile).

IMMUNOPHENOTYPE ANALYSIS OF TRANSPLANT AML PATIENTS

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INTRODUCTION

Relapse is one of the most significant challenges in managing Acute Myeloid Leukemia (AML), affecting 40-50% of younger patients and most elderly patients. Allogenic stem cell transplant (allo-SCT) currently represents the best possibility of survival for relapsed or refractory AML patients. These patients are likely to present more aggressive subpopulations of blasts such as Leukemia Stem Cells (LSCs), a small subset of cancer cells is responsible for treatment resistance and recurrence. These cells exhibit the ability to withstand treatment and regenerate the various neoplastic subpopulations. Presently, diagnosis and measurable residual disease (MRD) detection panels primarily focus on the presence or absence of blasts (abnormal/neoplastic cells in the bone marrow). However, these approaches overlook valuable information regarding the expression profile of biomarkers specific to each patient and the subpopulations heterogeneity each patient can present.

AIMS

Investigate whether AML patients who have undergone allo-SCT presented differential characteristics regarding immunophenotype in the moments of diagnosis, first and second MRD.

METHODS

In this work we propose a novel approach to analyzing AML blast cells by adapting the widely-used Euroflow panel for AML diagnosis and MRD detection. This study involved a retrospective analysis of 122 patients primarily diagnosed with AML since 2015 (CAAE 53043421700005327), coinciding with the implementation of the Euroflow panel. Of those patients, we present preliminary results regarding 10 patients who have undergone transplant and have been accompanied. Immunophenotyping ".FCS" files were reexamined to identify various blast subtypes, including CD36+, CD34+CD36+, CD34+, CD123+, CD34+CD123+, CD34+CD38-, CD34+CD38+, CD34-CD38+, and CD34-CD38-. Blasts were identified as SSClowCD45-/dim, with exclusion of all other cell populations based on markers such as CD45, CD117, HLADR, and CD38.

RESULTS

Five out of ten transplant patients are now deceased; however, the overall survival of the transplant patients is practically two times higher than the general overall survival (40,6 and 26 months, respectively, p=0,03). The transplant patients presented higher percentage of CD34+ blasts at diagnosis (in relation to total cells and in relation to blasts, p=0,04 and p=0,02, respectively) when compared to all non-transplant patients; also, when compared to alive non-transplant patients (in relation to total cells and in relation to blasts, p=0,03 and p=0,03, respectively). Transplant patients also presented higher percentage of CD123+ blasts at diagnosis when compared to alive non-transplant patients (in relation to total cells and in relation to blasts, p=0,03 and p<0,0001, respectively).

CONCLUSIONS

CD34+ and CD123+ subpopulations of blasts could become markers for patients with poorer prognosis and transplant indication. Further analyses will be carried out to search for markers of transplant success.

KEYWORDS - Acute Myeloid Leukemia, Allogenic Stem Cell Transplant, Immunophenotyping.

IMPACT OF DONOR AGE ON THE HEMATOPOIETIC CELL TRANSPLANTATION IN ADULTS ABOVE 40 YEARS OLD: MATCHED SIBLING DONORS COMPARED WITH YOUNGER HAPLOIDENTICAL AND UNRELATED MATCHED DONORS

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INTRODUCTION

The HLA matching is one of the most significant predictor of allogeneic hematopoietic cell transplantation (HCT) outcomes and a HLA matched sibling donor (MSD) remains the first choice. Donor age has been associated with worse outcomes: some studies have shown higher incidence of Graft versus host disease (GVHD) after HCT from older donors. The use of post-transplant cyclophosphamide (PTCy) has increased the use of haploidentical donors (Haplo) worldwide and recent studies have shown that the use of PTCy in transplat with matched unrelated donor (MUD) results in a significant reduction in GVHD risk. Our analysis aimed to address a practical question if younger MUD or haploidentical donor, both using PTCy could be a better choice than older MSD.

OBJECTIVE

To compare HTC for hematologic malignancy disease with MSD above 45y, using conventional CNI and methotrexate to HTC with Haplo and 10/10 HLA MUD, less than 40 years old, with PTCy combined CNI/mycophenolate mofetil for GVHD prophylaxis for patients above 40 years old.

METHODS

This is a single-center sutdy conducted in a Brazilian BMT Unit. We analyzed the first HCT from 12/2015 to 03/2024. Patients with refractory leukemia were excluded. The endpoints included overall survival (OS), nonrelapse mortality (NRM) and relapse rate. Survival and cumulative incidence curves were built with Kaplan-Meier and Gray methods, respectively.

RESULTS

A total of 86 patients (MSD= 47, Haplo=23 and MUD=16) were included. The median patients' age was 59.5 yo. The median MSD age was 59 yo (46-82), the median Haplo age was 30 yo (16-39) and median MUD was 29.5yo (22-38). We found more female donor in MSD, and more CMV positivity in Haplo and MUD. Peripheral blood was stem cell source was used in 55% of MSD, 52% of Haplo and 69% of MUD. A myeloablative conditioning regimen was administered in 39.5% of the patients.

There were no significant differences between the 3 groups in: 1-year probability of OS with MSD, Haplo and MUD were 77%; 71% and 79%, respectively (P=0.71), 1-year NRM: 11%; 24% and 21%, %, respectively; (P = 0.50) and 1-year relapse (24%; 4% and 0%, respectively; P = 0.35).

CONCLUSION

Our results suggest that MSD above 45 years old or young haploidentical or MUD using PTCy as GVHD prophylaxis achieve similar outcomes after allo-HCT in patients above 40 years old. Therefore, MSD should not be excluded based only on their age and conversely, the availability of a young alternative donor using PTCy should be considered as a valid option. Multicenter data including a larger sample with a longer follow-up for GVHD incidence analyses are required to confirm our findings.

INTESTINAL MICROBIOTA BEFORE AND AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

In hematopoietic stem cell transplantation (HSCT) there is a loss of intestinal microbiota diversity either to conditioning for the procedure, total body irradiation, or antibiotics. Changes in the composition and diversity of the microbiota could relate to worse post-transplant outcomes.

OBJECTIVE

To characterize the composition of the intestinal microbiota before and after transplantation.

METHOD

An observational prospective study included patients admitted for allogeneic HSCT. After stool´s DNA extraction, the V4 region of the 16S rRNA gene was amplified followed by sequencing on the Ion S5™ equipment.

RESULTS

Tests were made with 21 samples – 14 were collected pre-HSCT and seven at engraftment. Overall, analyzes of alpha and beta diversity showed significant differences between the pre- and post-transplant groups, with a reduction in bacterial diversity in the post-transplant group with an increase in Proteobacteria phyla in post-transplant samples. Regarding bacterial families, there was a reduction in Bacteroidaceae in post-HSCT samples compared to pre-transplant samples, and an increase in the Enterobacteriaceae family. The genera that were observed in differential abundance in pre-transplant samples and that showed a significant reduction in post-transplant samples were Bacteroides, Agathobacter, UCG 002, Faecalibacterium, Oscillospirales, Tuzzerella and Bifidobacterium.

CONCLUSIONS

Our results demonstrate an imbalance in the composition of the intestinal microbiota after HSCT, with the reduction of genera important for health and the increase of a phylum and family that include a wide variety of bacteria, some of which are pathogenic.

LITERATURE REVIEW: BONE MARROW TRANSPLANTATION IN LYMPHOMA

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INTRODUCTION

Bone marrow transplantation or hematopoietic stem cell transplantation consists of the intravenous infusion of hematopoietic progenitor cells. Lymphomas originate from cells of the immune system. For patients with relapsed Hodgkin's lymphoma, autologous bone marrow transplantation (ABMT) is the main therapeutic option. The response to pre-transplant chemotherapy is the main prognostic factor, so patients with stable disease or minimal response to salvage therapy have less than 20% chance of achieving durable remission with ABMT. Bone marrow transplantation is a treatment indicated for diseases related to the production of blood cells and deficiencies in the immune system.

OBJECTIVE

This study seeks to understand the importance of bone marrow transplantation in lymphoma through a systematic literature review.

METHOD

A literature review was conducted in the Lillacs, PubMed, Scielo, and Google Scholar databases, focusing on articles published between 2020 and 2022, in Portuguese and English. Inclusion criteria involved works addressing articles up to 2022, excluding articles prior to 2020.

RESULTS

Searches in the different databases resulted in 2,490 publications, which were reduced to 57 after the first stage of analysis (title and abstract), 26 after the second stage (removal of duplicates), and finally, 10 publications after the third stage (analysis of the full content of articles), which met the established inclusion and exclusion criteria. Transplantation is an old treatment strategy, but still with very established results and worldwide use. Allogeneic transplantation is still reserved for refractory cases, as an attempt for a possible cure. Autologous transplantation remains a standard part of second-line therapy, even with the current treatment options.

CONCLUSION

We can consider, therefore, transplantation using hematopoietic stem cells as one of the greatest advances in modern medicine, although it does not provide absolutely normal survival to all patients, it represents a possibility of greater survival for patients who would not have any chance with any other type of treatment and prevents the patient from dying.

KEYWORDS

Allogeneic Transplantation, Lymphoma, Literature review.

MORTALITY RATE OF PATIENTS UNDERGOING DIFFERENT TYPES OF BONE MARROW TRANSPLANTATION IN BRAZIL: A HISTORICAL COHORT OF 14 YEARS OF ANALYSIS

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INTRODUCTION

Hematopoietic stem cell transplantation, whether autologous or allogeneic related or unrelated, continues to be a pillar for the treatment of many hematological disorders, such as acute myeloid leukemia. However, few studies compare the mortalities of all types of bone marrow transplants, especially related and unrelated allogeneic, in an analytical way. In this sense, it is justified to comparatively analyze the mortality rates of all bone marrow transplant methods.

OBJECTIVE

Analyze the mortality rate of patients undergoing all types of Bone Marrow Transplant in Brazil, in the period from 2010 to 2023.

METHODS

Retrospective cohort study, descriptive and analytical, carried out with data from the Brazilian Transplant Registry. The study included 21017 patients who underwent allogeneic or autologous bone marrow transplant in Brazil from 2010 to 2023. Patients with incomplete information were excluded. The variables mortality rate and type of bone marrow transplant were analyzed. To analyze the mortality of patients, the intervals of 1, 3, 5 and 10 years after transplantation were used. In the analysis of the data, the Statistical Package for the Social Sciences, version 24.0, was used. In the descriptive form, percentage frequencies were used and in the inferential Pearson's chi-square was used at the significance level of 5%.

RESULTS

When comparing mortality rates at intervals of 1, 3, 5 and 10 years after transplants, longitudinally, of patients who underwent autologous (n=13185) and allogeneic (n=7832) bone marrow transplant, cases that evolved to death were observed in 14% vs 37% (RR 1.35, 95% CI 1.33-1.38, $p < 0.001$), 24% vs 46% (RR 1.93, 95% CI 1.86-2.01, $p < 0.001$), 30% vs 51% (RR 1.64, 95% CI 1.58-1.69, $p < 0.001$) and 38% vs 54% (RR 1.41, 95% CI 1.37-1.45, $p < 0.001$) respectively. When also comparing, longitudinally, the mortality rate of patients who underwent related (n=5918) and unrelated (n=1914) allogeneic bone marrow transplant at the respective year intervals, cases that evolved to death were observed in 36% vs 39% (RR 1.08, 95% CI 1.01-1.15, $p = 0.019$), 46% vs 48% (RR 1.04, 95% CI 0.98-1.10, $p = 0.123$), 49% vs 50% (RR 1.02, 95% CI 0.96-1.07, $p = 0.448$) and 54% vs 53% (RR 0.98, 95% CI 0.93-1.03, $p = 0.433$), respectively.

CONCLUSION

It was observed that allogeneic bone marrow transplantation is a risk factor for the outcome of death compared to autologous transplantation, obtaining statistical significance at all intervals. With regard to related and unrelated allogeneic transplants, it was analyzed that only in the 1st year there was statistical significance when analyzing the risk factor of the outcome death for the unrelated transplant, showing that the survival of patients who undergo related allogeneic transplant is greater than the unrelated only up to the 1st year post-transplant.

KEYWORDS - Bone Marrow Transplant, Mortality, Brazil.

NURSING ASSISTANCE IN HANDLING THE HICKMAN® CATHETER: A FUNDAMENTAL TECHNOLOGY IN THE JOURNEY OF ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation (HSCT) is a highly complex procedure for the treatment of hematological diseases, where the patient receives immunologically compatible cells through the expression of major histocompatibility antigens, coming from a related or unrelated donor. From conditioning to post-HSCT recovery, with the reconstitution of hematopoiesis and the establishment of immunotolerance, the patient requires a long-term central venous catheter (CVC), thus allowing prolonged and safe vascular access. The Hickman® catheter meets the specific needs of this treatment, enabling the safe infusion of stem cells and large volumes of intravenous fluids, blood components, medications and chemotherapy drugs, in addition to enabling the use of parenteral nutrition. Its long stay improves the patient's quality of life, especially by reducing peripheral punctures and is easy to maintain, with periodic dressing changes by trained nurses. However, its use is also associated with complications from surgical implantation to late post-HSCT, requiring qualified professionals to handle it. The preparation of the multidisciplinary team, especially nursing, in daily dealing with the CVC and the main complications that can lead to its removal, allows planning and implementing measures aimed at its integrity and reduction of infections.

OBJECTIVE

To emphasize the importance of the Hickman® catheter as a useful technology in allogeneic HSCT, addressing various aspects related to its use and impact on patient care until D+100. Case series: Patients undergoing allogeneic HSCT and who had the Hickman® catheter implanted between May 2022 and April 2024.

METHOD

Descriptive, retrospective study, with review of medical record data, carried out in a reference transplant unit of a private health network, in Fortaleza, Ceará.

RESULTS

During the period, 22 related allogeneic HSCTs were performed, 12 (54.5%) of which were male patients, with a median age of 41 years. The main indication was advanced acute leukemia (13 cases, 59.1%). Until D+100, there were 07 cases of complications in 05 patients (22.7%), with catheter tunnel infection (03 cases, 13.6%) being the most common. Catheter obstruction (02 cases, 09%) was the main reason for catheter removal.

CONCLUSIONS

The Hickman® catheter played an essential role in the performance of the allogeneic HSCT studied. Its benefits, offering prolonged and safe venous access, combined with a low incidence of complications up to D+100, have made it a fundamental instrument in the success of transplants. Proper use of this device requires qualified and experienced professionals, minimizing the risk of complications and ensuring the safety and well-being of transplant patients.

KEYWORDS

Bone Marrow Transplantation. Catheterization, Central Venous. Nursing.

OVERALL SURVIVAL IN PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA TREATED WITH PROTOCOL CALGB 9511 AT A TERTIARY HOSPITAL IN THE STATE OF CEARÁ

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INTRODUCTION

Acute lymphoblastic leukemia (ALL) is the most common neoplasm in childhood and has high survival rates. In adults, due to the biological characteristics of the disease and chemotherapy-related toxicity, survival is lower. CALGB 9511 is a chemotherapy protocol based on pediatric regimens with high remission rates after induction.

OBJECTIVES

To evaluate the survival of patients with ALL undergoing the CALGB 9511 protocol at at a hospital in the Northeastern Brazil; to describe the impact of risk factors: presence of measurable residual disease, BCR-ABL fusion gene status, and allogeneic bone marrow transplant (BMT) on the survival of this group.

METHODOLOGY

Retrospective evaluation of medical records of patients with ALL treated with this protocol between 2011 and 2022. Statistical analysis was performed using the Kaplan-Meier method to estimate survival probability.

RESULTS

79 patients were eligible. After the completion of induction chemotherapy, 78.5% (62/79) were in remission, and 21.5% (17/79) were refractory or had early death. Among those who achieved remission, 14.8% (9/62) had positive measurable residual disease post-induction, and 41% (25/62) had negative MRD. 19% were BCR-ABL positive. The median survival of patients diagnosed as having the BCR-ABL positive gene showed a survival rate above 75%, while BCR-ABL negative patients had a median survival of 19.9 months (p=0.06) and an overall survival at 2 years of 50%. The 2-year survival rate for patients undergoing HSCT was approximately 78% (95% CI 0.62 – 0.97), while for those who were not transplanted, it was 27.5% (95% CI 0.17 – 0.43). The presence of measurable residual disease was assessed after 100 days post-transplant, with negative results in 33% of patients, positive in 4.2%, and not performed due to unavailability of the test in the facility in 45.8%.

CONCLUSION

The survival curves of the study conducted at HUWC are similar to those described in the literature and corroborate the severity of the disease. Accessibility to new therapeutic modalities is a strategy that can improve the survival of these patients.

KEYWORDS

Leukemia. Disease. Chemotherapy

FIGURE 3 - Probability of survival according to BCR-ABL fusion gene mutational status

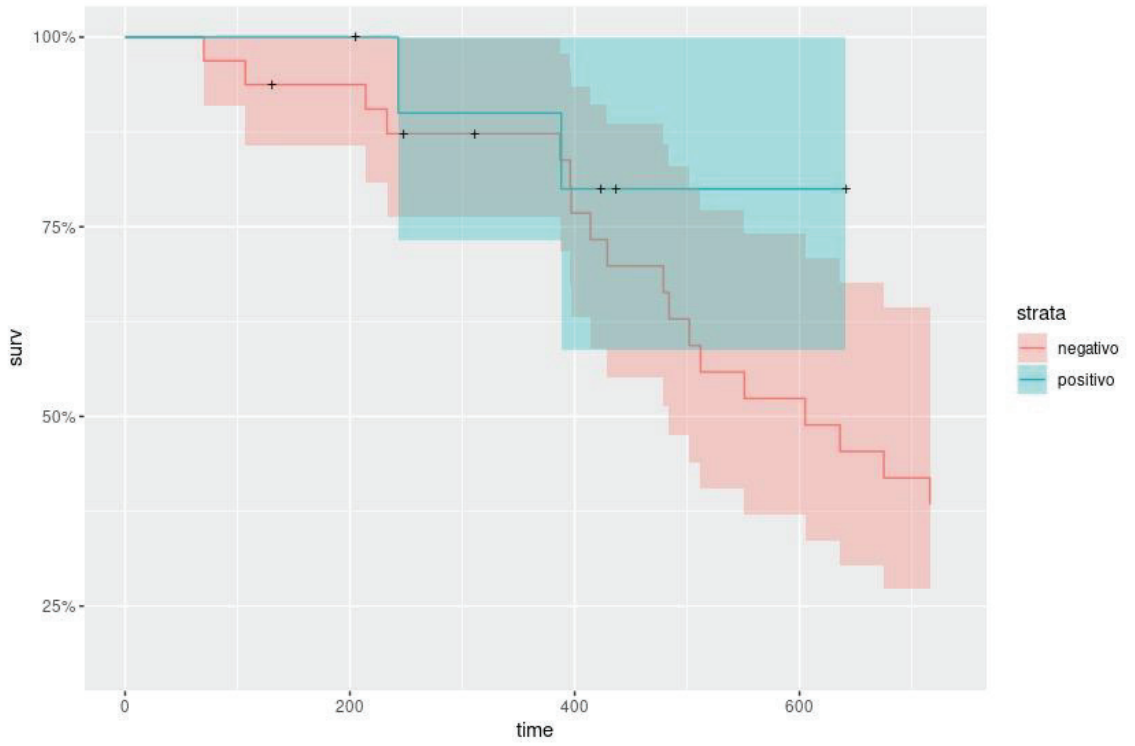
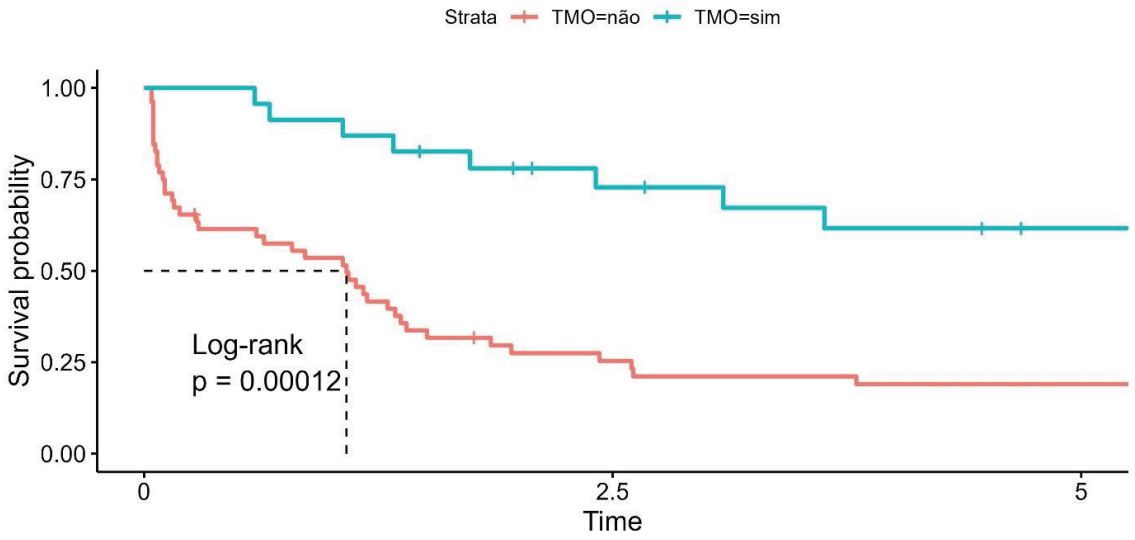


FIGURE 4 - Overall survival in patients undergoing HSCT



PATIENT BLOOD MANAGEMENT (PBM) STRATEGIES IN BONE MARROW TRANSPLANTATION UNIT - IMPACT ON PRIMARY OUTCOMES

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Transfusion of blood components is a measure widely used to treat and control symptoms related to anemia and hemorrhage, but it is not a risk-free procedure for the patient. In this context, blood components must be used in the most rational way possible. Patient blood management (PBM) consists of a multidisciplinary, preemptive and evidence-based strategy to reduce the indiscriminate use of blood components based on reducing blood loss, correcting anemia and treating coagulopathies.

The principles of PBM are commonly used, however, when it comes to onco-hematological patients and, especially those undergoing bone marrow transplantation since cytopenias occur routinely this strategy becomes even more challenging.

This study aimed to evaluate restrictive transfusion strategies and their impacts on patients undergoing bone marrow transplantation (BMT) from January 1, 2018, to December 31, 2022, at a tertiary hospital, with support from the Blood Center of State. This is a descriptive and retrospective observational study. Data collection was performed by reviewing medical records and the Blood Bank System (SBS).

The sample consisted of 333 patients with a mean age of 45 years, of whom 168 (50.5%) were male and 135 (49.5%) were female. Sixty percent of the total patients had some comorbidity, with arterial hypertension being the most frequent (21%). Regarding the type of transplant, 62.8% were autologous and 37.2% allogeneic. The main diagnoses of patients undergoing BMT were plasma cell neoplasia (36.3%), Hodgkin's lymphoma (13.8%), non-Hodgkin's lymphoma (10.8%), acute myeloid leukemia (9%), and acute lymphoid leukemia (10.5%).

Restrictive strategies are adopted in the studied center, and transfusion triggers during BMT hospitalization were: Hemoglobin (Hb) < 7g/dL, platelets <50,000 µL if bleeding or lumbar puncture, <20,000 µL in the presence of fever or central venous access puncture, and <10,000µL prophylactically. There was no evidence of correlation between the number of transfusions, pre-transfusion hemoglobin, and platelet count with age or patient survival after hospital discharge, demonstrating that elderly patients did not require more transfusions.

The number of transfusions during this period did not impact survival, which was expected because post-hospital discharge survival is influenced by many other factors. In the analysis of in-hospital mortality, there was higher mortality in patients who received more transfusions and in those undergoing allogeneic transplantation. However, this is a study bias because some patients, especially those undergoing allogeneic BMT, tend to undergo more tests and transfusions due to their severity, and causality cannot be attributed. This study suggests that restrictive strategies are effective in reducing blood component transfusions in BMT, as well as reducing patients' exposure to transfusion risks, and reducing costs, without harming patients.

PRELIMINARY DATA ON THE EXPRESSION OF IMMUNE CHECKPOINTS IN PATIENTS WITH MDS UNDERGOING ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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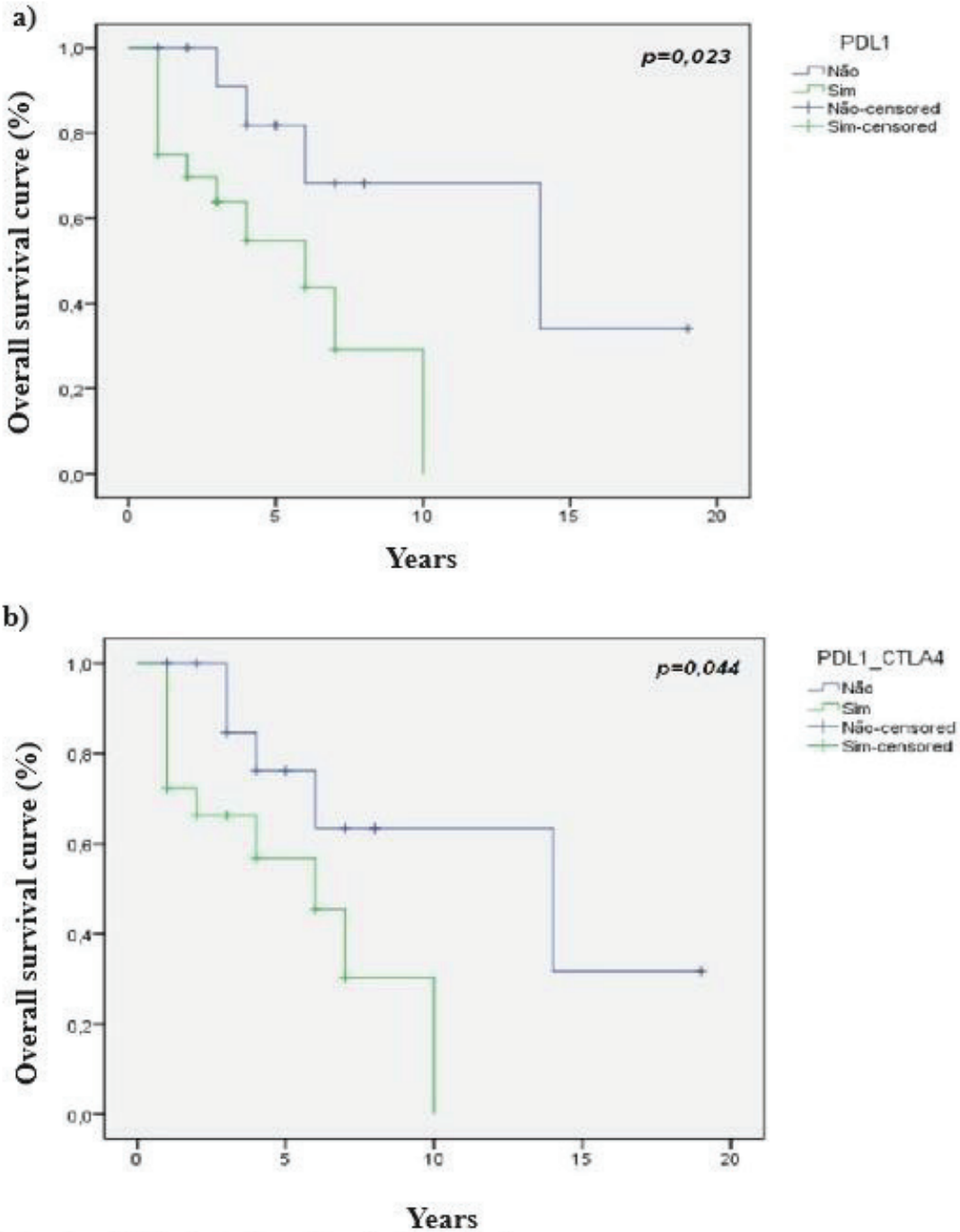
The immune checkpoints, programmed death 1 (PD-1), programmed death-ligand 1 (PD-L1), and cytotoxic T-lymphocyte-associated antigen 4 (CTLA4) are essential regulatory mechanisms for immune homeostasis. The overexpression of these receptors contributes to the pathogenesis and progression of myelodysplastic syndromes (MDS), favoring immune evasion. This overexpression is associated with a higher risk of graft-versus-host disease (GVHD) and a worse prognosis in patients with MDS undergoing allogeneic hematopoietic cell transplantation (HCT). The aim this study is to evaluate the expression profile of PD-1, PD-L1, and CTLA4 in patients with MDS undergoing HCT. This is a retrospective and descriptive study of 23 patients with MDS treated in a public university hospital. The study was approved by the ethics committee, nº 2,889,524. Clinical data were obtained from records. Immunohistochemical expression was performed using bone marrow biopsy at the time of diagnosis. Membrane or cytoplasmic staining >1% of marked cells was considered positive. Descriptive statistics were performed. The Chi-square test was used for associations analyses. Survival was analyzed using Kaplan-Meier curve and log-rank test. p-value <0.05 was considered significant. Of the 23 patients analyzed, the mean age was 69.91±16.33 years, with 52.94% being female. According to the WHO 2022 Classification, the most of patients were classified as MDS with low number of blasts (20.29%), followed by MDS hypoplastic (14.71%). The IPSS-R (Revised International Prognostic Scoring System) prognostic score, (44.2%) of patients were considered low risk, followed by intermediate risk (23.5%). Only 3 patients underwent HCT, of whom 2 developed GVHD and 1 patient died due to post-HCT relapse. Among the patients undergoing HCT, the expression of the PD-1, PD-L1, and CTLA4 proteins was 33%, 66%, and 66%, respectively. The patient who died had positive expression of CTLA4 and PD-L1 in megakaryocytes in the BM (Figure 1). In the association analysis, positive expression of PD-1 was associated with female sex (p=0.039) and CTLA4 was associated with dysgranulopoiesis (p=0.015). A lower Overall Survival (OS) was observed in patients with positive expression of PD-L1 (p=0.023) (Graph 1a), as well as the combined expression of PD-L1 and CTLA4 (p=0.044) (Graph 1b). In conclusion, the preliminary results of this study indicate that the expression of PD-L1 and CTLA-4 is associated with a worse prognosis in patients with MDS. Although there are few studies available, the occurrence of GVHD is correlated with the levels of PD-L1 expression, while the loss of graft-versus-leukemia effect is associated with PD-1 expression. Therefore, it is essential to analyze receptor expression to select patients eligible for immunotherapy, given the promising results of checkpoint inhibitors in the pre and post-HCT. More research with a larger sample size is necessary to confirm these findings.

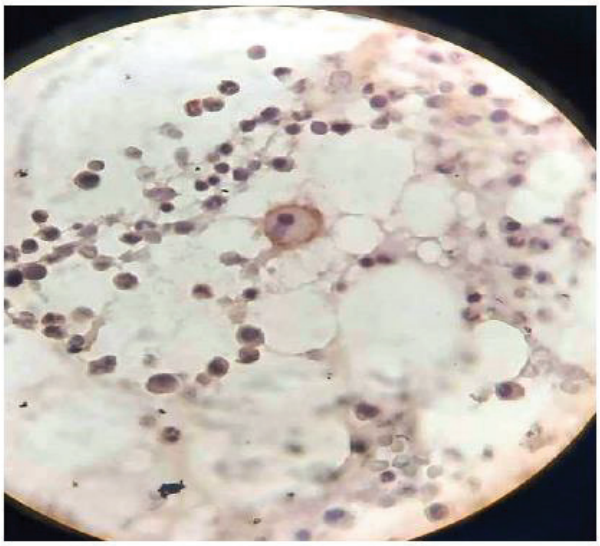
KEYWORDS - Myelodysplastic syndromes, immunological checkpoint; Allogeneic hematopoietic cell Transplantation.

Graph 1:Overall Survival (OS) of patients with MDS and the expression of PD-L1 and CTLA4 (n=23).



Note: *p<0,05, teste Log-Rank Mantel-Cox.

Figure 1: Immunohistochemistry of PD-L1 protein in bone marrow from patients with MDS undergoing HCT



Note: Bone marrow from a patient with MDS considered positive for PD-L1 protein expression on the membrane of a megakaryocyte with strong staining intensity. The sample was stained with hematoxylin and eosin. Objective x100.

PRIMARY REFRACTORY ANGIOIMMUNOBLASTIC T-CELL LYMPHOMA SUCCESSFULLY TREATED WITH HAPLOIDENTICAL BONE MARROW TRANSPLANT

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INTRODUCTION

Angioimmunoblastic T-cell lymphoma (AITL) is a rare and aggressive form of non-Hodgkin lymphoma associated with poor prognosis. Traditional approaches often yield suboptimal outcomes, highlighting the necessity for novel therapeutic strategies. This case report illustrates the successful use of haploidentical allogeneic hematopoietic stem cell transplantation (HSCT) in treating a patient with refractory AITL, providing valuable insights into alternative treatment avenues.

OBJECTIVE

To describe the case of a patient with end-stage angioimmunoblastic T-cell lymphoma successfully treated with haploidentical allogeneic hematopoietic stem cell transplantation.

CASE DESCRIPTION

A 38-year-old female was diagnosed with angioimmunoblastic T-cell lymphoma presenting with diffuse lymphadenopathy and cutaneous lesions in 2022. Despite her advanced clinical stage (IPI 4) and multiple lines of chemotherapy including CHOEP, CODOX-M/IVAC, and azacitidine-venetoclax, the disease remained refractory and the patient was rapidly progressing to respiratory failure. GemOx plus brentuximab was initiated. She had a complete response confirmed by PET-CT after two cycles of GemOx plus brentuximab. A haploidentical allogeneic HSCT was performed in March 2023, with her 69-year-old father as donor, as she had no matched donor and donor-specific antibodies against all other potential haploidentical donors. The patient endured complications such as pulmonary and skin infections, CMV reactivation, and acute graft-versus-host disease, all managed successfully, and 4 months after transplant she presented cutaneous chronic graft-versus-host disease treated with ruxolitinib, methotrexate, and supportive treatments. At engraftment, 100 days and 1 year after HSCT she had a 100% donor chimerism and 14 months after HSCT remains in sustained complete response.

CONCLUSION

This case underscores the potential of haploidentical HSCT as a feasible and effective treatment for patients with a severe refractory angioimmunoblastic T-cell lymphoma. The successful management of associated complications and achievement of sustained remission highlight the importance of multidisciplinary care and targeted therapeutic strategies in improving outcomes of allogeneic HSCT for patients with this challenging lymphoma, as transplant remains the only curative option.

KEYWORDS

Angioimmunoblastic T-cell lymphoma, hematopoietic stem cell transplantation, haploidentical.

PROGNOSTIC VALUE OF NEUTROPHIL-LYMPHOCYTE RATIO AND MONOCYTE-LYMPHOCYTE RATIO AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is an important therapeutic strategy for hematologic diseases. Several factors have prognostic impact on this therapy. The inflammatory ratios neutrophil-lymphocyte ratio (NLR) and monocyte-lymphocyte ratio (MLR) can be used as prognosis predictors in oncohematologic diseases. Objective: To correlate NLR and MLR with the overall survival (OS) in patients undergoing allogeneic HSCT for treatment of hematologic malignancies in a private institution in Brazil from 2017 to 2022.

METHODOLOGY

Observational, retrospective, single-center study. NLR and MLR were analyzed pre-HSCT and on D+60 in patients over 18 years old undergoing allo-HSCT.

RESULTS

147 patients were evaluated, of whom 53.7% were male. The mean age was 52.1 years (±14.8). The most prevalent diagnosis was Acute Leukemia (53.7%). 62.6% received reduced-intensity regimens (RIC). Peripheral source of hematopoietic stem cells was the most prevalent (68.7%). Most of the HSCTs were Unrelated (34.7%) and Haploidentical (31.3%). The mean NLR and MLR pre-HSCT and D+60 was 4.95 (±8.10), 0.654 (±1.05) and 8.34 (±8.29), 0.889 (±0.992), respectively. Association was observed between increasing in NLR and MLR ratios and elevation in the logarithm of the relative hazard suggesting an association of these ratios with higher mortality. Based on Area under the curve graph and probability matrix of OS, the impact of NLR and MLR on OS can be observed, where the higher the MLR on D+60, the lower the chance of surviving over time post-HSCT (Figure 1). Multivariate Cox analysis for OS showed NLR and MLR pre-HSCT a Hazard Ratio (HR) of 1.03 (CI 0.99 - 1.06 p 0.113) and 1.49 (CI 1.17 - 1.89 p 0.001), respectively. At D+60, the HR was 1.05 (CI 1.01 - 1.09 p 0.010) and 1.37 (CI 1.06 - 1.78 p 0.018), respectively (Table 1). The analysis of the risk of relapse based on these markers showed an HR for MLR pre-HSCT and on D+60 of 1.03 (CI 0.47 - 2.24 p 0.938) and 1.36 (CI 0.94 - 1.99 p 0.107), respectively. Non-Relapse Mortality (NRM) for MLR pre-HSCT and D+60, HR was 1.44 (CI 1.11 - 1.88 p 0.007) and 1.42 (CI 1.04 - 1.93 p 0.026). Linear regression analysis was used to determine predictors of MLR pre and post D+60 HSCT, but no factors interferingwith these ratios were found.

DISCUSSION

The NLR and MLR are markers already studied in the setting of solid tumors and solid organ transplantation as prognosis predictors. These studies have shown that higher MLR and NLR are related to worse OS and higher rates of NRM. There are few studies evaluating the impact of these markers on hematologic diseases and HSCT. Our study showed that NLR and MLR were related to higher mortality and reduced survival in the pre and post-HSCT setting, regardless other variables that could impact on OS. More studies are needed to better understand the prognostic role of these markers in HSCT and evaluate their inclusion in existing prognostic scores.

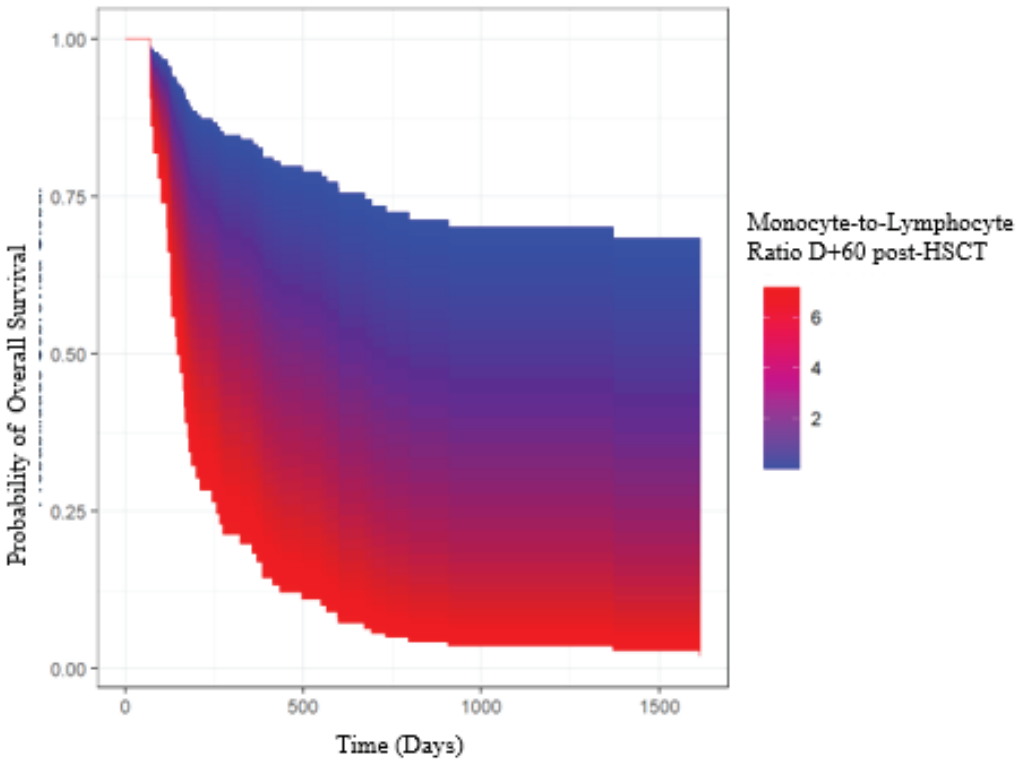
REFERENCES

1. Xie X, Luo KJ ., Hu Y, Wang JY ., Chen J. Prognostic value of preoperative platelet-lymphocyte and neutrophil-lymphocyte ratio in patients undergoing surgery for esophageal squamous cell cancer. Diseases of the Esophagus. 2014 Nov 19;29(1):79–85.
2. Li F, Shi X, Dai C. Prognostic value of pre-operative peripheral inflammation markers in patients with squamous cell carcinoma of the external auditory canal. Brazilian Journal of Otorhinolaryngology [Internet]. 2022 Jun 3 [cited 2024 May 4];88(32624372):161–7.
3. Dolan RD, McSorley ST, Park JH, Watt DG, Roxburgh CS, Horgan PG, et al. The prognostic value of systemic inflammation in patients undergoing surgery for colon cancer: comparison of composite ratios and cumulative scores. British Journal of Cancer. 2018 May 23;119(1):40–51.
4. Seropian IM, Romeo FJ, Pizarro R, Vulcano NO, Posatini RA, Marenchino RG, et al. Neutrophil-to-lymphocyte ratio and platelet-to-lymphocyte ratio as predictors of survival after heart transplantation. ESC Heart Failure [Internet]. 2017 Jul 31 [cited 2020 Jan 9];5(1):149–56.
5. Woelfinger P, Hauptrock B, Kriege O, List A, Schmitt T, Kuchen R, et al. Pre-transplant platelet-to- lymphocyte ratio predicts outcome after allogeneic hematopoietic stem cell transplantation. Scientific Reports [Internet]. 2022 Nov 8 [cited 2024 May 4];12(1):18948.

Table 1:Multivariate Cox Analysis for Overall Survival Survival Monocyte-to-Lymphocyte Ratio D+60 HSCT

Predictors	Overall Survival		P value
	Harzard Ratio	CI	
Age (Years)	1.00	0.98 – 1.03	0.727
Sex: Female	0.59	0.30 – 1.14	0.117
Diagnosis: chronic myeloid leukemia	0.85	0.37 – 1.95	0.705
Diagnosis:Lymphoproliferative Disorders and Myeloma	1.22	0.50 – 3.00	0.659
Karnosfky	2.73	0.81 – 9.19	0.106
Patient Origin: Public	0.95	0.93 – 0.98	0.003
Disease Risk: Intermediated	0.88	0.19 – 4.10	0.866
Disease Risk: High	1.61	0.32 – 8.13	0.563
Disease Risk: Very High	3.39	0.60 – 19.27	0.169
Donor: Unrelated	0.57	0.24 – 1.36	0.204
Donor: Haploidentical	0.97	0.41 – 2.28	0.948
Donor: Unrelated mismatch	1.36	0.29 – 6.35	0.693
Monocyte-to-Lymphocyte Ratio D+60 HSCT	**1.37**	**1.06 – 1.78**	**0.018**

Figure 1: Impact of Monocyte-to-Lymphocyte Ratio D+60 post-HSCT



REGISTERING AND MONITORING DONOR SEARCHES IN THE REDOME: THE REALITY OF A UNIVERSITY HOSPITAL

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INTRODUCTION

Registering patients, collecting confirmatory tests, updating clinical status, and contacting the bone marrow donor registry (REDOME) search team are important steps for speeding up the search for unrelated donors and minimizing costs to the registry, which remains promptly informed about the situation of potential recipients. In a public hospital in Northeast Brazil, with a residency program in hematology and hemotherapy, registration was done by medical residents, and many searches were not completed because the resident concluded their training and no longer followed the transplant candidates.

OBJECTIVE

To describe the process of registration, search for donors, and follow-up of bone marrow transplant recipients in the REDOME at a university hospital in the Brazilian Northeast.

METHODS:

Describe the experience to search for unrelated donors.

RESULTS

Since 2016, when we became a center authorized for unrelated donor transplants and, consequently, an evaluating center, we changed the registration process. All patients who needed to be registered in the REDOME had their registrations and donor search centralized with a physician from the bone marrow transplant team. Requests originated from outpatient clinics or wards with one physician (resident or attending) responsible for each patient. However, there were still difficulties in quarterly updates because residents do not have continuous follow-ups of patients due to their rotations. A year ago, a group was created on an instant-messaging mobile app with all hematology residents, the attending physician responsible for the ward, and the physician responsible for transplants. In this communication channel, it is possible to: request contact and updates on the clinical status of potential recipients; provide updates on the donor search process; guide referrals to pre-transplant consultations; reduce the time to obtain information, and provide on-time updates to the REDOME. We are now also responsible for the registration and donor search for patients from other hematology centers in the state referred for pre-transplant evaluation, admitted without an initial donor search, or with refusals from their attending physicians to register them. In this case, we provide pre-transplant consultations, even without a known available donor, while the search occurs through the REDOME.

CONCLUSION

It is necessary to develop mechanisms that facilitate donor search and recipient follow-up in the REDOME, optimizing the time of healthcare professionals and speeding up the time to identify donors and perform unrelated transplants. Centralization of registrations and involvement of residents may be a feasible option.

SECOND ALLOGENIC TRANSPLANT FOR ACUTE MYELOID LEUKEMIA IN COMPLETE REMISSION AFTER REINDUCTION WITH VENETOCLAX AND AZACITIDINE

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INTRODUCTION

Relapsed or refractory acute myeloid leukemia (AML) remains a challenge, even after major advances in understanding the disease's molecular heterogeneity and pathophysiology, also in pre- and post-hematopoietic cell transplantation (HCT) care.

OBJECTIVE

To present a case of early relapse after the 1st HCT, which achieved a complete response with azacitidine and venetoclax (AZA/VEN) rescue therapy, followed by second HCT.

METHODS

Case report, describing disease's clinical and pathological characteristics.

RESULTS

37-year-old woman diagnosed with high-risk M1-AML due to primary induction failure, who presented negative translocation and gene mutation panels at diagnosis. The patient underwent a first haploidentical allogeneic HCT with active disease characterized by 5.1% blasts in bone marrow multiparameter flow cytometry (MFC). A sequential conditioning protocol was carried out with a myeloablative busulfan dose and graft versus host disease (GVHD) prophylaxis with post-transplant cyclophosphamide (PT-Cy), cyclosporine (CsA) and mofetil mycophenolate (MMF). The haploidentical donor was the sister, donor-specific anti-HLA antibodies test was negative, and the stem cell source was mobilized peripheral blood (PB). Neutrophil engraftment occurred on day +12, the patient did not experience any serious complication during early post-HCT period. Relapse was diagnosed on day +159, characterized by 6.6% blasts on MFC. Measures to manage the relapse included accelerated tapering of CsA, followed by 2 cycles of low dose cytarabine, 1 cycle of azacitidine as monotherapy and 4 cycles of AZA/VEN. Assessment tests after the 4th cycle showed complete remission (CR) and negative measurable residual disease (MRD) by MFC. After achieving new remission, the patient underwent a second matched unrelated donor allogeneic HCT with FluMel-TBI200 reduced intensity conditioning protocol, with Anti-thymocyte globulin (ATG), CsA and MMF as GVHD prophylaxis, and the stem cell source was PB. Neutrophil engraftment occurred on day +10, and there were no significant complications during and after HCT. At the last disease evaluation on day 181 after the second HCT, bone marrow showed CR, negative MRD by MFC and full donor chimerism.

DISCUSSION

The management of AML relapse after allogeneic HCT remains a challenge, mainly due to the need for intensive treatments in patients previously exposed to chemotherapy and limiting doses of anthracyclines. Hypomethylating agents are good therapeutic options due to their low toxicity, as well as IDH1/2, FLT3 and BCL2 inhibitors, both for maintenance and reinduction therapy. They can produce deeper responses and may allow some patients to maintain eligible for a 2nd allogeneic HCT.

CONCLUSION

Early identification of AML relapse after HCT through periodic MRD monitoring and AZA/VEN rescue regimen can increase the chances of CR and allow a second allogeneic HCT in a better context.

KEYWORDS - Allogeneic hematopoietic cell transplantation; Refractory acute myeloid leukemia; Azacitidine and Venetoclax

SINGLE HLA MISMATCHING IS ASSOCIATED WITH INCREASED MORTALITY AFTER UNRELATED DONOR HEMATOPOIETIC CELL TRANSPLANTATION FOR SEVERE APLASTIC ANEMIA: A SECONDARY ANALYSIS OF TWO PUBLICLY AVAILABLE CIBMTR DATASETS

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Severe aplastic anemia (SAA) is the most common indication for non-malignant disease hematopoietic cell transplantation (HCT). The deleterious impact of single HLA allele mismatch on overall survival (OS) after unrelated donor HCT (URD-HCT) for SAA has been reported in some but not all studies. Thus, to address this conflicting evidence, we performed a secondary analysis of two publicly available datasets from the CIBMTR, previously published by Bejanyan et al. (Cohort 1; Blood Adv, 2019) and Eapen et al. (Cohort 2; BBMT, 2020). We aimed to assess whether a single HLA allele mismatch impacts OS in these two large cohorts of URD-HCT for SAA reported to CIBMTR. The primary endpoint was OS. Cox proportional hazards regression was used for the multivariable analysis of OS. We added a random effect or frailty to the Cox models to adjust for the center effect. The most appropriate adjusted models were selected based on Akaike's information criterion. A P value < 0.05 was considered statistically significant. Cohort 1 comprised 409 URD-HCT from 2000 to 2014, while Cohort 2 included 557 URD-HCT between 2013 and 2019. To avoid overlapping cases, Cohort 2 considered only URD-HCT from 2015 until 2019 (n=392). Thus, 801 URD-HCT were assessed. All patients received only calcineurin inhibitor-based GVHD prophylaxis. Donor–recipient high-resolution matching at HLA-A, -B, -C, and -DRB1 was considered in both cohorts. In Cohort 1, 318 (77.7%) donor-recipient pairs were HLA 8/8, whereas 91 (22.3%) were HLA 7/8. Similarly, Cohort 2 had 319 (79.6%) HLA 8/8 and 80 (20.4%) HLA 7/8 matching. In Cohort 1, the final Cox model showed that patients who received 7/8 URD-HCT had significantly poorer OS (HR=2.43; 95% CI=1.57-3.77; P=0.00008) than those who received 8/8 URD-HCT. Other factors independently associated with OS were increasing recipient age (Continuous: HR=1.02; P=0.03), recipient co-morbidity score (HCT-CI) ≥ 3 (HR=2.44; P=0.003), use of rabbit ATG (HR=0.54; P=0.035), and tacrolimus + methotrexate as GVHD prophylaxis (HR=0.52; P=0.021). Similarly, multivariable regression analysis in Cohort 2 demonstrated that single HLA-mismatched URD-HCT was significantly associated with inferior OS (HR=2.01; 95% CI=1.05-3.85; P=0.036) compared to the HLA 8/8 matched pairs. Other independent predictors of worse OS were recipient age (Continuous: HR=1.03; P=0.00001) and HCT-CI ≥ 3 (HR=1.80; P=0.044) while using a fresh graft (HR=0.21; P=0.002) improved OS. As details of HLA mismatches were unavailable, the impact of locus-specific mismatching on OS was not assessed. In conclusion, the present secondary analysis, using two large public CIBMTR datasets, confirms that patients with SAA who underwent single HLA-mismatched URD-HCT experienced significantly inferior OS. Importantly, it remains to be established whether novel GVHD prophylaxis, such as post-transplant cyclophosphamide or abatacept, can mitigate the negative effect of HLA mismatching on survival after URD-HCT for SAA.

SURVIVAL AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR FLT3 MUTATED ACUTE MYELOID LEUKEMIA

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INTRODUCTION

Allogeneic hematopoietic cell transplantation (HCT) improves outcomes of patients diagnosed with FLT3-mutated acute myeloid leukemia (AML), which occurs in 30% of all AML. The National Comprehensive Cancer Network guidelines recommend post-HCT maintenance with FLT3 inhibitors.

OBJECTIVE

This study aimed to describe the overall survival and relapse incidence in FLT3-mutated AML patients undergoing allogeneic HCT.

PATIENT POPULATION

We included 8 adult patients (≥18 years) with FLT3 mutated AML (ITD, 75% and TKD, 25%) who underwent allogeneic stem cell transplantation between 2019 and 2024. Methods: This is a descriptive retrospective single-center study conducted in a Brazilian transplant center. Survival curve was built with the Kaplan-Meier method while cumulative incidence curve, with the Gray method and test. Univariable analyses were carried out with Cox models. Hospital inpatient stay was compared with Poisson model, with total survival in the first 24 months included as the offset.

RESULTS

A total of 8 patients with FLT3-mutated AML were included, and their characteristics are shown in Table 1. The median age was 46.2 years, and 75% were female. Most (87.5%) were in first complete response (CR1), and 25% had positive measurable residual disease (MRD). Myeloablative conditioning (MAC) was the most common regimen (87.5%), and the use of post-transplant cyclophosphamide (PTCy) (62.5%) was the predominant graft-versus-host disease (GVHD) prophylactic regimen. Half of the donors were haploidentical, followed by unrelated (37%) or matched-related (13%). All but two (75%) received post-transplant maintenance with midostaurin (2 patients did not receive it due to being less than 60 days post-transplantation at the time of analysis, but is scheduled to receive it, or lack of health insurance authorization). With a median follow-up of 24 months, relapse incidence was 14% (95CI 2-88%) and overall survival was 83% (95CI 58-100%, Figure 1).

CONCLUSION

Our results show encouraging 2-year overall survival and relapse in FLT3-mutated AML patients who underwent allogeneic HSCT, emphasizing the validity of this strategy. It is important to underscore that the current results were achieved with a sample of mainly alternative and MAC transplants with PTCy-based GVHD prophylaxis. Midostaurin maintenance in most patients may have improved the results. Recently, post-transplant maintenance with gilteritinib has improved results in MRD+ patients in a phase III trial. AML relapse is associated with a high mortality rate, and many centers favor early HCT as the optimal consolidation for FLT3 mutated AML. Limitations of our study include those inherent to a retrospective study and small sample size, and larger prospective studies are needed to confirm these findings.

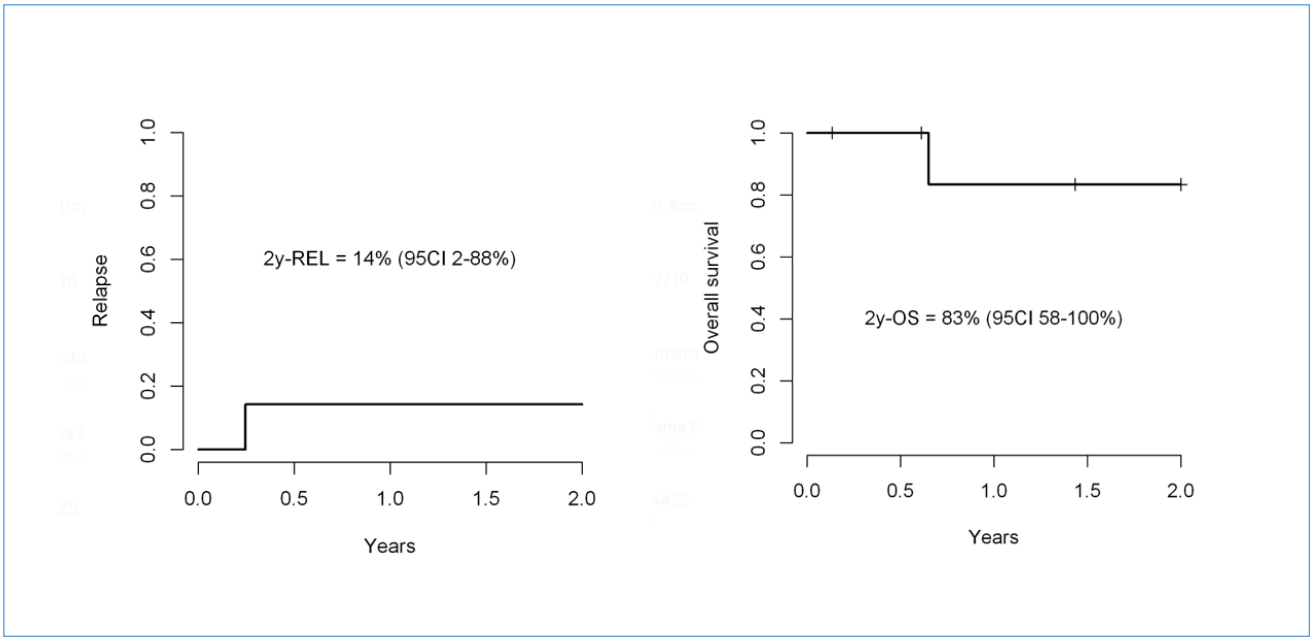
KEYWORDS

Acute Myeloid Leukemia, Allogeneic stem cell transplantation, FLT3

TABLE 1- Patient characteristics

VARIABLE	TOTAL (%)
Number of patients	8
Median Age (SD)	46,2 (15,3)
Gender Male Female	 2 (25%) 6 (75%)
Karnofsky 90-100%	 8 (100%)
HCT-CI Mean (SD)	 1,1 (1,6)
Diagnostic AML	 8 (100%)
DRI Low Intermediate High	 1 (12,5%) 6 (75%) 1 (12,5%)
Mutation FLT3 ITD TKD	 6 (75%) 2 (25%)
Disease status prior to HCT CR1 CR2	7 (87,5%) 1 (12,5%)
MRD immunophenotyping <0.1% (<1E-3) ≥0.1% (≥1E-3)	 6 (75%) 2 (25%)
Type of donor Related Unrelated Haploidentical	 1 (12,5%) 3 (37,5%) 4 (50%)
Donor age Mean (SD)	31,1 (13,8)
Graft type Bone marrow Peripheral blood	 1 (12,5%) 7 (87,5%)
Compatibilidade HLA HLA 8/8 HLA 7/8 Haploidentical	 3 (37,5%) 1 (12,5%) 4 (50)
Conditioning intensity MAC RIC	 7 (87,5%) 1 (12,5%)
PTCy No PTCy PTCy	 3 (37,5%) 5 (62,5%)
ATG (Antithmocyte globulin) No ATG ATG	 2 (25%) 6 (75%)
Post-Transplant Maintenance No maintenance Midostaurin	 2 (25%) 6 (75%)
Follow up mean (SD)	24 (15,8)

FIGURE 1 - Cumulative incidence of relapse and overall survival after hematopoietic stem cell transplantation for FLT3-mutated acute myeloid leukemia



THE IMPACT OF COMPREHENSIVE GERIATRIC ASSESSMENT ON PATIENTS UNDERGOING ALLOGENIC HEMATOPOETIC STEM CELL TRANSPLANTATION IN A SINGLE INSTITUTION IN BRAZIL

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INTRODUCTION

Older Adults who receive hematopoietic cell transplantation (HSCT) may be at risk of adverse outcomes due to aging-related conditions such as the onset of chronic diseases, frailty and cognitive decline. In this context, integrating comprehensive geriatric assessment (CGA) into medical practice enables a comprehensive assessment of the global health of the elderly, in addition to being a means of assisting in decision-making. Robust patients can be referred for more intensive treatments, while those more vulnerable can have their deficiencies identified and, if possible, reversed, or opt for reduced-intensity or non-myeloablative conditioning strategies.

OBJECTIVE

To evaluate the profile of elderly patients who underwent allogeneic HCT for CGA in a Brazilian institution, between January 2013 and September 2023.

METHODS

Retrospective, unicentric and descriptive study that evaluated patients ≥ 60 years old who underwent allogeneic HCT at a private institution in Brazil.

RESULTS

74 patients with a median age of 67 years were evaluated. The majority of patients who underwent allogeneic HCT had myeloid diseases: 47% patients with acute myeloid leukemia and 32% patients with myelodysplastic syndrome. In our cohort, 38% patients underwent unrelated allogeneic HCT; 35% are haploidentical allogeneic HCT patients and 26% are allogeneic HCT patients. Regarding the disease risk index (DRI), 49% patients were at intermediate risk and 34% were high risk. In the hematopoietic cell transplant specific comorbidity index (HCT-CI), 42.5% of patients had a high HCT-CI.

Regarding CGA, 96% of patients were independent in carrying out activities of daily living (ADL) and 90% of patients were independent in carrying out instrumental activities of daily living (IADL). The mini assessment of the patient's nutritional status (Mini-MAN) showed that 65.7% of patients were not at malnutrition risk, and 33% at risk. Polypharmacy was found in 65.7% of patients. On the Geriatric Depression Scale (GDS), 85% of patients had no depression. In terms of self-rated health, 26% felt that their health was regular, 36% thought it was good and 36% thought it was very good. Finally, we evaluated the CARG scale that assesses toxicity to chemotherapy and we found that 21% of patients had a low risk of chemotherapy toxicity; 58.6% were at intermediate risk and 21% of patients were at high risk. Fried's criteria assesses frailty in the elderly and we found that 43% of patients were vulnerable; 35% healthy and 21% frail. The median follow-up for these patients was 36 months.

CONCLUSION

CGA is a validated tool and widely applied to elderly patients with cancer to identify frailty syndromes and increased risk of chemotoxicity. It can be used in allogeneic HCT to carefully select patients eligible to receive this therapy, as well as to identify patients at risk of worse outcomes and assist in decision making.

KEYWORDS

Elderly, assessment and allogeneic-HCT.

TABLE 1- Patient characteristics

	Total (%)
Total Patients	74
Age (median)	66.9
Pathology	
- Acute myeloid leukemia	35 (47.3)
- Multiple myeloma	1 (1.4)
- Lymphoma	5 (6.8)
- Myelodysplasia	24 (32.4)
- Myelofibrosis	6 (8.1)
- Mycosis fungoides	1 (1.4)
- Chronic lymphocytic leukemia	1 (1.4)
Sex	
- Female	47 (63.5)
- Male	27 (36.5)
DRI	
- Low	3 (4.1)
- Intermediary	36 (49.3)
- High	25 (34.2)
- Very high	9 (12.3)
HCT-CI	
- Low	24 (33)
- Intermediary	17 (23.3)
- High	31 (42.5)
TMO type:	
- ALLO matched related	19 (25.7)
- ALLO MUD	28 (37.8)
- ALLO HAPLO	26 (35.1)
Steam Cell source	
- BM	31 (41.9)
- PB	42 (57)

TABLE 1-CGA variables

	Total (%)
Total Patients	74
FRIED	
- Fragile	14 (21.5)
- Vulnerable	28 (43.1)
- Healthy	23 (35.4)
ECOG	
- 0	32 (48.5)
- >1	34 (51.5)
Polypharmacy (>=5 drugs)	
- Yes	46 (65.7)
- No	24 (34.3)
Self-evaluation	
- Bad	1 (2)
- Regular	13 (26)
- Good	18 (36)
- Very Good	18 (36)
GDS	
- Normal	57 (85.1)
- Abnormal	10 (14.9)
ABVD	
- Independent	70 (95.9)
- Dependent	3 (4.1)
AIVD	
- Independent	65 (90.3)
- Dependent	7 (9.7)
MINI-MAN	
- No nutricional risk	46 (65.7)
- At nutricional risk	23 (32.9)
CARG	
- Low	12 (20.7)
- Intermediary	34 (58.6)
- High	12 (20.7)

THE IMPACT OF GERIATRIC ASSESSMENT ON ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation is a curative therapeutic option for seve-ral high-risk hematological conditions. However, this procedure is often associated with a significant risk of short- to long-term mortality and morbidity, such as graft-versus-host di-sease, serious infections, hemorrhage, and second malignancy. To reduce these risks, in recent years, efforts have been made to refine the assessment of patients' fitness, where several points are analyzed, such as age, functional status, comorbidities and frailty. Cur-rently, frailty is not considered a fitness state relevant only for transplant candidates above a certain age, but rather an important fitness state for transplant outcomes regardless of age.

OBJECTIVE

To check the impact that geriatric assessment has on allogeneic hematopoietic stem cell transplantation.

SAMPLE

156 patients who underwent geriatric assessment at the hematopoietic stem cell transplant service between January 2018 and April 2024 were included in the study.

METHODOLOGY

This is a retrospective descriptive study, where the physical and electronic medical records of 156 patients from the hematopoietic stem cell transplant service who underwent targeted geriatric assessment were analyzed. According to the geriatric assessment, patients were classified as robust, pre-frail and frail and their ages, transplant status and post-transplant survival were developed. The collected data were presented in graphs and tables prepared by the Microsoft Excel 2023 program. To analyze the survival of transplanted patients, the Kaplan-Meier method and the Logrank test were used to compare the subgroups, frail, pre-frail and robust.

RESULTS

Of the 156 patients analyzed, 64.1% (100 patients) continued with transplantation and 35.9% (56 patients) were ineligible for transplantation. Of the patients who did not proceed with the transplant, around 19.6% were contraindicated because they were fragile accor-ding to the targeted geriatric assessment. Of the 13 frail patients who did not undergo transplantation, 30.8% were under 50 years of age. Of the 100 patients who underwent bo-ne marrow transplantation, 11% were frail and of these, 63.6% were under 50 years of age. In the survival analysis, patients who underwent transplantation had an average of 687 days of survival, but there was no statistically significant difference ($p = 0.5$) when evalua-ting the survival of frail and prefrail patients compared to robusts.

CONCLUSION

Geriatric assessment to analyze frailty status is an important tool to examine eligibility for allogeneic hematopoietic stem cell transplantation regardless of age. However, more studi-es with a larger number of patients are needed to verify its impact on post-transplant survi-val.

KEYWORDS

transplantation; hematopoietic stem cells; frailty

THE UNRELATED DONOR SEARCH PROCESS IN THE YEAR 2023

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INTRODUCTION

Annually, thousands of Brazilian patients with different types of malignant and non-malignant hematological diseases are registered in REDOME (Brazilian Bone Marrow Donors Registry) to verify the availability of a compatible unrelated donor for hematopoietic stem cell transplantation (HSCT).

OBJECTIVE

To analyze the total number of patients registered for unrelated donor searches in 2023 and the result of the search process. Method: The data were obtained from the information systems used for unrelated donor searches (SISMATCH and REDOMEWEB), and the criteria of compatible donors corresponded to the approved donor by the patient transplant team, considering HLA match, age, and gender.

RESULTS

In 2023, 2021 new patients were registered for unrelated donor search, and, among them, 1000 patients identified a compatible donor, including national donor (75%) and international donor (25%) (figure 1). The median time to conclude unrelated donor searches ranged from 57 to 88 days throughout the year, and the mean of histocompatibility tests performed was 321 per month. A total of 369 HSCTs were performed in the analyzed year, including 136 patients registered in 2023 (figure 2). The unrelated donor search process is based on analyzing patient HLA typing and using diverse compatibility predictive algorithms, including national and international donors. The efficiency of this process depends on the interaction between the unrelated donor search team and the patient medical team. Patients registered at low-resolution HLA typing can compromise the probabilities of predictive algorithms, while the time spent at confirmatory typing (CT) can also impact the final result. The analysis of anti-HLA antibodies should be considered for mismatched donors. These results are also influenced by other factors such as patient death, the search process interrupted by medical decisions, or lack of clinical information. Despite the conclusion of an unrelated donor search for 1000 patients in 2023, the number of transplants was only 369, and several factors may explain these numbers, such as patient personal decision, patient death, unavailability of the selected donor for donation, as well as the lack of available hospital beds for donor collection.

CONCLUSION

In recent years, because of improvements in HLA typing and better predictive algorithms, Brazilian patients have an increasing probability of having a matched unrelated donor. However, this increase is not associated with an equivalent increase in transplants. Consequently, part of the costs invested in unrelated donor searches cannot reach the transplant. Therefore, a review of the donor search process can rationalize the use of financial resources from the Ministry of Health, optimizing the search and selection of donors by including preliminary searches and criteria for urgent cases according to patient clinical conditions.

FIGURE 1- Patients registered for unrelated donor search in 2023

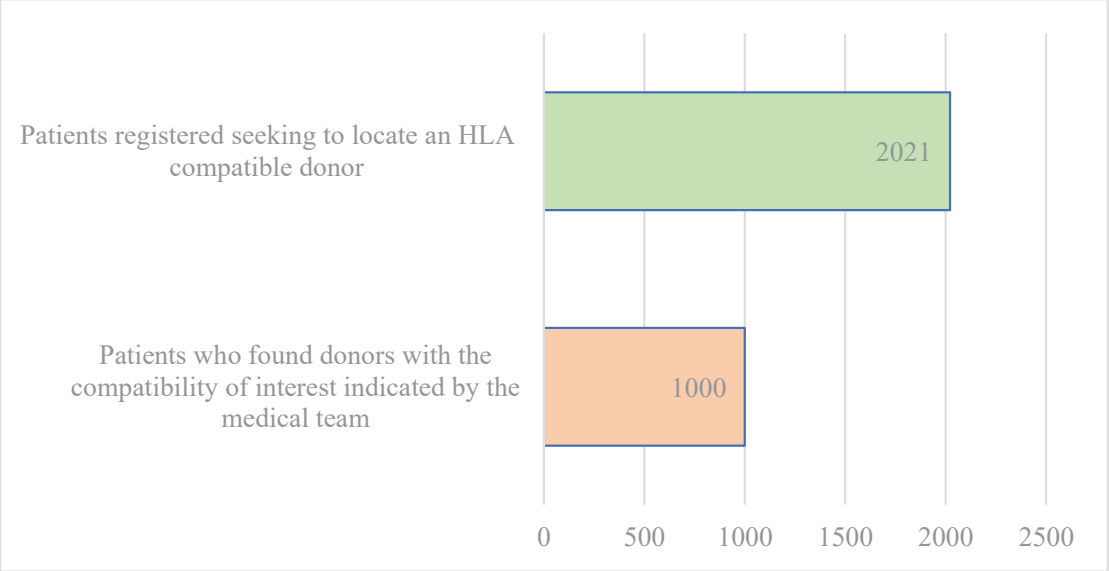
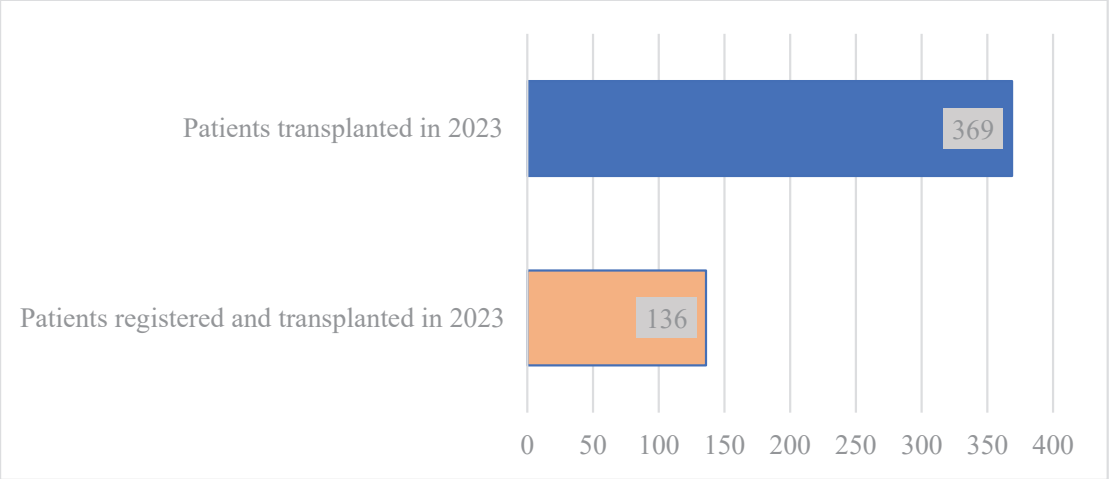


FIGURE 2 - Unrelated Donor Transplants in 2023



THERAPY WITH CRYOPRESERVED DONOR LYMPHOCYTE INFUSIONS (DLI) IN RELAPSED PATIENTS AFTER ALLOGENIC TRANSPLANTATION

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INTRODUCTION

Donor Lymphocyte Infusion (DLI) is a prophylactic or therapeutic alternative for loss of chimerism or relapse after allogeneic hematopoietic stem cell transplantation (HSCT) in hematological diseases. The therapeutic success of HSCT is related to the antitumor effect induced by donor T lymphocytes, and this is the basis for the use of DLI in relapses after HSCT. The material in excess of that needed for the transplant is cryopreserved as requested by the transplant centers in doses of DLI, with a minimum of two bags and a maximum of three divided.

AIM

To analyze the data regarding the number of DLI bags that were cryopreserved and infused in relapsed patients after allogeneic transplantation, to evaluate the use of this therapy in transplant centers in the state of Ceará.

METHODOLOGY

A retrospective analysis of allogeneic patients treated by the Cell Processing Center (CPC) was carried out from January 2021 to December 2023. Data regarding the number of DLI bags that were cryopreserved and infused, the underlying disease and indications were evaluated. Results: During the period evaluated, 139 allogeneic HSCT patients were treated at the CPC. In 2021, 40 patients were treated, of which only 18 had their bags fractionated and cryopreserved, totaling 53 DLI bags, however, only 5.5% of patients (1/18) received the therapy, with 5.6% of the bags being infused (3 /53) in different periods. In 2022, 42 patients were treated, of which 28 had their bags fractionated and cryopreserved, totaling 71 DLI bags, however, only 7.1% of patients (2/28) received the therapy, with 4.2% of the bags being infused (3/ 71) in different periods. In 2023, 57 patients were treated, of which 45 had their bags fractionated and cryopreserved, totaling 90 DLI bags, however, only 8.8% of patients (4/45) received the therapy, with 6.6% of the bags being infused (6/ 90) in different periods. Finally, in the three-year period evaluated, 214 bags of DLI were cryopreserved, with only 5.6% of these being requested for infusion (12/214). The total number of patients who used the therapy was 7, 2 of which were unrelated and the rest related HSCT. Only one patient infused 3 doses of DLI, with an average of 1.7 doses per patient. Only therapeutic DLI was used, disease relapse was the only indication. The underlying diseases of the patients were: 3 patients with myelodysplastic syndrome, 2 patients with acute myeloid leukemia (AML) and 2 with acute lymphocytic leukemia (ALL).

CONCLUSION

The use of this cryopreserved cellular product was considered low in the period evaluated. The amount of unused material occupying the freezers is more than 90% of the total and the average time of use was in the first year after transplantation. The value of this cryopreservation is questioned since usage is low and there are alternatives for obtaining DLI (whole blood and apheresis). The prophylactic use could be discussed at transplant center, as an option to patients with high-risk disease.

USE OF CHECKPOINT INHIBITORS AND ALLOGENEIC STEM CELL TRANSPLANTATION FOR THE TREATMENT OF REFRACTORY/ RELAPSED HODGKIN'S LYMPHOMA

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INTRODUCTION

Managing patients with refractory/relapsed Hodgkin's lymphoma (HL) after autologous stem cell transplantation (auto-SCT) can be challenging. Allogeneic stem cell transplantation (allo-SCT) therapy becomes even more complex in an era where checkpoint inhibitors (CI) such as nivolumab and pembrolizumab are increasingly used. Here, we present a case of a patient with HL treated with CI and allo-SCT for refractory disease.

CASE PRESENTATION

A 36-year-old female patient began experiencing back pain, weight loss and night sweats. She had a spinal fracture and a bone biopsy revealed HL, treated with ABVD (doxorubicin, bleomycin, vinblastine, dacarbazine). After two months, the patient had a new episode of lower back pain and a PET-CT scan showed suspicion of lymphoma refractoriness, confirmed with a new bone biopsy. Salvage chemotherapy with GIV (ifosfamide, gemcitabine, and vinorelbine) was initiated, resulting in partial response. Subsequently, the patient underwent auto-SCT, but only in three months, a new pain crisis and a new biopsy confirmed ongoing HL. Next Brentuximab vedotin was initiated, achieving partial remission and a new cycle of chemotherapy with re-exposure to the GIV regimen was attempted, followed by an association of Brentuximab vedotin, gemcitabine and vinorelbine with no response. Rescue chemo with ICE (ifosfamide, carboplatin, etoposide) was attempted but the patient still progressed. The patient was evaluated for allo-SCT with Nivolumab as a bridging therapy, with complete response just before allo-SCT. She developed grade III skin and lung graft-versus-host disease (GVHD), managed with systemic corticosteroids and ruxolitinib. The patient maintained adequate lymphoma control for almost two years, when she experienced disease progression confirmed by inguinal lymph node biopsy, leading to the reinitiation of Nivolumab. The patient has been on Nivolumab since then, with some intervals, maintaining stable LH control, albeit with occasional GVHD manageables flares.

DISCUSSION

Allo-SCT is an established therapy for refractory/ relapsed HL after auto-SCT. Many of these patients receive CI as salvage therapy; however, a higher incidence of acute GVHD has been observed in patients previously exposed to CI. Furthermore, the use of CI in the setting of relapse after allo-SCT has also been associated with new cases of acute GVHD or exacerbation of existing GVHD. The case presented illustrates the balance between the benefit of the graft-versus-tumor effect of CI and the risk of GVHD related to these medications in the allo-SCT setting.

CONCLUSION

Allo-SCT and CI are available therapies for refractory/ relapsed HL, with consideration given to the higher risk of severe acute GVHD with CI use in this setting, although it has the potential to achieve graft-versus-lymphoma effect. Managing this scenario is complex but offers an alternative for refractory patients who have had multiple prior therapies..

VALIDATION OF ORAL GVHD TELEDIAGNOSIS THROUGH SMARTPHONE PHOTOS - DISCLOSURE OF A STUDY IN PLANNING PHASE

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INTRODUCTION

Oral Graft-versus-Host Disease (GVHD) occurs in 80-90% of chronic GVHD cases after Allogeneic Bone Marrow Transplantation (allo-BMT)[1,2]. Its occurrence is associated with increased risk of complications such as tooth decay, oral candidiasis, and squamous cell carcinoma, in addition to impacting the quality of life[1]. There is a challenge regarding its diagnosis, as many patients undergo post-allo-BMT follow-up away from the transplant center, which has been associated with worse outcomes due to barriers to access to specialized care and treatments[3]. Telemedicine emerges as a tool that enables bridging the gap in access to healthcare, allowing monitoring of these patients and assistance in diagnosis and therapeutic decision-making[4].

OBJECTIVE

To evaluate the diagnostic agreement between direct physical examination performed by transplant physician, nurses dedicated to the GVHD outpatient clinic, and dentist dedicated to the bone marrow transplant service of Beneficência Portuguesa de São Paulo (BP), and remote diagnosis through smartphone photos by physicians and multidisciplinary transplant team members (nurses and dentists).

INTEREST FINDINGS

Identification of diagnostic findings (lichen planus) and suggestive of oral GVHD (enanthema, ulcer, and mucoceles).

METHODS

Each case will take 5 photos of the oral mucosa (1 for each buccal mucosa, 1 for lips and mucosa of the lower lip, 1 for soft and hard palate, and 1 for the base of the tongue). Physicians and participating multidisciplinary team will evaluate photos and respond whether the findings of interest are present or not in a specific survey/research platform.**Statistical Analysis**: Concordance will be assessed using Cohen's Kappa test.**Sample Size:** Considering a prevalence of oral GVHD of 80-90% among patients with chronic GVHD, and considering an acceptable Kappa of 0.8 and a minimally acceptable lower limit of normality of 0.7, we will need 58 samples (patient: photo) for a minimum of 6 evaluated observers. For a larger number of observers (i.e., 15), the sample size is reduced to 49 samples.

REFERENCES

1. Johnson LB, Oh U, Rothen M, Sroussi HY, Dean DR, Lloid CM, et al. A Review of Oral Chronic Graft-Versus-Host Disease: Considerations for dental hygiene practice. Journal of dental hygiene : JDH [Internet]. 2022 [cited 2024 May 4];96(2):6–17. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10392699/

2. Yoshihiro Inamoto, Kim DD, Storer BE, Joon Ho Moon, Lipton JH, Kuruvilla J, et al. Application of CIBMTR risk score to NIH chronic GVHD at individual centers. Blood. 2014 Jan 16;123(3):453–5.

3. Khera N, Gooley T, Flowers MED, Sandmaier BM, Loberiza F, Lee SJ, et al. Association of Distance from Transplantation Center and Place of Residence on Outcomes after Allogeneic Hematopoietic Cell Transplantation. Biology of Blood and Marrow Transplantation. 2016 Jul;22(7):1319–23.

4. Tuckson RV, Edmunds M, Hodgkins ML. Telehealth. New England Journal of Medicine. 2017 Oct 19;377(16):1585–92.

WAITING TIME FOR ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION IN A PUBLIC HOSPITAL IN NORTHEAST BRAZIL

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INTRODUCTION

Access to hematopoietic cell transplantation (HCT) within the Brazilian Unified Health System (SUS) is a sensitive issue in national public health. Irregularly distributed transplant centers and limited number of beds make access difficult and delay the procedure for a large number of patients, potentially influencing transplant outcomes.

OBJECTIVE

To describe the waiting time between the first consultation in the pre-allogeneic transplant outpatient clinic and BMT in an EBSERH hospital in the Northeast region of Brazil.

METHOD

A descriptive retrospective study with data from transplants performed between January 2020 and April 2024. Data were obtained through the review of medical records and captured through the REDCAP platform.

RESULTS

A total of 121 allogeneic transplants were performed during the period. The mean interval between the first consultation and hospitalization for transplantation was 174 days (range: 32-517 days). Regarding the type of donor: matching sibling donor (MSD) transplants were performed on average 152 days after the first consultation, (range: 32-517 days); matching unrelated donor (MUD) transplants took about 204 days (range: 69-415 days); and haploidentical transplants occurred 193 days (range: 58-442 days) after the first consultation. Regarding diagnosis, transplantation for aplastic anemia occurred on average 72 days after the first consultation, with a minimum interval of 43 days. Acute lymphoblastic leukemia the average waiting time was 184 days (range: 72-336 days). Acute myeloid leukemia the average waiting time was 187 days (range: 32-442 days).

DISCUSSION

These findings reveal a prolonged average waiting time for the procedure. In addition to the lack of beds, refractory/ relapse disease, difficulties in accessing pre-transplant exams, lack of prompt dental consultations, medication unavailability, chemotherapy shortages, the COVID-19 pandemic, and reduced nursing staff have negatively influenced waiting times in this service. Patients undergoing MUD or haploidentical HCT were negatively influenced by the waiting time associated with searching for a donor through the Brazilian Bone Marrow Donor Registry (REDOME).

CONCLUSION

Optimizing pre-transplant consultations, increasing the number of public hospital beds, expanding the specialized multidisciplinary team, and regularizing drug supply are strategies needed to improve access to HCT, reducing waiting times, deaths, and relapses, as well as optimizing post-transplant outcomes.

AUTOLOGOUS HSCT

A SINGLE CENTER PRELIMINARY DATA ON RACIAL DISPARITIES IN ACCESS TO MULTIPLE MYELOMA AUTOLOGOUS STEM CELL TRANSPLANTATION

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INTRODUCTION

The treatment of multiple myeloma often involves autologous hematopoietic stem cell transplantation (HSCT) as a consolidation option for eligible patients. Literature describes racial and ethnic disparities in access to HSCT, yet there is limited data regarding this issue in Brazil. Objective: This study aims to analyze the racial composition of patients undergoing autologous HSCT for multiple myeloma at a single center in Brazil to discuss access to autologous HSCT.

METHODS

A retrospective review of HSCT procedures performed between 2014 and 2022 at a single academic center in Brazil was conducted. Inclusion criteria were a diagnosis of multiple myeloma and availability of racial data in electronic medical records. To facilitate data interpretation, patients were categorized into two groups: White and Black. Cases where race could not be determined were excluded. In addition to racial proportions, variables such as age at transplantation and origin by macro-region were analyzed. Data will be presented using descriptive statistics. The study was approved by the institutional ethics committee.

RESULTS

The review included 167 patients with available racial information. Of these patients, 140 were White (84%) and 27 were Black (16%). Regarding gender, 94 patients were male (56%) and 73 were female (44%), with no apparent differences in proportions between racial groups. The mean age of transplanted White patients was 57.5 (range 36-71, σ=8.14) years and of Black patients was 52.9 (range 31-67, σ=9.6) years. Regarding patient origin, considering the entire group, 96% were from the Southeast, Midwest, and Northeast regions. Within subgroups, White patients from the Southeast, Midwest, and Northeast regions accounted for 76%, 18%, and 2%, respectively, while Black patients accounted for 67%, 11%, and 19%, respectively.

CONCLUSIONS

The data from this study suggest that there may be racial disparities in access to autologous HSCT for multiple myeloma at this transplant center, as the data do not align with the disease epidemiology according to racial patterns. There is a need for analysis of the data considering geographic racial differences, but this may reflect a phenomenon within the Brazilian healthcare system, akin to what has been described in other locations in international literature. There is a need to further discuss this issue to better understand the phenomenon of access to transplantation, including all factors that could contribute to the disparity for this group of socially vulnerable patients.

KEYWORDS

Multiple myeloma. Hematopoietic stem cell transplantation. Access to health care.

ADVANCEMENTS IN HEMATOPOETIC CELL TRANSPLANTATION: A CENTER EXPERIENCE IN A PHILANTROPIC HOSPITAL IN SOUTHEAST REGION OF BRAZIL

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Hematopoetic Cell Transplantation(HCT) currently stands out as a well-established and potentially curative therapy for neoplasms and other hematologic disorders. This work aims to present the results and development of a transplant center – since its establishment in 2008 and evaluate the progress and impact of this center in the region it serves. This study employed a methodology that included statistical analysis of data obtained from our center, including the number of transplants performed, types of diseases treated, and results achieved. In 2022, Brazil had 32 authorized centers for hematopoetic cell transplantation (HCT). In 2024, there are 71 centers, with 27 in the Southeast, but only our center is active in our state yet . In this scenario, our center is the primary reference in HCT for the entire state, as well as the southern region of Bahia, northern Rio de Janeiro, and even other more distant regions that lack centers or cannot meet demand. Our center performed its first transplant in 2008, using the MEL 200 protocol, for a patient with Multiple Myeloma who experienced marrow recovery 10 days later. Since then, until April 2024, Our center has performed 742 bone marrow transplants. Multiple Myeloma was not only the disease of the first patient but also responsible for the highest number of transplants – 513 in total. According to data from the CIBMTR, Multiple Myeloma is indeed the disease responsible for the highest number of transplants worldwide, partially explaining this proportion. In the initial three years, from 2008 to 2011, 14 transplants were performed, all autologous. From 2021 to 2023, 250 transplants were performed, including 18 allogeneic. This indicates that the service has grown over time, gaining experience and maintaining excellence to serve the population. As a result, our center is now authorized by the Ministry of Health to perform highly complex HCT procedures, having already performed haploidentical allogeneic and unrelated donor transplants. The results obtained from the statistical analysis demonstrate a significant growth in the number of bone marrow transplants performed by our center over the years. In response to the study's objective, it is concluded that our cente have emerged as a center of excellence in hematopoetic cell transplantation, playing a crucial role in providing healthcare for patients not only locally but also in remote areas. The significant growth in the number of transplants performed and the expansion of our capacity to perform highly complex procedures underscore its importance in the current medical landscape. The next steps include continuing the evolution and improvement of the services offered by our center to better meet the needs of the population . We started to beggining of 2024, to registry our transplants to CIBMTR.

KEYWORDS - Bone marrow transplant, transplant center, development

AUTOLOGOUS BONE MARROW TRANSPLANTATION FOR MULTIPLE MYELOMA PERFORMED ON AN AMBULATORY BASIS, WITHOUT THE NEED FOR HOSPITAL ADMISSION

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INTRODUCTION

Autologous bone marrow transplantation is a therapy widely used as consolidation for multiple myeloma in patients eligible for transplantation. It is performed in the vast majority og transplant centers with the need for the patient to be hospitalized during conditioning until neutrophil engraftment. Objective: to report the case of a patient who underwent autologous bone marrow transplantation for multiple myeloma in 2024, whose conditioning was carried out with de Mel200 protocol, on an outpatient basis, progressing through neutropenia to neutrophilic engraftment without the need for hospital admission.

METHOD

The patient underwent conditioning and infusion of hematopoietic progenitor cells on an outpatient basis, used intravenous Ceftriaxone and oral Levofloxacin as antibacterial prophylaxis throughout the period of neutropenia, and did not experience febrile neutronpenia. After neutrophilic grafting, antibiotics were suspended and the patient was able to return to the center of origin. Results: The patient did not require hospitalization, and the toxicities associated wiht mucositis were well managed on an outpatient basis with the support of the multidisciplinary team.

CONCLUSION

Autologous bone marrow transplantation for multiple myeloma can be performed on an outpatient basis depending on the patient's performance in the pre-transplant period, which reduces the risk associated with hospital admission, keeps the patient in their family rotine, in addition to reducing the costs associated with the transplant process.

KEYWORDS

Transplantation, Autologous; Bone Marrow Transplantation; Multiple Myeloma

AUTOLOGOUS BONE MARROW TRANSPLANTATION IN RELAPSED NON-SEMINOMATOUS TESTICULAR TUMOR: CASE REPORT.

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INTRODUCTION

Testicular malignancy, particularly germ cell tumors (GCT), represents a significant treatment challenge in young men. For patients with relpased disease high-dose chemotherapy (HDCT) followed by hematopoietic stem cell rescue improves progression-free survival (PFS), with PFS rates around 40% at 40 months and survival overall (OS) of 52% at 5 years, especially in platinum-resistant patients.

OBJECTIVE

To describe a clinical case of autologous, sequential Bone Marrow Transplantation (BMT) in a patient with refractory relapsed non-seminomatous testicular tumor.

METHOD: REVIEW OF MEDICAL RECORDS.

Result: 20 years old male, without previous comorbidities, started experiencing pain and increased testicular volume, associated with changes in tumor markers (TM): qualitative Beta-HCG (BHCG) reagent, Alpha-Fetoprotein (AFP) increased by 10x the normal value (102.8), without DHL registration. He underwent an orchiectomy, with anatomopathological (AP) results showing a germ cell tumor, suggestive of Embryonic Carcinoma, stage pT1pNx. No postoperative markers were recorded.

Two months after surgery, he had recurrence of the disease, clinical stage III, intermediate risk. The patient treated with chemotherapy PEB regimen (Cisplatin, Etoposide and Bleomycin) for 4 cycles, with complete radiological response and normalization of serum tumor markers at the end of treatment.

After 4 years, he presented a new increase in AFP and intraaortocaval lymph node enlargement, cosistent with recurrence of the disease. He was treated with TIP regimen (Paclitaxel, Ifosfamide and Cisplatin) for 4 cycles. At the end, tumor markers normalized, but lymph node enlargement remained. Due to the presence of residual disease, he underwent retroperitoneal lymphadenectomy, with AP revealing Teratoma in the interaortocaval and pre-aortic lymph nodes and Schwannoma in the suprahilar lymph nodes.

After 6 months, the patient presented a new increase in AFP, and CT showed the appearance of a pulmonary nodule on the right and new retroperitoneal, left inguinal and ileocolic lymph node enlargement. Lung biopsy confirmed the neoplastic origin of the primary cancer. Treatment with GEMOX (Gemcitabine + Oxaliplatin) was then proposed for 2 cycles, followed by autologous BMT. He underwent chemo-mobilization with Navelbine + GCSF and conditioning with Carboplatin-Epotoside, undergoing the 1st BMT. On reassessment after 15 days, he presented DHL 253, AFP 192.5 and HCG <1. He was then submitted to the 2nd BMT 34 days after the 1st, with reevaluation after the 2nd BMT showing DHL 162, AFP 87.4 and HCG <1. Finally, he underwent the 3rd BMT recently, 30 days after the 2nd BMT, awaiting reevaluation, but with an abdominal CT scan after diarrhea already revealing a significant reduction in the size of several lymph nodes/lymph node enlargement.

CONCLUSION

This case emphasis the importance of HDCT with hematopoietic stem cell rescue in relapsed/refractory non-seminomatous testicular tumor.

AUTOLOGOUS HEMATOPOIETIC PROGENITOR CELL TRANSPLANTATION IN MYELOMA PATIENTS: A COMPARISON BETWEEN CRYOPRESERVED AND FRESH PRODUCTS

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INTRODUCTION

The demand for autologous hematopoietic progenitor cell (HPC) transplants has been steadily rising. Some transplant centers have implemented the fresh infusion protocol for myeloma patients undergoing autologous transplantation. This protocol involves collecting HPC and maintaining them without manipulation at 2–8°C for up to 48 hours.

OBJECTIVE

To compare laboratory and clinical data between patients who received fresh and cryopreserved infusions.

Methods: Flow cytometry, following the methodology outlined by ISHAGE, was conducted using a BD FACSCalibur cytometer to quantify HPCs. Clonogenic assays were performed using the MACSTM HSC-CFU Media system by Miltenyi Biotec, with observations made via inverted light microscopy 14 to 16 days post-incubation at 37°C for both HPC quantification and functional assessment. Cell viability was determined through optical microscopy and trypan blue exclusion. Neutrophil engraftment was considered achieved after three consecutive days with neutrophil counts exceeding 500/mm^3.

RESULTS

Between October 2022 and March 2024, 66 patients were treated: 45 received cryopreserved cells and 21 received fresh infusion. The median age was 60 years (range: 40-73 years). Of the 66 patients, 49 underwent mobilization with G-CSF, with 17 also receiving Plerixafor, resulting in a total of 74 apheresis procedures. The mean circulating HPC count before the first apheresis was 23 CD34+/mm3 (range: 2-97). Cryopreserved HPCs were stored in a solution containing hydroxyethyl starch (5.83%), human albumin (4%), and dimethyl sulfoxide (5%), divided into fractions of 60 to 115mL with a target cell concentration of 2-3 x108 total leukocytes/ml. Fresh products were maintained between 2-8°C until infusion. CD34+/Kg ranged from 2.18 to 12.51 (mean: 4.13) for cryopreserved products and 2.09 to 9.04 (mean: 4.56) for fresh products. Cell viability exceeded 99% in fresh products and averaged 93.08% (range: 83.89-99.90) post-thaw, with CFU-GM recovery averaging 67.19% (range: 33.2-148.5). Engraftment occurred between 9 to 13 days (mean: 10.79) for cryopreserved products and 9 to 12 days (mean: 10.43) for fresh products. Adverse reactions were minimal: one case (4.7%) of moderate volume overload in the fresh infusion group, and two cases (4.65%) of throat irritation in the cryopreserved infusion group.

CONCLUSION

Our cryopreservation techniques have proven effective, ensuring optimal outcomes for autologous HPC transplantation comparable to fresh infusion. This approach offers logistical advantages and flexibility, particularly in managing potential complications associated with the transplantation process. While fresh infusion remains a viable option, cryopreservation provides quality assurance beyond the 48-hour validity of fresh products. The choice between fresh and cryopreserved infusion should be based on individual patient needs, with attending physicians empowered to make the best decision for each case.

KEYWORDS - Hematopoietic Progenitor Cells (HPC), Cryopreservation versus fresh infusion, Myeloma Autologous Transplantation.

AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANT FOR THE TREATMENT OF REFRACTORY MYASTHENIA GRAVIS WITH ACETYLCHOLINE RECEPTOR ANTIBODY-POSITIVE: A CASE REPORT

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INTRODUCTION

Autologous hematopoietic stem cell transplantation (HSCT) has been used to treat patients with autoimmune diseases. The therapeutic justification involves the elimination of self-reactive immune cells, followed by the infusion of autologous stem cells to reconstitute a more tolerant immune system. HSCT has been effective in treating other severe autoimmune neurological conditions and may have a similar application in MG.

CASE REPORT

The female patient was diagnosed with MG AChR-positive at the age of 46 after presenting global weakness and dyspnea with efforts. Over a period of more than 3 years, she failed to respond to various therapies, including prednisone, pyridostigmine, azathioprine, tacrolimus, rituximab, eculizumab, ravulizumab, cyclophosphamide (CY) and thimectomu. She partially responded to plasma exchange, but experienced severe myasthenic crises after discontinuation. Due to the severity of her symptoms and recurrent crises, she received intravenous immunoglobulin (IVIG) every 15 days during the last 3 years and monthly CY over the last year, which significantly affected her quality of life and she chose to undergo HSCT in April 2024. The mobilization stem cells was performed using CY and filgrastim. Throughout the transplant process, she was monitored by a neurologist, and neurological scales, such as the MG Activities of Daily Living (MG-ADL) and MG Composite (MGC), were applied. Before the start of mobilization, the patient scored 15 points on the MG-ADL and 34 on the MGC. Seven days after cell collection, conditioning was initiated with CY, anti-thymocyte globulin (rabbit), methylprednisolone, and IVIG. Multiple concomitant antihistamine blockers were used. There were no serious side effects during conditioning and stem cell infusion. Early post-transplant complications included bloodstream infection, pseudomembranous colitis and acute heart failure requiring Intensive Care Unit treatment, antibiotics, furosemide, non-invasive continue ventilation, and the use of vasoactive drugs, with complete improvement of the condition. Neutrophil engraftment occurred on D+10, and platelet engraftment on D+17. From a neurological perspective, the patient experienced complete improvement of symptoms on D+10, with MG-ADL scoring 1 point and MGC scoring 2. At the discharge on D+17 her MG-ADL was 0 and MGC 2 points.

CONCLUSION

In cases of refractory to multiple treatment lines, HSCT is a described therapy for severe MG. The literature supports the use of HSCT in the treatment of neurological diseases, including multiple sclerosis. There are approximately 15 reported cases of patients with MG treated with HSCT, with an overall good response, although there was no description of the applied conditioning regimes. According to our report, autologous HSCT can result in symptom-free remission in patients with severe MG and may become an option, particularly if more evidence reinforces the efficacy and tolerability of this therapy.

KEYWORDS - Anti-acetylcholine receptor antibody, hematopoietic stem cell transplant, myasthenia gravis

AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN MULTIPLE MYELOMA: INITIAL RESULTS IN A PRIVATE HOSPITAL IN NORTHEAST BRAZIL

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Introduction: The use of autologous hematopoietic stem cell transplantation (HSCT) in the treatment of multiple myeloma is associated with favorable clinical outcomes and remaining a recommended strategy, despite the continuous development of new therapies. Centers specialized in HSCT are still concentrated in more developed regions of the country, making this modality less accessible to patients in the Brazilian Northeast. Our transplant center operates in a private hospital institution that serves a patient population predominantly from this region. Objective: To report the initial results of autologous HSCT in the treatment of multiple myeloma carried out in a private hospital center located in Fortaleza, Ceará, in the Brazilian Northeast. Case series: Between February 2019 and April 2024, 118 autologous HSCT were performed at the institution, 80 (67.8%) in patients diagnosed with multiple myeloma. All cases were submitted for analysis. Method: Retrospective and descriptive analysis of clinical data from the medical records of patients who underwent the procedure during the studied period. Results: 80 patients from 13 states underwent autologous HSCT. Ceará with 23 cases (28.7%), followed by Bahia (15 cases, 18.8%) and Pernambuco (14 cases, 17.5%) were the main referral locations. The median age was 56 years (37 to 72 years), with 47 patients being male (58.8%). The conditioning regimen used in 87.5% of cases (70 patients) was melphalan 200 mg/m2 . The main indication for dose reduction to 140 mg/m2 was the presence of dialysis renal dysfunction in 07 patients, followed by age over 70 years in 2 patients and cardiac amyloidosis in 1 patient. The median of neutrophil engraftment was D+10 (D+9 to D+12) and of platelets on D+11 (D+9 to D+15), with the median days to hospital discharge being on D+15 (D+11 to D+37). In a median follow-up of 18 months (01-62 months), 67 patients are alive (83.8%), with only 01 case of death occurring up to D+100, secondary to COVID19, manifested shortly after conditioning in D-1. Of the 12 cases of deaths that occurred after D+100, 10 (83.3%) were directly related to the progression of the underlying disease. Conclusions: Carrying out autologous HSCT at our Center facilitated the accessibility of patients with multiple myeloma to this treatment modality, especially from other northeastern states. The procedure was associated with low lethality up to D+100, with no cases of transplant-related mortality being observed, especially with the reduction of the melphalan dose in a more susceptible population. The use of autologous HSCT has been shown to offer adequate disease control, but post-transplant disease progression still represents a challenge in a scenario of difficult access to new therapies.

AUTOLOGOUS STEM CELL TRANSPLANTATION FOR MULTIPLE MYELOMA PATIENTS ON DIALYSIS: A SINGLE CENTER EXPERIENCE IN BRAZIL

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INTRODUCTION

Autologous stem cell transplantation (ASCT) is a well-established consolidation strategy for patients with multiple myeloma (MM) after the achievement of remission with induction or salvage treatment. However, the use in patients with chronic kidney disease (CKD) is controversial, particularly on those dependent of dialysis, due to the risk of renal deterioration after high dose melphalan, its associated toxicities and, maybe, the higher morbidity and transplant-related mortality. Considering the prevalence of CKD in the setting of multiple myeloma, maybe being CKD and acute kidney injury being the major complications, it is essential to analyze the safety of the ASCT in our population, considering the access throughout public health system when compared to novel agents in Brazil.

METHODS

It was a retrospective study including all patients who underwent ASCT for MM at a Stem Cell Transplantation Center in Brazil, from January 2015 to December 2023. Patients could be on hemodialysis or peritoneal dialysis and received melphalan 140 or 100mg/m^2 on D-1, at clinician's discretion. Peripheral blood stem cells were infused 24 hours later. Disease response to treatment was defined according to the International Myeloma Working Group (IMWG) response criteria.

RESULTS

We analyzed 349 patients submitted to ASCT and eight of them were dependent of dialysis. All patients had data analyzed until D+100. The mean age of those were 59,6 years, and the majority were men (62,5%; n = 5). At the time of ASCT, 37,5% of patients (n=3) were in biochemical complete response (CR), 25% (n=2) in very good partial response (VGPR), 12,5% (n=1) in partial response (PR) and we had no data in 25% (n=2). The median CD34+ cell dose infused was 6,42×106 cells/kg. Using the IMWG criteria, at the D+100 evaluation, 62,5% (n=5) achieved CR. One patient became dialyses independent and one patient died at D+5 of metabolic encephalopathy.

CONCLUSION

ASCT is safe and effective for patients with MM and dialysis dependency and could deepen response and even recover kidney function.

KEY WORDS

Autologous stem cell transplantation, multiple myeloma, chronic kidney disease.

AUTOLOGOUS TRANSPLANTATION IN PHILADELPHIA CHROMOSOME-POSITIVE ACUTE LYMPHOBLASTIC LEUKEMIA: CASE SERIES OF THREE CENTERS

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INTRODUCTION:

Patients with Philadelphia chromosome-positive acute lymphoblastic leukemia (Ph+ ALL) are treated with intensive chemotherapy combined with tyrosine kinase inhibitors (TKI). Allogeneic hematopoietic stem cell transplantation (Allo-HCT) is a post-induction therapy indicated in clinically eligible patients with an available donor. Studies reported the feasibility of autologous transplantation in patients ineligible for allo-HCT and those with only alternative donors available, who achieve undetectable measurable residual disease (MRD) after induction and at the time of transplantation. Retrospective analysis from EBMT registries demonstrated similar outcomes to allo-HCT for older patients in first complete remission.

OBJECTIVE

To describe a series of patients with Ph+ ALL undergoing consolidation with autologous hematopoietic stem cell transplantation.

METHODS

Retrospective descriptive analysis of data obtained through an online survey sent to hematology departments across Brazil. Only three hospitals reported having cases.

RESULTS

Five patients underwent auto-HCT for Ph+ ALL between February/2004 and February/2023 in 3 transplant centers. Most patients were female (n = 4), with a mean age of 28 years (range 21-33 years) at transplantation. They underwent induction chemotherapy with various protocols (Total XV, GMALL 2003, BFM 93, and CALGB 9511), and 4 received a TKI (all with Imatinib). 4/5 patients achieved post-induction negative MRD by flow cytometry. Regarding donor availability, none of the patients had a matched sibling donor, 1 patient had a matched unrelated donor, 2 had a mismatched unrelated donor, and 1 had a haploidentical donor. 1 patient had no available donor. At the time of transplantation, 4/5 patients had undetectable quantitative BCR-ABL. Mobilization regimens included G-CSF (n = 1), G-CSF + chemotherapy (n = 3), and G-CSF + plerixafor (n = 1). Conditioning regimens used were Cy-TBI (n = 1), BuMEL (n = 2), BEAM (n = 1), and BEAC (n = 1). The mean number of infused cells was 5.04 x 10^6 CD34/kg (range 2.2-8.7 x 10^6 CD34/kg). The mean time for neutrophil engraftment was 8 days, and for platelet engraftment was 14 days. All patients experienced febrile neutropenia, and none required transfer to the ICU. Maintenance regimens included TKI (n = 3) and chemotherapy (n = 2). The mean follow-up time was 4.1 years (range 0.6-12.4 years).

During this period, 1 patient relapsed approximately 150 days after transplantation, while still on Imatinib. She was rescued with bortezomib, dexamethasone, mitoxantrone and vinorelbine associated to ponatinib, and achieved undetectable molecular MRD. She underwent haploidentical allogeneic transplantation. There were no deaths during the follow-up period.

CONCLUSION

Autologous transplantation remains a viable and safe post-induction therapy alternative for patients ineligible for allogeneic hematopoietic stem cell transplantation.

B-CELL PRECURSORS IN CD34+ HEMATOPOIETIC STEM CELL COLLECTIONS: IS IT IMPORTANT TO QUANTIFY THEM?

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INTRODUCTION

The viability of hematopoietic stem cell transplantation (HSCT) is largely dependent on the precise measurement of CD34+ hematopoietic stem cells (CD34+ HSC). Leukapheresis products can occasionally contain normal B-lymphocyte precursors, also known as hematogones. There is a chance that less CD34+ HSC may be collected than the ideal dose for HSTC due to the presence of hematogones in the bags.

AIM

To search for cases in which the detection of hematogones was essential to avoid performing a HSCT with a low dose of CD34+ HSC.

CASUISTIC

Form January 2020 to January 2024, 501 leukapheresis samples were analyzed in the flow cytometry section at the Cell Processing Center (CPC).

METHOD

CD34+ HSC enumeration was performed by flow cytometry using ISHAGE-based single platform (BD Stem Cell Enumeration Kit and Stem-kit Beckman Coulter). The detection of hematogones was made according to figure 1.

RESULTS

Hematogones were detected in 61 (12,1%) out of 501 leukapheresis bags (Table 1). In three cases, the identification of hematogones was essential for the collection of an adequate number of CD34+ HSC (Table 2). In case 1, the first apheresis obtained 2,0 x 106 CD34+ (/Kg); 9,2% were hematogones. The discounted value from hematogones was 1,8 x 106 CD34+ (/Kg). In case 2, the first apheresis obtained 2,0 x 106 CD34+ (/Kg); 15,8% were hematogones. The discounted value from hematogones was 1,6 x 106 CD34+ (/Kg). In case 3, the first apheresis obtained 2,6 x 106 CD34+ (/Kg); 21,8% were hematogones. After discounting hematogones, the number dropped to 2,0 x 106 CD34+ HSC (/Kg).

CONCLUSION

In the three cases described, the information regarding the corrected number of CD34+ HSC (discounted from the percentage of hematogones) was used to warn the transplant physician that the bags intended for HSCT contained a suboptimal dose of CD34+ HSC. The physician decided that more CD34+ HSC cells should be collected in all cases. Since there is a consensus that receiving a suboptimal dose of CD34+ HSC is associated with delayed recovery of leukocytes and platelets, our approach was based on the fact that there is currently no conclusive data in the literature on whether the number of hematogones in leukapheresis products affects the engraftment. Until definitive evidence is obtained regarding the relationship between hematogones and time of engraftment, we suggest that laboratories involved in CD34+ HSC enumeration report the presence of hematogones to alert the transplant physician about the real number of bona fide CD34+ HSC in the bags.

KEYWORDS

Hematogones, CD34+ cell enumeration, hematopoietic stem cell transplantation.

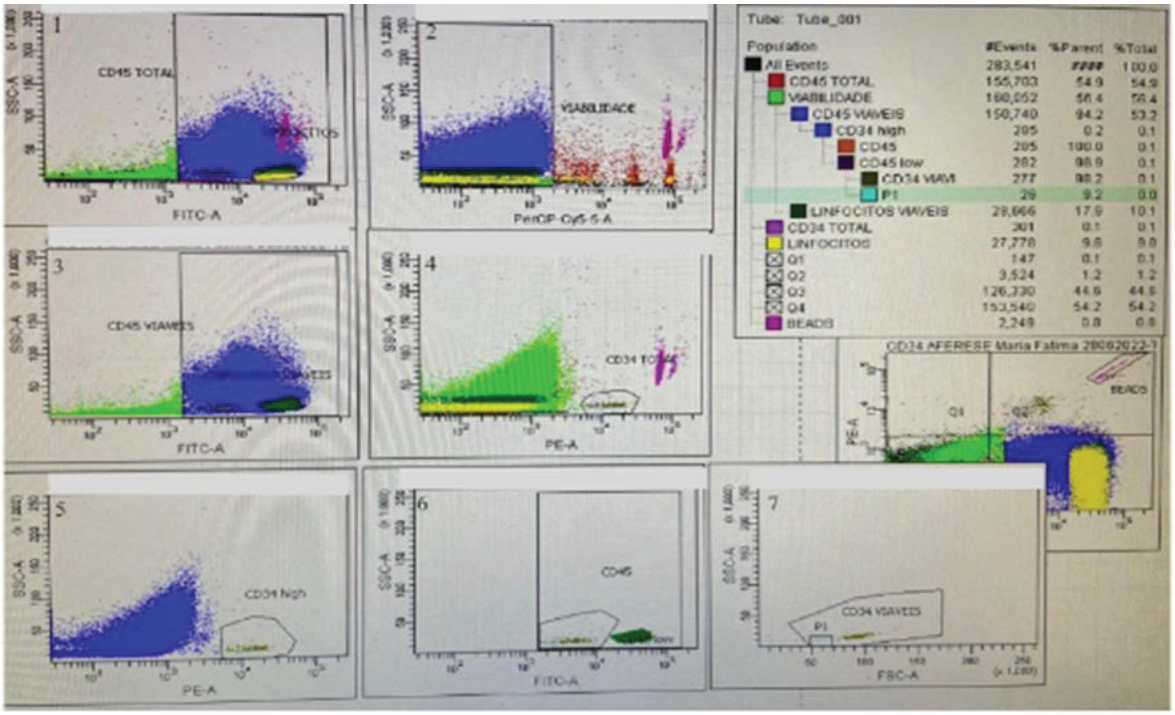

Figure1. Enumeration of viable CD34+ HSC and hematogones with the use of single-platform ISHAGE-based protocol. Data were collected on a BD FACS Canto II™. In plot 7, we designed an extra-gate (P1) to include hematogones. Notice the very low forward scatter and side scatter of hematogones (light blue) when compared with CD34+ HPC (green). Presence of 9,2% of hematogones.

Table 1. Leukapheresis bags (2020 - 2024)

Year	Leukapheresis (bags)	Leukapheresis bags with hematogones (total and %)
2020	69	2 (2,8%)
2021	131	5 (3,8%)
2022	138	15 (10,8%)
2023	132	37 (28%)
2024	31	2 (6,4%)
Total (5 years)	501	61 (12,1%)

Table 2. Characteristics of 3 patients with borderline CD34+ HSC in virtue of the presence of hematogones

Case	Age/gender	Mobilization	Diagnosis	HSCT	1° Collection (CD34+ cells/Kg)	Hematogones (%)	1° Collection (CD34+ cells/Kg)*	2° Collection (CD34+ cells/Kg)*	Sum of two collections (CD34+ cells/Kg)*
1	65 / female	G-CSF (1.200 mcg/d)	Multiple myeloma	Autologous	2,0 x 10^6	9,2%	1,8 x 10^6	0,8 x 10^6	2,6 x 10^6
2	62 / female	G-CSF (1.500 mcg/d)	Multiple myeloma	Autologous	2,0 x 10^6	15,8%	1,6 x 10^6	0,9 x 10^6	2,5 x 10^6
3	23 / male	G-CSF (1.200 mcg/d)	Hodgkin lymphoma	Autologous	2,6 x 10^6	21,8%	2,0 x 10^6	0,6 x 10^6	2,6 x 10^6

* CD34+ cells/Kg discounted from the presence of hematogones

CHALLENGES OF AUTOLOGOUS HEMATOPOIETIC CELL TRANSPLANTATION IN PATIENTS WITH REFRACTORY GERM CELL TUMORS IN THE SETTING OF A PUBLIC HOSPITAL.

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Autologous hematopoietic cell transplantation (aHCT) has emerged as a treatment option for refractory/recurrent solid organ tumors, particularly in a small subset such as refractory/recurrent germ cell tumors (GCT-R/R). The Bone Marrow Transplantation (BMT) service at the Hospital Universitario Walter Cantídio (HUWC) provides this therapy to patients from northeastern Brazil through the public healthcare system. The aim of this study is to describe the clinical characteristics and outcomes of 9 patients with GCT-R/R treated with aHCT at HUWC between 2010 and 2020. This is a retrospective study. Data including age, sex, primary disease, histological type, comorbidities, β-HCG, LDH, and AFP levels, treatments, and outcomes were obtained from medical records. The study was approved by the HUWC Research Ethics Committee (CAAE: 66141822.3.0000.5045). Descriptive statistics were performed. Of the 9 patients who underwent aHCT, 88.8% were male, with a mean age at diagnosis of 25 years (17±43). All patients had primary gonadal disease, but only 1 patient had non-pulmonary metastases. Regarding histological type, 55.55% of cases were classified as non-seminomatous, while in 33.33% of patients, it was not possible to determine due to missing data in the records. β-HCG, LDH, and AFP values were not available in the medical records of 88% of patients. Regarding the initial chemotherapy protocols used, 55.55% of patients received the bleomycin, etoposide, and cisplatin (BEP) regimen, with 22.22% achieving complete remission after this therapeutic approach. As a second-line therapy, most patients were treated with paclitaxel, ifosfamide, and cisplatin (TIP). A third regimen containing gemcitabine and oxaliplatin (GEMOX) was also used in one patient. Regarding platinum refractoriness, 66.66% of patients were sensitive (Table 1). Patients underwent aHCT with a mean of 25.56 months after the diagnosis of primary disease; however, only 33.33% underwent the second scheduled aHCT due to complications related to disease progression. Infections (22.22%) were the main causes of post-aHCT comorbidities. Death was recorded in 55.55% of patients, with 22.22% due to the second transplant. The use of vinorelbine + granulocyte colony-stimulating factor (GCSF) was used in 55.55% of patients and showed superior results in achieving CD34+ cell counts than in patients treated with GCSF alone. Despite the well-established curative potential of aHCT in patients with germ cell tumors, more than half of the patients died, with infections and the need for a second transplant being the main causes. The combination of vinorelbine and GCSF was more effective in achieving CD34+ cell counts than GCSF alone. Standardizing and training a multidisciplinary team is essential to improve survival outcomes in these patients.

KEYWORDS - Germ Cell Tumor; Hematopoietic Cell Transplantation; Hematopoietic Cell Mobilization.

COMPARISON OF RESULTS BETWEEN FRESH AND CRYOPRESERVED INFUSION METHODS, IN AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION, IN PATIENTS WITH MULTIPLE MYELOMA

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INTRODUCTION

Autologous Hematopoietic Cell Transplantation (HCT) remains the treatment of choice for eligible patients with Multiple Myeloma (MM), even in the current landscape of a vast therapeutic arsenal. Recent studies show some advantages of the fresh infusion technique of hematopoietic stem cells (HSC) over the cryopreserved method.

OBJECTIVE

To compare the outcomes between fresh and cryopreserved infusion methods in patients with Multiple Myeloma undergoing Autologous Hematopoietic Cell Transplantation.

METHODS

This is an observational, analytical, Retrospective Cohort study. Data were collected from medical records and the institution's database. Were included patients diagnosed with MM, undergoing their first autologous HCT from 2017 to 2022, at Bone Marrow Transplantation center in Brazil. Patients were divided into two groups: those who received cryopreserved grafts (CRIO) and those who received fresh infusion (non-CRIO). Data analysis methods included Kaplan-Meyer for survival curves, T-Test and Mann-Whitney for group comparisons, and SPSS software for data analyses.

RESULTS

A total of 105 patients were included, 31 (29.5%) in the non-CRIO group and 74 (70.5%) in the CRIO group. There was no significant difference between the groups regarding clinical characteristics, as shown in Table 1. Outcomes were superior in the non-CRIO group (Table 2), with shorter time to neutrophil and platelet engraftment, reduced need for platelet concentrate transfusion, lower use of therapeutic antibiotics, shorter hospital stay and longer progression-free survival.

CONCLUSION

The non-cryopreserved infusion method in Autologous Hematopoietic Cell Transplantation is safe, effective and offers additional benefits in patients with Multiple Myeloma, when compared to the cryopreserved method.

KEYWORDS

Autologous Hematopoietic Cell Transplantation; Non-cryopreserved method; Multiple Myeloma.

Table 1. Clinical caracteristics.

Caracteristics	Non-cryopreserved (n= 31)	Cryopreserved (n= 74)	*P*-value
Male – no. (%)	16 (52)	39 (53)	.92
Age (year) – median (range)	58 (36-71)	58 (36-71	.28
Disease response before ASCT – no. (%)			.29
CR, VGPR or PR	27 (87)	57 (77)	.29
SD or PD	04 (13)	17 (23)	
HCT-CI – no. (%)			
0 = Low risk	15 (48)	29 (41)	. 77
1-2 = Intermediate risk	13 (42)	34 (48)	
≥ 3 = High risk	03 (10)	08 (11)	
CD34 cell dose (x10^6/kg) - median (IQR)	4,59 (3,06-19,0)	3,0 (1,92-95,5)	.58
Follow-up (months) – median (range)	12 (0-54)	22 (0-60)	< .0001

ASCT – autologous stem cell transplantation. CR - complete response. HCTC-I: Hematopoietic cell transplantation-comorbidity index. PD – progressive disease. PR – partial response. SD – stable disease. VGPR – very good partial response.

Table 2. Outcomes.

Outcomes	Non-cryopreserved (n= 31)	Criopreserved (n= 74)	*P*-value
Time to neutrophil engraftment (days) – median (range)	9 (7-11)	11 (9-40)	.001
Time to platelet engraftment (days) – median (range)	14 (9-20)	18 (8-47)	< .0001
Red blood cell concentrate (units) – median (range)	0 (0-5)	0 (0-25)	.38
Platelet concentrate (units) – median (range)	1 (0-5)	2 (0-31)	.01
Hospital stay (days) – median (range)	12 (7-36)	16 (6-81)	.11
Uso of antibiotics – no. (%)	17 (55)	63 (85)	.002
Progression of disease – no. (%)	0	35 (47)	< .0001
Death – no. (%)	2 (6)	14 (19)	.14

COST ANALYSIS FOR ADULT PATIENTS WITH MULTIPLE MYELOMA UNDERGOING AUTOLOGOUS HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Multiple myeloma (MM) is a malignant hematological disease diagnosed by an abnormality in the number of clonal plasma cells in the bone marrow and hematopoietic cell transplantation (HCT) is a medical procedure indicated as treatment. Despite its fundamental role in increasing efficiency in the allocation of resources by transplant programs, few studies have been published on the costs of HCT. Therefore, economic evaluation studies in the transplant scenario are extremely important to help improve the management of the procedure worldwide.

OBJECTIVE

To analyze the cost of HCT performed in adult patients (≥18 years) with multiple myeloma.

METHODS

This is a single-center, retrospective, observational, cost cohort study of adult patients with multiple myeloma who underwent the first autologous transplantation. Period of analysis 01/2010 to 12/2021 from D+30. The method used for cost analysis at the hospital was absorption costing and the effect of inflation was eliminated by using the hospital's standard cost table in force in October 2023. The real currency was converted into dollars using the average of the daily monthly values for 2023 (R$4.99).

RESULTS

The study included 85 patients; median age was 60 years and there was a male predominance, 55% (47). The total median cost at D+30 was $ 19.704,34 ($ 17.493,43 - $ 25.625,18). When analyzing the median cost by stratification of service categories in the D+30, the biggest cost offenders were materials: $ 12,432.87 ($ 5,177.17 - $ 22,560.06) and daily: $ 12,087.76 ($ 8,155.69 - $ 18,165.63), (table 1).

CONCLUSION

The main contributors to MM's costs were materials and per diems. This result is justified by the daily routine of exams and the high use of materials to treat the patient. According to DATASUS, 1,851 autologous transplants were performed in the SUS in 2023, with an average cost of R$5,132.15 and an average length of stay of 15.2 days. When comparing the average cost of HCT in the SUS with the median cost of MM in our institution on D+30, the values were 3.8 higher than the reimbursement made by the SUS and the length of stay in hospital for HCT in our institution was longer, with a median of 19 days. In addition to more days of hospitalization, the difference in price could probably be an indication of the use of the institution's infrastructure, in addition to hotel services.

KEYWORDS - Cost. Hematopoietic Cell Transplantation. Multiple myeloma

TABLE 1 - Median cost by categories of services for multiple myeloma

CATEGORIES SERVICES	D+30 -$
DAILY (IQR)*	$ 12.087,76 ($ 8.155,69 - $ 18.165,63)
NURSING (IQR)*	$ 4.148,97 ($ 2.444,46 - $ 6.670,67)
EXAMS (IQR)*	$ 4.477,28 ($ 1.829,62 - $ 10.289,39)
GASTHERAPY (IQR)*	$ 1.845,96 ($ 829,59 - $ 3399,84)
MATERIALS (IQR)*	$ 12.432,87 ($ 5.177,17 - $ 22.560,06)
DRUGS (IQR)*	$ 7.331,00 ($ 3.919,79 - $ 16.567,82)
PROCEDURES (IQR)*	$ 0,00 ($ 0,00 - $ 209,00)
SERVICES (IQR)*	$ 2.367,82 ($ 1.171,03 - $ 3.429,07)
RATES (IQR)*	$ 807,01 ($ 42,04 - $ 2847,78)
ATTENDANCE (IQR)*	$ 0,72 ($ 0,72 - $ 45,85)
BUNDLES (IQR)*	$ 119,52 ($ 0,00 - $ 263,07)
HONORARY (IQR)*	$ 0,00 ($ 0,00 - $ 0,00)
TOTAL COSTS (IQR)*	$ 19.704,34 ($ 17.493,43 - $ 25.625,18)

IQR* = interquartile range

COST-EFFECTIVENESS OF PREEMPTIVE PLERIXAFOR VERSUS RESCUE PLERIXAFOR IN MOBILIZATION AND COLLECTION OF HEMATOPOIETIC STEM CELLS IN PATIENTS WITH MULTIPLE MYELOMA AND LYMPHOMA

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INTRODUCTION

Autologous hematopoietic stem cell transplantation (HSCT) is used in the treatment of multiple myeloma (MM) and lymphomas. Nearly 30% of patients fail to mobilize hematopoietic stem cells (HSC) with granulocyte colony-stimulating factor (G-CSF) alone. Plerixafor in combination with G-CSF has shown superior outcomes in this scenario.

OBJECTIVES

To estimate cost-effectiveness per percentage of patients achieving minimum HSC collections (≥2x106 CD34+/kg), percentage of patients achieving optimal collections (≥4x106 CD34+/kg), number of leukapheresis avoided, and percentage of patients progressing to transplant with preemptive plerixafor versus rescue plerixafor after failing in patients with MM or lymphoma eligible for autologous HSCT from the perspective of a Brazilian public hospital.

METHODS

Patient records of those undergoing HSC mobilization between December/2016 to August/2021 were evaluated, and clinical outcomes and costs were analyzed for incremental cost-effectiveness assessment. Reimbursement values were collected from the Unified Health System's Procedure Table Management System, and medication prices were based on the hospital pharmacy's purchase price (July/2022).

RESULTS

82 patients in the preemptive plerixafor group and 203 patients in the rescue plerixafor group underwent HSC mobilization. Preemptive plerixafor resulted in lower mobilization failure rate, lower remobilization rate, higher progression to transplant, and shorter time to HSCT.The average cost in the preemptive group was R$13.017,35 and R$9.482,02 in the rescue group, with an incremental cost of R$3.535,33. Incremental effectiveness was 10.13% for successful minimum collection, 4.7% for optimal collections, and 13.19% for patients progressing to transplant. The incremental cost-effectiveness ratio(ICER) for each 1% increase in successful minimum collection probability was R$349,00; R$752,20 per 1% increase in optimal collection yield, and R$268,03 per 1% increase in patients progressing to transplant. Regarding the number of leukapheresis avoided, preemptive plerixafor was dominated by lower effectiveness and higher cost, with an ICER of R$35.353,30.

Discussion:Despite the superiority of plerixafor compared to G-CSF alone, its high cost limits its use. The preemptive plerixafor strategy utilizes the drug only upon mobilization failure with G-CSF. In the rescue strategy, plerixafor is just used for remobilization. Waiting for remobilization may result in additional chemotherapy cycles, increased risk of relapse, and cost. The preemptive plerixafor strategy showed higher costs compared to the rescue plerixafor, with lower mobilization failure and remobilization rates, shorter time and a higher number of patients progressing to HSCT.

CONCLUSION

Preemptive plerixafor is a potentially cost-effective strategy compared to rescue plerixafor, with higher cost and greater effectiveness in most evaluated clinical outcomes.

KEYWORDS

Hematopoietic stem cell mobilization and collection. Plerixafor. Granulocyte colony-stimulating factor (G-CSF). Incremental cost-effectiveness ratio. Cost-effectiveness evaluation.

EFFECTIVENESS OF DOSE-INTENSIFIED VERSUS STANDARD-DOSE SALVAGE REGIMENS IN EARLY PROGRESSED FOLLICULAR LYMPHOMA BEFORE AUTOLOGOUS STEM CELL TRANSPLANTATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION

Despite the substantial advances in the management of follicular lymphoma, approximately 20% of these patients experience progression of disease within 2 years of induction therapy. These patients have worse outcomes, and it has been proposed that autologous stem cell transplantation can improve survival in this context. Little is known about the optimal salvage regimen.

OBJECTIVE

This study sought to evaluate the effectiveness of dose-intensified versus standard-dose salvage regimens in adult patients diagnosed with early progressed follicular lymphoma before autologous stem cell transplantation. Our protocol is registered on PROSPERO under the registration number CRD 42022373345.

METHODS

We searched Medline, Embase, Scopus, Web of Science, Lilacs, and Cochrane Library databases as well as gray literature for eligible studies. We used the Joanna Briggs Institute Cohort Critical Appraisal Tool for quality assessment and the Cochrane Risk of Bias Tool for Non-Randomized Studies for bias assessment.

RESULTS

Four-hundred and ninety-four studies were considered for title and abstract screening. After full review and contact with authors, two studies were deemed eligible for data extraction. Both studies were single arm retrospective cohorts with patients receiving dose-intensified salvage regimens. Furthermore, both met the methodological threshold for inclusion after critical appraisal. The main issues related to risk of bias were selection bias, report bias and missing values, as well as lack of randomization, allocation concealment or blindness of participants and personnel. The evaluation of the time-dependent variables was compromised by the absence of a control arm and missing values, such as the absolute number of events, including its confidence intervals, the calculation of a hazard ratio and a standard error. Although missing absolute values raised concerns about hidden biases, we have decided to perform a proportional meta-analysis for overall response rate, which was the best documented outcome regarding time of analysis and thoroughness of data. Using the random-effects model for sensitivity analysis and the estimation of effect based on Freeman-Turkey proportion for each study analyzed, we have demonstrated an Odds ratio of 0.93 (CI 95% 0.81 - 0.97) favoring the use of dose-intensified salvage regimen

versus not performing salvage regimens at all. Data synthesis show a low degree of heterogeneity using the standard chi-squared test ($\chi 2 = p > 0,05$) and the I-squared test ($I2 = 0\%$). Using the GRADE approach, our data suggest that dose-intensified salvage regimens are a feasible option with a low certainty of evidence, due to serious risk of bias and indirectness.

CONCLUSION

Our results state the challenges of conducting high quality data analysis with center experience, non-standardized treatment protocols, making it difficult to stablish recommendations.

Figure 1: PRISMA flowchart of study selection.

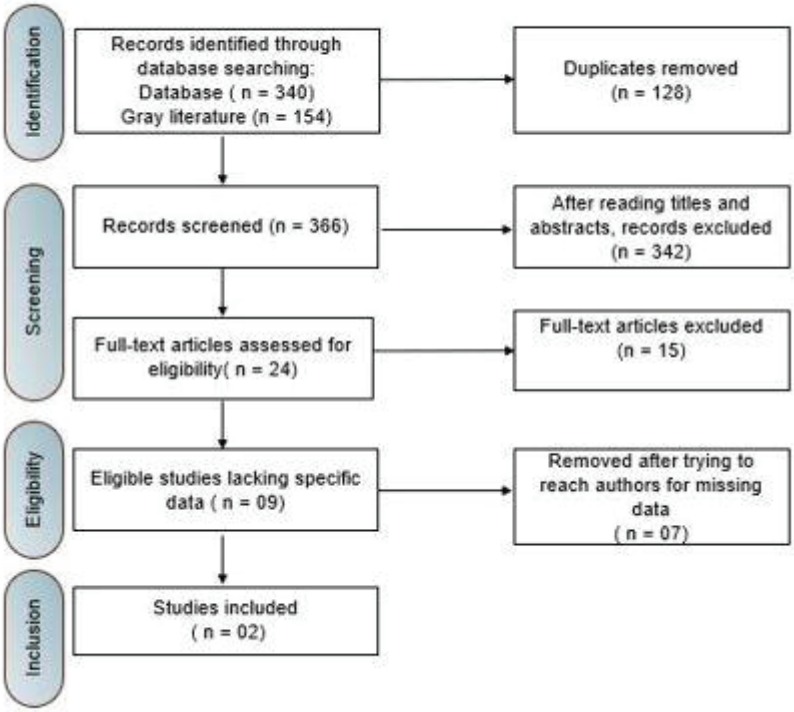

Figure 2: Cochrane Risk of Bias Tool for Non-Randomized Studies (ROBINS-I)

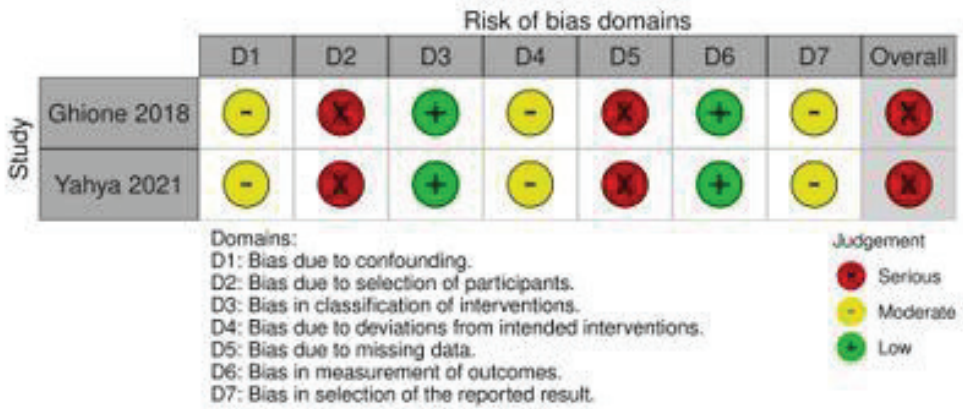

Table 1: Data extraction instrument

Citation	Study design	Sample size	Median age	Salvage regimens used	N° of previous chemotherapy lines	5-year OS, % (95% CI)	5-year PFS, %	ORR, %
Ghione 2018	Retrospective analysis	34	***	R-DHAP/Ox	1	83,8 +/- 6.7 (70.6 – 96.9)	***	91,3
Yahya 2021	Retrospective analysis	17	***	ICE DHAP GDP	1	71,8 (31 - 91)	53,6	100

CI Confidence interval, *** Missing data, *OS* Overall survival, *PFS* Progression free survival, *ORR* Overall response rate, *R* Rituximab, *DHAP/Ox* dexamethasone, cytarabine, cisplatin or oxaliplatin, *ICE* ifosfamide, cytarabine and etoposide, *GDP* gemcitabine, dexamethasone and cisplatin, *N°* Number

Figure 3: Forest plot of pooled data for overall survival

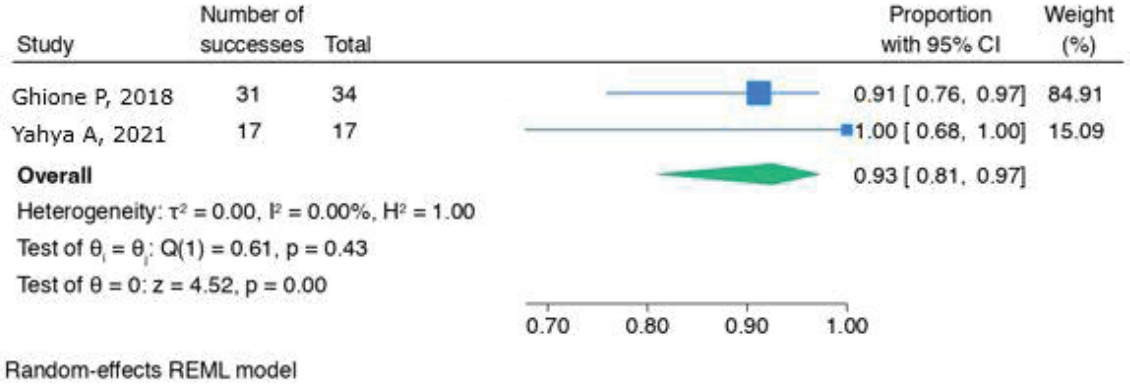

Figure 4: GRADE Summary of Findings for Overall response rate

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Salvage dose intensified chemotherapy	salvage standard dose chemotherapy	Relative (95% CI)	Absolute (95% CI)		
Overall Response Rate (follow-up: median 60 months)												
2	observational studies	serious[a]	not serious	serious[b]	not serious	none	48/51 (94.1%)	0/0	not estimable		⨁⨁◯◯ Low	

CI: confidence interval

IMPACT OF THE CRYOPRESERVATION TECHNIQUE BY CELLULAR CONCENTRATION OF CPH IN THE HEMATOLOGY AND HEMOTHERAPY CENTER

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INTRODUCTION

The Cell Processing Center (CPC) is responsible for the processing and cryopreservation of five transplant centers, four private and one public. Since its foundation, the volume freezing technique was used with a cryopreservative solution containing autologous plasma. To improve the service provided since December 2022, cryopreservation was carried out using cell concentration (300,000 cells/mm3), modifying the composition of the cryoprotective solution, replacing autologous plasma with albumin. It is known that cryopreservation by cellularity reduces the risk of complications, mainly neurological, during infusion and reduces the amount of cell loss after cryopreservation.

OBJECTIVE

To analyze the impact and safety of the new cryopreservation technique validated by the Cell Processing Center, using the cell concentration method, used in the processing and cryopreservation of hematopoietic progenitor cells from mobilized peripheral blood (CPH-SP) for autologous bone marrow transplantation.

MATERIALS AND METHODS

A retrospective analysis was carried out on patients treated by the CPC from December 2022 to February 2024. The following parameters of mobilized patients were evaluated: age, diagnosis, number of cryopreserved bags, transplants performed and grafting.

RESULTS

During the period evaluated, 125 autologous patients from five transplant centers in the state of Ceará were treated, 70 from the public network and 55 from the private network. 150 bags of CPH-SP were collected and 405 bags of up to 100 mL were cryopreserved. In processing by cellularity we obtained an average of 3 cryopreserved bags per collection, in processing by volume the average was 2 bags. The main indications for CPH-SP collection for autologous BMT were Multiple Myeloma (60.8%), Hodgkin's Lymphoma (19.2%), Non-Hodgkin's Lymphoma (16.8%), and others (3.2%) . Of the 127 transplant patients, the average age of the patients was 52 years, ranging from 23 to 72 years. In the transplants performed, the average neutrophil engraftment was 9 days, ranging from D+7 to D+12, compared to the average of 10 days observed in 2022. Of the 150 bags collected and cryopreserved by cell concentration, two were diluted with albumin serum (3.27%) and two did not require deplasmatization. CONCLUSION: When validating the CPH processing and cryopreservation technique by cell concentration, collected by mobilized peripheral blood apheresis, an increase in the average number of cryopreserved bags was evidenced, requiring more space for storage. As for the neutrophil engraftment time, a reduction from 10 to 9 days was observed. The cryopreserved bags analyzed in this study were within the established standards and goals, with desired results.

KEYWORDS - Hematopoietic Progenitor Cells (HPC), Cryopreservation by cellularity, Bone marrow transplantation (BMT).

LOMUSTINE, ETOPOSIDE AND CYCLOPHOSPHAMIDE IN CONDITIONING REGIMEN FOR LYMPHOMAS: FINAL ANALYSIS

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INTRODUCTION

In the context of the shortage of drugs, which frequently occurs in Brazil, it is important to develop alternatives to tradicional chemotherapy conditioning regimens. We evaluated a conditioning protocol with lomustine, etoposide and cyclophosmide (LEC) for autologous stem cell transplantation in patients with lymphoma, and compared with the historical control of two other previously used protocols.

METHOD

In the first step, the maximum tolerated dose of lomustine was set at 400 mg/m , by means of a 3:3 scale. The second step consisted of evaluating the protocol with the use of lomustine (400 mg/m) and etoposide (1 g/m) on day -5, followed by cyclophosphamide (6 gr/m days -4 to -2). The results were compared with the historical series of patients submitted to conditioning with carmustine, cyclophosphamide and etoposide (CBV) and lomustine, etoposide, cytarabine and melphalan (LEAM). The mortality related to treatment (MRT), progression-free survival (PFS) and overall survival (OS) were calculated.

RESULTS

Of the 150 patients evaluated, 42 received LEC, 37 LEAM and 71 CBV. Eighty-three (60%) patients had Hodgkin's lymphoma, with a homogeneous distribution between the three protocols CBV: 63%; LEAM: 56.75%; and LEC: 57%. At the time of ASCT, 16 patients had refractory disease, without statistically significant difference between treatment groups, as well as for age. Only one patient in the LEC group died within the first 100 days of the ASCT, with a trend to lower MRT. OS at 2 years for the 3 conditioning protocols was 92.7%, 75.7% and 58.6% for those receiving LEC, LEAM and CBV, respectively

CONCLUSION

LEC proved to be a secure protocol, OS at 24 months was higher in the LEC group, then CBV and LEAM conditioning. Despite the good results with LEC, unfortunately, there is a new shortage of both lomustine and carmustine in Brazil, which will require the use of new alternative protocols.

REAL-WORLD EXPERIENCE IN HEMATOPOIETIC CELL TRANSPLANTATION FOR MANTLE CELL LYMPHOMA AT A PUBLIC CENTER IN BRAZIL: A 5-YEARS COHORT

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INTRODUCTION

Mantle cell lymphoma (MCL) is a neoplasia with a variable clinical course, often characterized by the overexpression of cyclin D1. It commonly involves extranodal sites (e.g., gastrointestinal tract) and can also manifest in a leukemic, non-nodal presentation. Treatment typically involves chemo-immunotherapy regimens containing rituximab and high-dose cytarabine. Studies have shown the benefit of consolidation with autologous hematopoietic cell transplant (HCT) in first remission for eligible patients, as well as maintenance therapy with rituximab for 3 years. According to the 2021 consensus of the Brazilian Society of Bone Marrow Transplantation (SBTMO), allogeneic transplant may be considered in patients with high-risk disease (e.g., TP53 mutation or blastoid variant), or relapse after autologous transplant.

OBJECTIVE

To describe the clinical characteristics and outcomes of patients transplanted for MCL at a public hospital in northeast Brazil.

METHODS

Descriptive retrospective analysis of medical records from transplanted patients between 2019 and 2023.

RESULTS

Sixteen patients underwent autologous transplants between 2019 and 2023, most of them male (n = 14) and with a mean age of 53 years (range: 39-68 years). Thirteen patients had an HCT-CI score of 0, two patients had an HCT-CI score of 1, and one patient had an HCT-CI score of 2. At diagnosis, 11 patients had advanced disease (stage III-IV) and two patients had localized disease (stage I-II). One patient had a leukemic variant.

The therapeutic protocols used were Nordic (n = 5), CHOP/DHAP (n = 5), R-CHOP/R-DHAP (n = 3), and R-CHOP (n = 2). Most patients achieved complete response pre-transplant (n = 13) and underwent transplant in first remission (n = 14). The conditioning regimens used were LACE (n = 13), BEAC (n = 2), and BUMEL (n = 1). The BUMEL protocol was used in a patient with chronic kidney disease on dialysis. Nine patients had access to post-transplant rituximab maintenance.

One patient relapsed approximately 2 years after an autologous HCT, was rescued with the R-BAC protocol, and underwent a matched-related donor allogeneic transplant. She remains alive, in remission, and without GVHD.

The 2-year overall survival of the entire cohort was 81%. There were no transplant-related deaths.

CONCLUSION

HCT remains an effective treatment option for patients with MCL. Its importance in the context of the Brazilian public health system is further highlighted by the limited access to rituximab for this condition. Allogeneic transplant remains a salvage strategy in relapsed patients and high-risk diseases.

KEYWORDS

Lymphoma, Mantle-Cell; Bone Marrow Transplantation; Public Health

REAL-WORLD EXPERIENCE OF A BRAZILIAN CENTER IN AUTOLOGOUS STEM CELL TRANSPLANTATION FOR LIGHT-CHAIN AMYLOIDOSIS

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INTRODUCTION

Autologous stem cell transplantation with high-dose melphalan (HDM/SCT) is a classic treatment approach for plasma cell neoplasms since the 1980s.[1] In light-chain (AL) amyloidosis, HDM/ SCT is usually recognized as a challenge due to organic dysfunctions and advanced age of patients[2], despite encouraging results previously published, such as in the Japanese cohort that showed a 5-year overall survival of 70.1% and an overall response rate of 77.6% in patients undergoing transplantation[3]. In Brazil, there is no data published of outcomes in HDM/SCT of this disease.

OBJECTIVE

This study aimed to describe the clinical features and outcomes of AL amyloidosis undergone to autologous stem cell transplantation in our institution.

METHODS

This is a retrospective single-center study, from December 2013 to March 2023, conducted in a public hospital in northeast Brazil. Overall survival was analyzed using Kaplan-Meier curve.

RESULTS

Six patients underwent HDM/ SCT in our institution, with median age of 59 yo (p25: 56 - p75: 64). The most prevalent light chain involved was lambda (66.6%). Only one patient met criteria for multiple myeloma at diagnosis. Fifty percent of patients had documented cardiomyopathy on echocardiogram, but no one had a decrease in ejection fraction or heart failure symptoms before transplant. The median of serum creatinine was 1.2 (p25: 0,65 - p75: 1.85) and of 24-hour proteinuria was 4.08g (p25: 1.5 - p75: 8.33). Systemic treatment with bortezomib was performed in all 6 patients before HDM/SCT. Three patients received a Melphalan reduced dose of 140 mg/m^2. The median time of neutrophil recovery was 11 days (p25: 10 - p75: 12). One patient had severe infectious complications due to Influenza B, resulting in death thirty-three days after transplant. Among the others five patients, all of them are still alive until the last follow-up. Response assessment was limited by the lack of free light chain (FLC) test for hematological criteria, but four patients had complete kidney response criteria by the resolution of kidney function and a deep decrease in proteinuria. Only one patient had progression of disease after transplant and required a new line of therapy. Overall survival of the whole period is 83% with median time not reached.

CONCLUSION

Our study has several limitations due to the low sample size and unavailability of tests to stratify and better evaluate the response. Despite this, overall survival with adequate follow-up time and duration of clinical response are encouraging outcomes, especially in a scenario with low availability of new drugs. We intend to create a Brazilian multicenter survey to better understand this scenario.

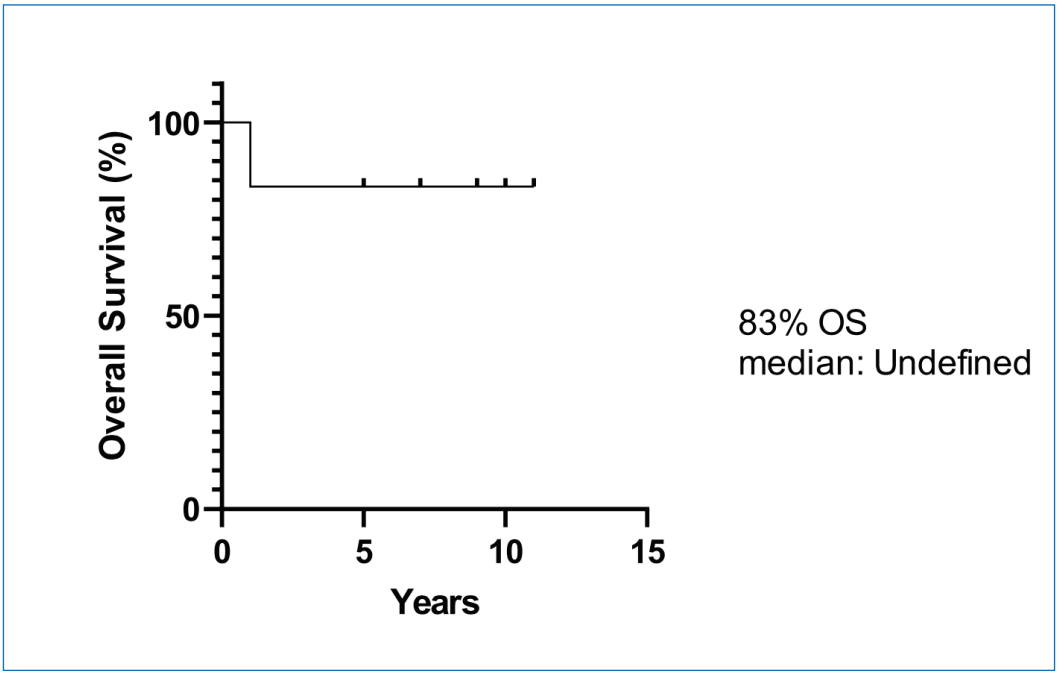
KEYWORDS

Autologous stem cell transplantation, Amyloidosis, Public health system

REFERENCES

1. Varga C. Autologous Stem Cell Transplantation in Light Chain Amyloidosis: The Ultimate Treatment? Transplant Cell Ther. 2022 Feb;28(2):57-58. doi: 10.1016/j.jtct.2022.01.005.
2. Dispenzieri A, Seenithamby K, Lacy MQ, et al. Patients with immunoglobulin light chain amyloidosis undergoing autologous stem cell transplantation have superior outcomes compared with patients with multiple myeloma: a retrospective review from a tertiary referral center. Bone Marrow Transplant. 2013 Oct;48(10):1302-7. doi: 10.1038/bmt.2013.53. Epub 2013 Apr 22.
3. Fuchida SI, Kawamura K, Sunami K, et al. Retrospective Analysis of Autologous Stem Cell Transplantation for AL Amyloidosis: A Study from the Multiple Myeloma Working Group of the Japan Society for Hematopoietic Cell Transplantation. Transplant Cell Ther. 2022 Feb;28(2):76-82. doi: 10.1016/j.jtct.2021.10.021. Epub 2021 Nov 11.

FIGURE 1- Overall survival



REAL-WORLD EXPERIENCE OF A BRAZILIAN CENTER IN AUTOLOGOUS STEM CELL TRANSPLANTATION FOR NON-HODGKIN LYMPHOMA

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INTRODUCTION

Autologous stem cell transplantation (Auto SCT) is a classic consolidation therapy approach for Non-Hodgkin Lymphoma (NHL), whether beyond first or posterior remission. Since PARMA pilot study[1], which showed durable CR in a significant proportion of patients with relapsed aggressive NHL submitted to high dose BEAC followed by Auto SCT, multiple conditioning regimens have been used with similar outcomes. Brazilian multicentric analysis[2] showed a similar overall survival rate for patients treated with Auto SCT for NHL compared to those reported by other international centers. This study aims to evaluate outcomes of Auto SCT in NHL patients in a public oncohematologic service located in the northeastern region of Brazil.

OBJECTIVE

This study aimed to describe the clinical aspects, conditioning regimens utilized and outcomes of NHL patients undergone Auto SCT in a single institution.

METHODS

This is a retrospective single-center study from October 2014 to December 2022, conducted in a public hospital in the northeastern region of Brazil. Data was gathered through medical record analysis.

RESULTS

70 NHL patients underwent Auto SCT in our institution, with a median age of 47 years old (range 28-68 years). 36% (n=25) had a pre-transplant diagnosis of Mantle Cell NHL; 33% (n=23) had diagnosis of Diffuse Large B Cell NHL ; 17,1% (n=12) had diagnosis of Peripheral T-Cell NHL; 12,5% (n=9) had diagnosis of Follicular NHL; 1,4% (n=1) had diagnosis of Plasmablastic NHL. Median number of previous lines of treatment were 2 (range 1-4 lines). Median time of diagnosis to Auto SCT was 22,5 months (range 4-96 months). Auto SCT in complete response (CR) occurred in 72,5% (n=49) of patients. 27,5% (n=18) were submitted to Auto SCT in partial response (PR). In terms of conditioning regimen, 45,7% (n=32) were submitted to LACE; 30% (n=21) to BEAM; 18,6% (n=13) to BEAC; 5,7% (n=4) to Bu/Cy/Eto. Median graft time was 10 days (range 8-20 days) - similar in all conditioning regimens used. Grade 3-4 mucositis occurred in 50% (n=2) of Bu/Cy/Eto group; 33,3% (n=7) of BEAM group; 30,8% (n=4) of BEAC group; 18,8% (n=6) of LACE group. Septic shock occurred in 50% (n=2) of Bu/Cy/Eto group; 19% (n=4) of BEAM group; 15,4% (n=2) of BEAC group; 9,4% (n=3) of LACE group. D+180 evaluation showed that 74% of patients sustained response, while 26% had relapsed disease. Of those who were submitted to Auto SCT in CR, 85,7% (n=42) sustained response at D+180, while 44,4% (n=8) of those transplanted in PR sustained response at D+180. Overall survival in 1 year was 82,9%.

CONCLUSION

Our study has several limitations due to the low sample size and an important number of missing data. Despite this, outcomes are similar to those described by national and international studies. There is a trend to use LACE conditioning due to less grade 3-4 mucositis and less incidence of septic shock.

KEYWORDS

Autologous stem cell transplantation, Non-Hodgkin Lymphoma

REFERENCES

1. Philip T, Chauvin F, Bron D, Guglielmi C, Hagenbeek A, Coiffier B, Gisselbrecht C, Kluin Nelemans JC, Somers R, Misset JC, et al. PARMA international protocol: pilot study on 50 patients and preliminary analysis of the ongoing randomized study (62 patients). Ann Oncol. 1991

2. Abrahão Elias Hallack Neto, Anderson João Simione, Paula Moreira da Silva Sabaini, Cinthya Correa da Silva, Fernando Barroso Duarte, George Mauricio Navarro Barros, Afonso Celso Vigorito, Marcos Colella, Samir Kanaan Nabhan, Vaneuza Araújo Moreira Funke, Rodolfo Daniel de Almeida Soares, Maria Claudia Rodrigues Moreira, Liane Esteves Daudt,Claudia Caceres Astigarraga, Décio Lerner, Vergílio Antonio Rensi Colturato, Victor Gottardello Zecchin, Renata Fittipaldi da Costa, Phillip Scheinberg, Fábio Kerbauy, Vanderson Geraldo Rocha, Adriana Seber, Ricardo Chiattone, Yana Augusta Sarkis Novis, Maria Cristina Martins de Almeida Macedo, Roberto Luiz da Silva, Alexandre Silverio,Volney Assis Lara Vilela, Heliz Regina Alves das Neves, Bruna Letícia da Silva Santos Geraldo, Carmem Maria Sales Bonfim, Mary Flowers, Nelson Hamerschlak. Hematopoietic stem cell transplantation for non-Hodgkin lymphoma in Brazil: real-life data. Journal of Bone Marrow Transplantation and Cellular Therapy. 2023.

RESULTS OF AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR HODGKIN'S LYMPHOMA IN A BONE MARROW TRANSPLANT UNIT IN NORTHEAST BRAZIL

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INTRODUCTION

Hodgkin's lymphoma is an onco hematological disease with high reported cure rates (~75-80%) with the use of multidrug chemotherapy regimens with or without associated radiotherapy. Despite the success of available first-line therapies, approximately 15-20% of patients with early stages of HL and 30-40% of those already diagnosed in more advanced stages of the disease relapse or are primarily refractory to treatment. Within this subset of patients, it is well established that rescue chemotherapy followed by autologous hematopoietic stem cell transplantation in responders represents an effective treatment strategy with a curative perspective. In view of this information, this therapeutic strategy has been used for many years for patients with relapsed/refractory HL, with more than 50% of patients undergoing it presenting good responses and progression-free survival over the subsequent years. The emergence of immunotherapies in the last decade (anti-CD30 antibody-drug conjugates, such as Brentuximab Vedotin (BV) and checkpoint inhibitors, such as the PD-1 inhibitors Nivolumab and Pembrolizumab) have brought new treatment perspectives for these relapsed/refractory patients as another therapeutic alternative for non-responders to autologous HSCT, and also as allies for maintaining response after HSCT. These new therapies have been important in improving outcomes after autologous HSCT in this subgroup of patients.

OBJECTIVES

To evaluate the overall survival and progression free survival of patients undergoing autologous hematopoietic stem cell transplantation at a stem cell transplantation unit in Northeast Brazil, as well as evaluating clinical and diagnostic factors possibly related to better or worse outcomes in survival.

METHODOLOGY

Retrospective evaluation of medical records of patients with HL submitted to autologous stem cell transplantation between 2009 and 2022. Statistical analysis was performed using the Kaplan-Meier method to estimate survival probability. Results

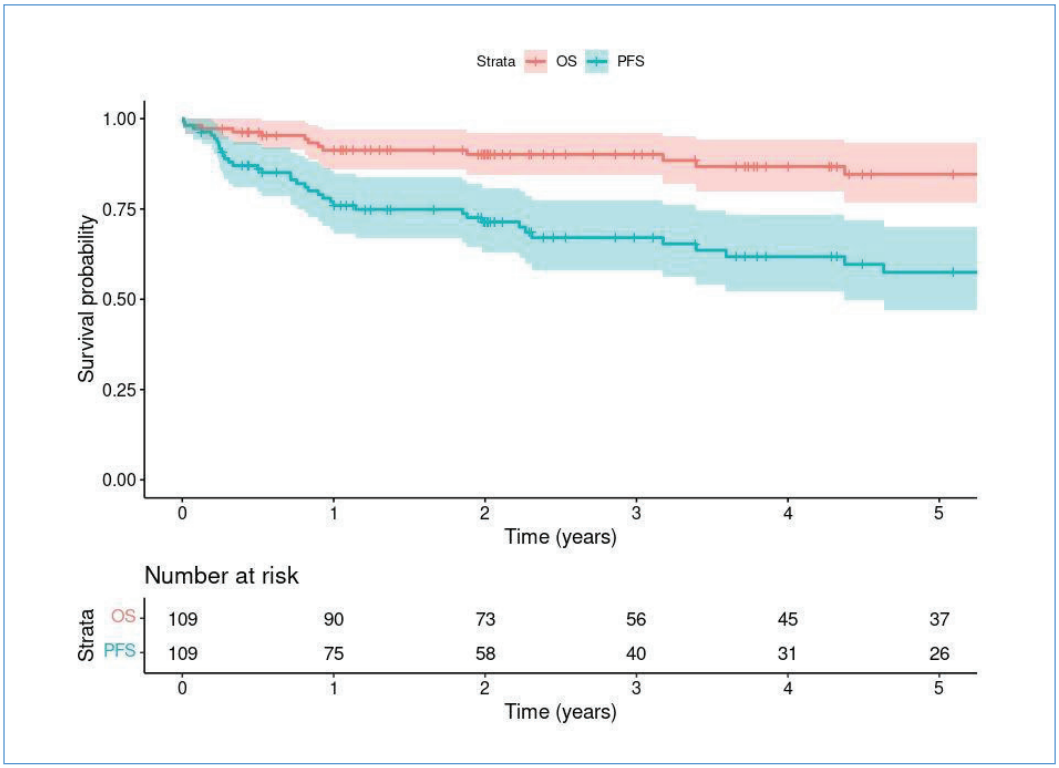
118 patients were eligible. Overall survival (OS) in 5 years was 84% (95% CI 0.76-0.93), with progression free survival (PFS) in 5 years reaching 57.5% (95% CI 0.47-0.70). There were no differences in OS or PFS when comparing subgroups such as initial vs. advanced stages of disease at diagnosis, refractory vs. relapsed disease, use of 3 or more lines of treatment vs. 2 or less, or between conditioning regimens in this study.

CONCLUSION

The OS and PFS in the present study are similar to those described in literature, hence showing that autologous HSCT continues to be an effective strategy for the treatment of relapsed/refractory HL patients, with high survival and good cure rates. Increasing access to immunotherapies for patients in the public health system will further increase the survival probability in this population.

KEYWORDS- Hodgkin, Lymphoma, Autologous HSCT

FIGURE1- Results of survival. OS - overall survival; PFS - progression free survival



SYSTEMIC AMYLOIDOSIS WITH GASTROINTESTINAL INVOLVEMENT: LOW SUSPICIOUS PRESENTATION, LATE TREATMENT, MULTIORGAN DISFUNCTION AND HIGHER THE RISK OF DEATH AFTER AUTOLOGOUS STEM CELL TRANSPLANT

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INTRODUCTION

Light chain amyloidosis (AL) is a heterogeneous and life-threatening disease caused by extracellular deposition of misfolded free light chains (FLC) that typically originate from small plasma cell clones. The majority of these patients have a significant impairment of vital organs, such as the heart, kidney, and liver. However gastrointestinal (GI) involvement is an uncommon manifestation of systemic amyloidosis. The most common clinical signs are nausea, vomiting, dysphagia, gastroparesis, gastro-esophageal reflux, loss of appetite, constipation, abdominal pain, bloating. The GI bleeding may occur from any site of amyloid deposition and can be seen in up to 57% of patients. Few data are available, with the exception of some case reports. GI direct biopsy verification of the disease is needed to identify amyloid deposit.

CASE REPORT

49 years old, female, without previous comorbidities was admitted to an emergency unit hospital in January 2020 to investigate epigastric pain and postprandial fullness that started eight months before diagnosis. The blood count was normal, abdominal ultrasound showed hepatomegaly. Endoscopy showed infiltrative lesion, of entire anterior region of the gastric body, with enanthematic and friable mucosa. Biopsy was congo red positive. Bone marrow aspirate showed 2,4% of clonal plamocytes Lambda monoclonal light chain. Mass spectrometry detected lambda-type immunoglobulin light chain. She had left Cardiac ventricle fibrosis due to cardiac Amyloid deposition, New York Heart Association Scored 3 (NYHA 3), hepatomegaly, GI and renal involvement.

In August 2020 patient was treated with cyclophosphamide, bortezomib, and dexamethasone, 6 cycles. Daratumumab was added for 4 cycles to improve response. According to Mayo Clinic organ response criteria the patient improved cardiac function (NYHA2), decreased pro-BNP, presented hematological response (very good parcial response), but no of liver or kidney improvement.

June 2022 She was submitted to an autologous stem cell transplant (ASCT), at D+9 after ASCT she had a major GI bleeding, hypovolemic shock, progressing to organ failure and death.

CONCLUSION

It is important to draw attention to GI symptoms in amyloidosis involvement and its nonspecific symptoms could delay diagnosis and favor advanced organ failure. The lack of a risk score to estimate massive bleeding in GI involvement makes the management of these patients more difficult. This case had a late diagnose of systemic amyloidosis with GI, cardiac, hepatic and renal involvement. Despite of Cardiac and hematologic response, she progressed with hepatic and renal disease increasing the risk of death after transplant.

TOXICITY PROFILE OF LEAM PROTOCOL AS CONDITIONING FOR AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PATIENTS DIAGNOSED WITH LYMPHOMA AT A TERTIARY HOSPITAL

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INTRODUCTION

In relapsed or refractory (R/R) lymphomas, salvage chemotherapy followed by consolidation with autologous hematopoietic stem cell transplantation (AHSCT) can be curative. BEAM protocol is one conditioning option, but in recent years, concerns regarding the toxicity of carmustine, as well as the restricted availability of carmustine and melphalan, have dictated that an increasing number of transplant centers utilize alternative conditioning regimens.

OBJECTIVE

To describe toxicity profile of LEAM protocol as conditioning for AHSCT in patients diagnosed with Lymphoma at a tertiary hospital.

MATERIALS AND METHODS

Observational retrospective cohort study with all patients with R/R lymphoma, who underwent AHSCT between January 2021 and February 2023 and used the LEAM conditioning scheme.

RESULTS

17 patients were analyzed with the following results: neutrophilic onset occurred in a median of 10 days, varying between 9 and 14 days. Platelet recovery occurred in a median of 15 days, ranging between 12 and 28 days. Of the patients analyzed, 7 (41%) presented renal toxicity - Grade 1 (N=6), Grade 2 (N=1), it is important to highlight that of these 7 patients, 4 already had previous chronic kidney disease. Liver toxicity was evident in 6 patients (35%): Grade 1 (N=4), Grade 2 (N=2). Grade 4 hematologic toxicity was evidenced in 100% of patients, gastrointestinal toxicity was evidenced with nausea, vomiting and diarrhea in the majority of cases. Regarding oral mucositis, the presentation was as follows: Grade 0: 2 patients (12%), grade 1: 7 patients (41%), grade 2: 4 patients (24%), grade 3: 4 patients (4%). No patient presented grade 4 mucositis. The most frequent complications in the group of patients analyzed were: febrile neutropenia (100%), neutropenic colitis (34%), engraftment syndrome (12%).

CONCLUSION

LEAM protocol represents a therapeutic option with a toxicity profile similar to that of the conditioning regimen of choice and with acceptable degrees of toxicity, and can therefore be considered a feasible alternative for conditioning. However, studies with more representative samples and longer follow-up are needed to better establish the efficacy, safety and evaluate the long-term relapse rates of this treatment.

TWELVE YEARS OF EXPERIENCE IN AUTOLOGOUS HEMATOPOIETIC PROGENITOR CELL TRANSPLANTATION: A CELL PROCESSING FACILITY OVERVIEW

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1 Procélula – Terapia Celular
2 Grupo Vita

INTRODUCTION

The demand for autologous hematopoietic progenitor cell (HPC) transplants has been steadily rising. To address this demand in the private sector, the Cell Processing Facility has significantly invested in technical and infrastructure improvements.

OBJECTIVE

Compile the productivity of the Cell Processing Facility since the beginning of its operation.

METHODS

Flow cytometry, CD34+/CD45low cells according to the methodology defined by ISHAGE in a BD FACSCalibur cytometer, and clonogenic assays, MACSTM HSC-CFU Media system (Miltenyi Biotec), observed in inverted light microscopy 14 to 16 days after incubation at 37°C, were employed for HPC quantification and functional assessment.

RESULTS

From December 2011 to March 2024, 1255 patients were treated, comprising 719 myelomas, 482 lymphomas, and 54 other diseases, with a median age of 52 years (26 pediatrics - 7 months up to 14 years; 1229 adults - 15 up to 76 years). A meticulous approach was taken towards HPC collection, with apheresis initiated when patients exhibited more than 10 CD34+/mm3 cells in peripheral blood. The mean circulating HPC before the first apheresis was 22 CD34+/mm3 (0-410), with a mean of 4.12x106 CD34+/Kg (0.11-50.50) collected by apheresis. An average of four blood volumes per apheresis was collected for mononuclear cells, followed by cryopreservation using hydroxyethyl starch (5,83%), human albumin (4%), and dimethyl sulfoxide (5%) of the final volume, divided into fractions from 60 to 115mL, with a target cell concentration of 2-3 x108 total leukocytes/ml. The cryopreserved products, stored at -80°C, demonstrated high cell viability and successful recovery rates upon thawing, with consistently favorable outcomes. The 1255 patients analyzed performed 1359 mobilizations with G-CSF (53 associated with chemotherapy, 355 with Plerixafor and 17 with chemotherapy and Plerixafor; 1292 with apheresis and 67 mobilization failures without apheresis) and a total of 1853 apheresis. The frozen products had an average cell concentration of 2.65x108/mL (0.23-6.61) with a recovery of 110.42% upon thawing (52.40-283.33). They showed cell viability >99% before cryopreservation and recovered on average 91.87% (68.05-99.90) of viability and 75.50% (5.5-577.8) of CFU-GM on thawing. A total of 3685 functional assays were performed, and the ratio between them (CD34/CFU-GM) was 2.70 (0.7-88.9) in the fresh sample and 3.70 (0.7-91.1) in the thawed sample. One thousand two hundred and twenty-eight transplants were performed in those patients, with mean of 3.73x106 CD34+/Kg (1.20-19.79) and 1.66x106 GM/Kg (0.04-10.60) infused in each patient. Time to engraftment granulocytes averaged 10 (8-18) days.

CONCLUSION

These results underscore the effectiveness of our cryopreservation techniques in ensuring optimal clinical outcomes for autologous HPC transplantation, aligning with previous findings, and emphasizing the importance of continued advancements in this field.

KEYWORDS - Hematopoietic Progenitor Cells (HPC), Cryopreservation and Autologous Transplantation.

VALIDATION OF FREEZING TIME FOR HEMATOPOIETIC STEM CELLS USING 5% DMSO AND AUTOLOGOUS PLASMA

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INTRODUCTION

The cryopreservation of Hematopoietic Stem Cells (HSCs) is crucial to ensure cell viability, being an essential part of the treatment for certain types of cancers, such as Lymphomas and Multiple Myeloma. To avoid damage during the freezing process, cryoprotectants are added to the solution, with 10% Dimethyl Sulfoxide (DMSO) being the most common. However, the infusion of frozen cells with this substance can trigger various side effects in patients, with the intensity being dose-dependent. To minimize these effects, HLA-UERJ uses half the standard concentration of this cryoprotectant, maintaining cell viability and clonogenic capacity during the freezing process.

OBJECTIVE

To determine if samples frozen for 5 years maintain adequate viability for use in transplants. Method: Fifteen samples of peripheral blood apheresis products from patients undergoing autologous transplant in 2019 were evaluated. Aliquots were assessed for cell viability by flow cytometry using 7AAD and for colony-forming unit formation in semi-solid medium containing GM-CSF, G-CSF, IL-3, and IL-6.

RESULTS

Pre-freezing cell viability was greater than 95.0%. After thawing, the mean cell viability was 93.2%. In 86% of the samples analyzed, colony-forming unit growth was observed, with an average of 27 colonies.

CONCLUSION

These findings suggest that the samples maintain suitable characteristics for use in transplants, providing a viable option for prolonged storage of hematopoietic stem cells in a freezing solution using only 5% DMSO and thereby minimizing the associated side effects of this reagent.

KEYWORDS

DMSO, colony-forming unit, autologous hematopoietic stem cell transplant.

WAITING TIME FOR AUTOLOGOUS HEMATOPOIETIC CELL TRANSPLANTATION IN A PUBLIC HOSPITAL IN NORTHEAST BRAZIL

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INTRODUCTION

Access to hematopoietic cell transplantation (HCT) within the Brazilian Unified Health System (SUS) is a sensitive issue in national public health. Irregularly distributed transplant centers and limited number of beds make access difficult and delay the procedure for a large number of patients, potentially influencing transplant outcomes.

OBJECTIVE

To describe the waiting time between the first consultation in the pre-autologous transplant outpatient clinic and BMT in an EBSERH hospital in the Northeast region of Brazil.

METHOD

A descriptive retrospective study with data from transplants performed between January 2020 and April 2024. Data were obtained through the review of medical records and captured through the REDCAP platform.

RESULTS

Of the 199 autologous transplants registered during the period, the mean time between the first consultation and hospitalization for transplantation was 262 days (range: 20-1312 days). For multiple myeloma, the average waiting time was 336 days (range: 84-1259 days). For Hodgkin's lymphoma, the average was 196 days (range: 37-1312 days), and for patients with diffuse large B-cell lymphoma (DLBCL), the mean time was 232 days (range: 20-328 days).

DISCUSSION

These findings reveal a prolonged average waiting time for the procedure. The extended waiting time is related to complications such as refractory/relapse, mobilization failure, and the need for judicial authorization to obtain Plerixafor. Hematology services in the state are instructed to refer patients promptly upon diagnosis to minimize the waiting time after chemotherapy, but this is not always the case. In addition to the lack of beds, difficulties in accessing pre-transplant exams, lack of prompt dental consultations, medication unavailability, chemotherapy shortages, the COVID-19 pandemic, and reduced nursing staff have negatively influenced waiting times in this service.

CONCLUSION

Optimizing pre-transplant consultations, increasing the number of public hospital beds, expanding the specialized multidisciplinary team, and regularizing drug supply are strategies needed to improve access to HCT, reducing waiting times, deaths, and relapses, as well as optimizing post-transplant outcomes.

PEDIATRICS HSCT

ASSESSMENT OF SYMPTOMS IN ADOLESCENTS WITH ACUTE MYELOID LEUKEMIA IN IMMEDIATE POST-ALLOGENIC TRANSPLANTATION: A CASE STUDY

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INTRODUCTION

Considering the severity and different symptoms observed in adolescents throughout bone marrow transplantation (BMT), health professionals are focused on minimizing, controlling, or alleviating a patient's discomfort. In this way, proactive symptom screening aids in the early detection of symptoms, enabling effective communication and the development of strategies to manage symptoms.

OBJECTIVE

To assess the immediate post-allogenic BMT symptoms in adolescents.

METHOD

Case study, with a quantitative approach, conducted at a children's hospital in Southern Brazil from December 2023 to January 2024. We used documentary records and responses to the Symptom Screening in Pediatrics Tool – Brazil (SSPEDI-BR) instrument of a teenager who underwent an allogeneic BMT. Symptom screening was conducted daily from D+1 until one day before transfer to the intensive care unit. Data analysis used simple descriptive statistics. Study approved by the ethics and research committee by opinion: nº 6.480.800.

RESULTS

The participant, 14 years old, female, white, born in Minas Gerais, Brazil, was diagnosed with Acute Myeloid Leukemia in its second relapse. She underwent a seven-day regimen with Fludarabine, Busulfan, Melphalan, and Thymoglobulin, underwent an unrelated allogeneic transplantation with bone marrow cell source, showed no reactions in the transplant procedure, and subsequently presented hepatic veno-occlusive disease, marrow aplasia, and polyomavirus infection in the urine and reactivation of cytomegalovirus. The assessment extended until D+14, revealing the onset of symptoms from the first-day post-procedure. Mostly, she reported "a little bothered", feeling scared or worried (37%); changes in appetite (29%); changes in body or facial appearance (14%); and headache (14%). Reported symptoms of "medium bothered" as feeling upset or sad (21%); feeling tired (50%). As "a lot bothered" feeling moody/angry (43%); tingling or numbness (14%) and diarrhea (43%). Finally, symptoms were categorized as "extremely bothered": mouth sores (64%); non-headache-related pain (36%) and instances of vomiting or nausea (50%). The symptom of difficulty thinking or remembering things was reported with equal frequency for "mild and moderate bothered" (7%). The symptom that persisted the longest was feeling moody or angry, being reported on 93% of the days assessed. Given the SSPEDI-BR items, two symptoms were not reported, being changes in taste, and constipation, and the average duration of symptoms was seven days.

CONCLUSION

The predominant physical symptoms contrasted with the persistence of the psychological symptoms, suggesting a possible relationship between them. Finally, the post-transplant teenager experienced several symptoms with different intensities, highlighting the importance of evaluating symptoms for their management, as they are one of the main causes of worsening of the general condition, decreased quality of life, and treatment abandonment.

KEYWORDS - signs and symptoms, adolescents, allogeneic stem cell transplantation.

CASE REPORT: POST- ALLOGENEIC STEM CELL TRANSPLANTATION PEDIATRIC MYELOFIBROSIS RELAPSE TREATED WITH RUXOLITINIB

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INTRODUCTION

Primary myelofibrosis (PMF) is exceedingly rare in children and there are only a small number of cases described. The clinicopathological spectrum of myelofibrosis in the pediatric population is different from adults and driver mutations such as JAK2, CALR and MPL are uncommon. Pediatric myelofibrosis has a very heterogeneous phenotype, with variable evolution, from occasional spontaneous resolution to a rapid progressive disease, curable only by allogeneic stem cell transplantation (ASCT). Ruxolitinib, a selective JAK1/2 inhibitor was approved since 2011 for adults PMF treatment based on improvement in spleen size and symptoms, but its contribution to a survival advantage is unclear and there is no data on its use in children in this context.

OBJECTIVE

To describe the clinical course, diagnostic challenges, treatment and outcomes in a pediatric patient with PMF who experienced disease relapse following ASCT.

METHOD - Case report.

CLINICAL CASE

A female child started at 3 months of age with thrombocytosis and splenomegaly. She also had facial dysmorphisms suggestive of Noonan syndrome; however, mutations in the RAS pathway were negative and exoma was positive to SH2B3 mutation. After an extensive work-up, when she was 4 years old, the child was evaluated by the Brazilian Pediatric Myelodysplastic Syndrome Study Group and received the diagnosis of PMF, with molecular analysis negative to JAK2, CALR, and MPL.

She underwent ASCT from an unrelated donor with a myeloablative conditioning regimen consisted of busulfan, fludarabine and melphalan. However, 22 months after the transplant, the child presented thrombocytosis, splenomegaly, chimerism oscillation and bone marrow changes indicative of PMF relapse. As she was not clinically fit for a second transplant, we decided to start hydroxyurea and ruxolitinib treatment. After six months, the patient achieved fully donor chimerism and presented significant clinical and hematological improvement, remained stable in the last evaluations, even after stopped hydroxyurea.

DISCUSSION

ASCT remains the only curative treatment for PMF, however relapse and non-relapse mortality are still significant. In adults, described relapse rates are high and approaches to relapse management vary greatly. To date, there is no evidence to support the use of ruxolitinib to treat relapse.

In children, due to disease rarity, the data are too scarce. Here we described a case of a child with myelofibrosis post- ASCT relapse who achieved disease partial control and posterior stability with ruxolitinib therapy.

CONCLUSION

Despite there is no description of treatment of pediatric myelofibrosis with ruxolitinib, it could be considered as a therapeutic option for symptoms control.

KEYWORDS - Pediatric myelofibrosis, allogeneic stem cell transplantation, ruxolitinib therapy.

CEREBRAL TOXOPLASMOSIS IN CHILDREN AFTER HEMATOPOIETIC CELL TRANSPLANTATION: TWO CASE REPORTS

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INTRODUCTION

Toxoplasmosis, resulting from the reactivation of latent Toxoplasma gondii infection, can result in devastating neurological complications in immunocompromised patients such as those undergoing hematopoietic cell transplantation (HCT). Universal prophylaxis for Pneumocystis jirovecii with trimethoprim-sulfamethoxazole (TMP-SMX) reduces expressively this incidence. Mortality of Toxoplasma disease in allogeneic HCT ranges between 60 and 90%, even with treatment, however it can be decreased with early diagnosis and treatment.

OBJECTIVE

Presenting two cases of post-HCT toxoplasmosis in children, treated with TMP-SMX, with different outcomes.

METHOD - Case report.

CASES REPORT

Case 1: A 16-year-old male patient, with a diagnosis of acute myeloid leukemia, presented fever, behavioral changes, decreased level of consciousness and tonic-clonic seizures on D+71 after a haploidentical HCT. Cranial magnetic resonance imaging (MRI) revealed multiple diffuse nodular lesions, with post-contrast ring enhancement, in the cerebral and cerebellar parenchyma. The polymerase chain reaction (PCR) for Toxoplasma was positive in the cerebrospinal fluid (CSF). Treatment was initiated with TMP-SMX but the patient continued to worsen and died.

Case 2: A 9-year-old female child diagnosed with advanced myelodysplastic syndrome was admitted on D+127 after an unrelated allogeneic with febrile neutropenia, drowsiness, and headache. Brain MRI showed diffuse nodular lesions in the deep white matter and subcortical regions, with post-contrast ring enhancement and adjacent vasogenic edema and the PCR for Toxoplasma was positive in CSF. The patient was treated with TMP-SMX for six weeks, with clinical and radiological resolution.

DISCUSSION

HCT recipients who are Toxoplasma gondii seropositive before transplantation are at high risk for reactivation of latent infection if not on appropriate anti-Toxoplasma prophylaxis. Preemptive screening with blood Toxoplasma PCR is recommended for those patients if adequate prophylaxis cannot be given. The two children reported here were receiving TMP-SMX only twice a week due to significant hematological toxicity and serial blood Toxoplasma PCR were negative despite cerebral infection.

The first line treatment for HCT recipients with Toxoplasma disease is an association of sulfadiazine, pyrimethamine and folinic acid, while TMP-SMX is considered an effective alternative. Both children were treated with TMP-SMX, due to the unavailability of sulfadiazine in our country at that time.

CONCLUSION

These cases report emphasizing the importance of including toxoplasmosis in the differential diagnosis of encephalitis in pediatric HCT recipients, especially in those not receiving adequate prophylaxis, even if preemptive screening with blood Toxoplasma PCR is negative.

KEYWORD - Toxoplasmosis; hematopoietic cell transplantation; trimethoprim-sulfamethoxazole.

COMPLICATIONS OF RESPIRATORY TRACT INFECTION IN PEDIATRIC PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) involves replacing the hematopoietic system of patients. It is a crucial treatment for some hematologic and non-hematologic conditions within the pediatric age group. The immunity of patients undergoing HSCT is influenced by various factors, such as the source of cells and immunosuppressive medications, which makes them immunosuppressed. Respiratory tract infections (RTIs) in HSCT patients have been shown to play an important role in increased morbidity and mortality. Complications can manifest in various forms, representing a significant concern in pediatric patients. Therefore, it is important to understand the main issues related to respiratory tract infections to improve clinical outcomes, as there are few studies on this pediatric theme.

OBJETIVE

The aim of this study is to gather current information on the main complications of respiratory tract infections in pediatric patients undergoing Hematopoietic Stem Cell Transplantation.

METHOD

This study is a literature review of articles from the PubMed and Embase databases, using the search strategy with the descriptors "respiratory tract infections", "hematopoietic stem cell transplantation", and "pediatrics" connected by the boolean operator AND. The inclusion criteria for articles were reviews published between January 2019 and May 2024. Articles that did not address the review theme were excluded.

RESULTS

Analysis of the included articles revealed that low oxygen saturation was a commonly observed complication, occurring, on average, in more than 50% of respiratory infection events, which leads to the need for supplemental oxygen therapy. A significant proportion of patients may also require admission to an intensive care unit due to the severity of the respiratory infection. Some patients may develop severe respiratory complications, such as acute respiratory distress syndrome. Other associated issues include idiopathic interstitial pneumonia, bronchiolitis, and graft failure delay. Mortality among pediatric patients undergoing transplantation and infected by the respiratory tract can be significant, with a mortality rate between 8% and 10.5% in studies, indicating the severity of the infection in this population. Patients who died mainly had infections from specific respiratory viruses, such as respiratory syncytial virus, SARS-CoV-2, and influenza.

CONCLUSION

RTIs cause significant complications in pediatric patients undergoing HSCT. The lack of specific studies for this population highlights the need for research to better understand these complications and develop more effective prevention and treatment strategies, as it increases morbidity and mortality.

EARLY VIRAL REACTIVATIONS OCCUR IN 82% OF PATIENTS UNDERGOING HAPLOIDENTICAL BONE MARROW TRANSPLANTS (BMT) VS. 20% AFTER MATCHED RELATED BMT TO TREAT SICKLE CELL DISEASE (SCD)

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BMT is increasingly used as a curative approach for SCD. The use of haploidentical transplantation has ensured that nearly all patients have an available donor. Intense immunosuppression is required, leading to an increased risk of viral reactivation, which can impact morbidity and mortality. The objective of this study is to evaluate the incidence and outcomes of early viral reactivations in patients with SCD undergoing BMT.

METHODS

This is a retrospective study of 16 consecutive patients with SCD who underwent BMT between 2016 and 2023. Patient and transplant characteristics are shown in Table 1. Viral PCR surveys, including adenovirus, polyomavirus, and pan-herpes, were performed weekly from the beginning of the conditioning up to D+100 in all patients, or longer in the presence of graft-versus-host disease (GVHD). Tissue samples from the gastrointestinal tract and cerebrospinal fluid were collected in patients with clinical symptoms who performed invasive procedures to define etiology.

RESULTS

Early (< D+100) viral reactivations were identified in 10 of the 16 patients (63%). The median time for the first viral reactivation was 17 days (4-53 days). While two patients experienced a single episode of reactivation, the majority had multiple episodes (2-3 times). Considering numbers of episodes, Herpesvirus 6 was the most reactivated virus (36%), followed by polyomavirus (32%) and herpesvirus 7 (18%) – Table 2. Three patients, not on letermovir prophylaxis, had cytomegalovirus (CMV) reactivation requiring treatment. Viral reactivation was much more common after haploidentical BMT (9/11 - 82%) than after matched sibling donor BMT (1/5 - 20%). Preemptive antiviral therapy was used in 8 patients (80%), including ganciclovir, valganciclovir, and cidofovir. None of the patients required Foscarnet for treatment-refractory HHV6. The median duration of treatment was 20 days, with a median re-hospitalization of 16 days. Complicated cases of reactivation occurred in 5 patients, including 3 encephalitis and 2 organ disease (pneumonitis and colitis), but no deaths were attributable to viral reactivation.

CONCLUSION

Early viral reactivation is a common complication affecting nearly two-thirds of patients with SCD after allogeneic BMT, particularly after haploidentical transplants, emphasizing the need for effective viral monitoring and preemptive therapy. Addressing this challenge is crucial for improving transplant outcomes and reducing post-transplant complications. Future studies should focus on optimizing prophylactic and therapeutic approaches to improve overall transplant success and patients' quality of life.

Table 1. Patients and transplant characteristics

Characteristic (n=16)	Number (%)
Age (median)	12 (4-20 years)
Female sex	8 (50%)
HCT indications, *n(%)*	
Persistent vaso-oclusive crisis	11 (69%)
Stroke	5 (31%)
Donor type	
Matched sibling (MSD)	5 (31%)
Haploidentical	11 (69%)
Graft source	
Bone marrow	16 (100%)
Conditioning, *n(%)*	
BuCy	3 (19%)
BuFlu	2 (12%)
Flu-TT-CTX(29)-TBI 200cGy	7 (44%)
Flu-TT-CTX(50)-TBI 400cGy	3 (19%)
Flu-CTX(29)-TBI 400cGy	1 (6%)
GVHD prophylaxis	
PTCy, Sirolimus, MMF	11 (69%)
Cyclosporin A	5 (31%)
Neutrophil engraftment day (day post-HSCT)	19 (15-24)
GVHD	
Acute Grau II-IV	8 (50%)
Chronic moderate/severe	4 (25%)

Table 2. Viral reactivation by donor type

Virus – Total: 28 episodes	Haploidentical (n=11)	MSD (n=5)
HHV6 reactivation/infection (36%)	9	1
HHV7 reactivation/infection (18%)	4	1
BK reactivation/hemorrhagic cystitis (32%)	9	0
EBV reactivation - no PTLD (3%)	1	0
CMV reactivation (11%)	3	0

EFFICACY AND SAFETY OF ALPHA-1 ANTITRYPSIN IN THE TREATMENT OF PEDIATRIC STEROID-REFRACTORY GASTROINTESTINAL ACUTE GRAFT-VERSUS-HOST DISEASE

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Steroid-refractory acute graft-versus-host disease (SR-aGVHD) presents significant treatment challenge. Alpha-1 antitrypsin (AAT), a naturally occurring serine protease inhibitor, has shown potential as a therapeutic option due to its anti-inflammatory properties, and ability to modulate immune responses. Ruxolitinib, an approved second-line therapy, often fails to be adequately absorbed due to GVHD-related diarrhea, which complicates effective management, making AAT a viable alternative without adding immunosuppression and risk of infections. This study objective is to assess the safety and clinical outcomes of AAT therapy in pediatric patients with SR-aGVHD.

METHODS

AAT was administered at a dose of 60mg/kg twice weekly for four weeks as a second or third-line treatment for SR-aGVHD. The primary endpoint was response by day 28, steroid reduction and the timing of the best response.

RESULTS

Four children were treated, 3 females with a median age of 3 years. The transplants were performed to treat acute myeloid leukemia (AML - 2), neuroblastoma (1), and sickle cell anemia (1). Bone marrow was the cell source for three patients. The only male child received a marrow graft from his mother. Engraftment occurred at a median of Day +17 (range: 9-19), with GVHD diagnosed at a median of Day +25 (range: 11-132). The clinical presentation was skin GVHD in all patients, lower gastrointestinal tract involvement in three and hepatic involvement in one. GVHD severity was MAGIC grade III in 3 cases and one grade IV. At the onset of GVHD, 3 patients had viral reactivations involving HHV6 and HHV7. After 7 days on methylprednisolone 2 mg/kg/day, none had shown improvement. Subsequently, 3 patients were treated with ruxolitinib prior to introducing alpha-1 antitrypsin (AAT), which was administered 44, 19, and 3 days after ruxolitinib initiation. The patient with hepatic GVHD, who did not receive ruxolitinib, was also treated with 8 mesenchymal stem cell infusions starting 45 days prior to AAT. Corticosteroid dosing was reduced by 25% at the start of AAT treatment, with a further 25% reduction by Day 28, achieving a median reduction of 40% by that time. Outcomes included 2 complete responses and 2 partial responses, with the most significant improvements observed at 8 weeks, except one patient who responded after 28 days. All responses had remained stable after 3 months. The median follow-up period post-AAT treatment is now 345 days.

CONCLUSIONS

AAT is safe and a potentially effective treatment for managing SR-aGVHD in pediatric patients. These preliminary findings support further investigation of AAT as an alternative therapeutic strategy, particularly focusing on larger scale studies to validate efficacy and safety.

Table 1. Alpha-1 Antitrypsin response

	HCT	GVHD grade (MAGIC)	Organ	Virus	D28 AAT Response	Best response (time)	Steroid reduction – D28
1	MSD	III	Lower GI tract, skin	HHV6	CR	2 months	77%
2	Haplo	III	Lower GI tract, skin	HHV6	PR	1 month	59%
3	Haplo	III	Hepatic, skin	None	PR	2 months	25%
4	Haplo	IV	Lower GI tract, skin	HHV7	CR	2 months	55%

HCT – allogeneic stem cell transplantation; GVHD – graft versus host disease; HHV6 – herpesvirus 6; HHV7 – herpesvirus 7; AAT – Alfa1 anti-trypsin; CR – complete response; PR – partial response.

ELTROMBOPAG FOR THE TREATMENT OF POOR GRAFT FUNCTION AFTER PEDIATRIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Poor graft function (PGF) after hematopoietic cell transplantation (HCT) is defined by cytopenias necessitating frequent dependence of blood transfusions and/or G-CSF support despite complete donor chimerism. Risk factors include donor type, number of CD34 cells infused, viral infection and GvHD. Treatment options are limited and additional HCT is often the primary approach to rescue hematopoiesis. Eltrombopag (EPAG), an oral thrombopoietin receptor agonist, may be an option for treating these patients (pts) with promising response rates.

OBJECTIVE

Describe the use of EPAG for PGF in pediatric pts undergoing allogeneic HCT between 2009 and 2023.

METHOD- Retrospective analysis of medical records.

RESULTS

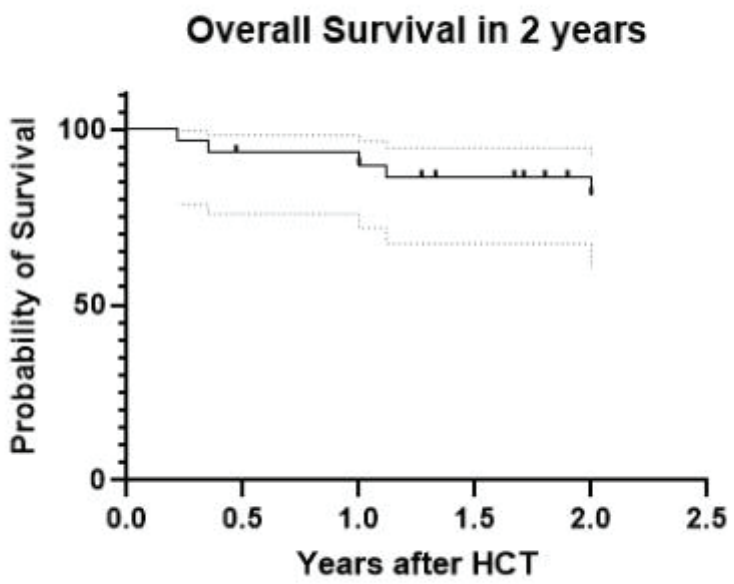
30 pts developed PGF after HCT and were treated with EPAG. Among these, 20 were male and the median age at HCT was 8.1 years (range:6m - 17.4y). Diagnoses were: Inborn errors of immunity (n=12), acquired and inherited bone marrow failures (n=11), and acute leukemias (n=7). Donors were haploidentical (n=16), unrelated (n=12) or matched related (n=2). Bone marrow was the predominant stem cell source (90%,n=27) and most pts received a reduced intensity (67%,n=20). The median CD34 cell dose infused was 4.94×106/kg (range: 1.56–12.6 × 106/kg). EPAG was started at a median of 116 days after HCT (range: 42 days - 9.3 years), due to persistent thrombocytopenia, with concomitant anemia and neutropenia in 7 and 8 pts, respectively. The initial dose was 25-50 mg/day, and eventually increased up to 150mg/day in case of lack of response in older children. Two pts died in the first month after the introduction of EPAG and were not evaluable for response. 28 pts survived more than 3 months after the initiation of EPAG, with 22 exhibiting a hematological response. The median time to response was 110 days. Among responders, EPAG was discontinued without further relapse, and all pts remained alive and well at a median follow-up of 37 months after EPAG. Six pts did not respond to EPAG. Among them, three underwent a 2nd HCT, while three pts died (two due to infectious complications and one due to disease relapse), occurring at least 4 months after discontinuation of EPAG. The 2-year overall survival (OS) was 82% (95% CI: 0.55 - 0.95), figure 1. All side effects were mild and did not lead to discontinuation of EPAG.

CONCLUSION

In this study, EPAG was effective for most pediatric patients developing cytopenias after allogeneic HCT. However, the median time to response is approximately 4 months and pts should receive adequate supportive care during this period.

KEYWORDS - HCT. Poor graft function. Eltrombopag.

Figure 1:


Overall Survival in 2 years
Probability of Survival
100
50
0
0.0
0.5
1.0
1.5
2.0
2.5
Years after HCT

HEMATOPOIETIC CELL TRANSPLANTATION (HCT) FOR INTERLEUKIN-10 RECEPTOR (IL-10R) DEFICIENCY: A RETROSPECTIVE CASE SERIES FROM A SINGLE CENTER EXPERIENCE

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INTRODUCTION

Mutations in interleukin-10 and its receptors cause infantile inflammatory bowel disease (IBD), a hyperinflammatory disorder characterized by severe treatment-refractory colitis, multiple abscesses, enterocutaneous fistulas and malnutrition. Therapeutic options include corticosteroids and immunosuppressive drugs with low response rates. HCT is a curative therapy, but reported data is scarce.

OBJECTIVES

Describe the outcomes after HCTs in four patients with IL-10R deficiency.

METHODS

Retrospective review of patient's charts. Exome confirmed mutation in IL10RA gene in all patients.

Case 01: A female patient presented with diarrhea and significant malnutrition. Colonoscopy at 10-months of age revealed severe ulcerative colitis with sub-stenosis. The patient underwent a mismatched unrelated cord blood HCT at 18-months-old. Engraftment occurred on day +18. She developed acute GvHD (skin grade II) at day +22, with complete response to corticosteroids. Three months post-HCT a colostomy was performed due to intestinal occlusion. At last follow-up, 3,5 years post-HCT, the patient is asymptomatic, recovering weight and undergoing rectal sensory training for stoma reversal.

Case 02: A female patient presented with a rectovaginal fistula, Fournier syndrome and sepsis at 10-days-old, necessitating a colostomy at 1,5-months-old. She had diarrhea, malnutrition, and recurrent infections. At 6-years-old she underwent a matched unrelated donor (MUD) BMT with engraftment occurring at day +14 and no GvHD. The stoma was reverted 2 years post-HCT. At last follow-up, 4 years post-HCT, the patient is asymptomatic, and has regained weight.

Case 03: A female patient presented with diarrhea, recurrent infections, and multiple enterocutaneous fistulas at 5-months-old. She underwent a MUD BMT at 1 year-old with engraftment occurring on day +13. By day+18, she developed acute GvHD (Liver grade II and GI grade III) and severe veno-occlusive disease, which were successfully treated with corticosteroids. At last follow-up, 1 year post-HCT, the patient is asymptomatic with adequate weight.

Case 04: A male patient presented with bloody diarrhea and painful evacuation, since 3-months-old. Colonoscopy showed pancolitis with colonic and rectal ulcers. He underwent a MUD BMT at 2,5 years-old. He developed acute GVHD (skin grade II) at day +27, with complete response to corticosteroids. After day+100 he had progressive loss of chimerism and reactivation of the IBD. He was submitted to a 2nd MUD BMT at 3,5 years-old. Engraftment occurred on day +15 with no GvHD. Post 2nd BMT he developed a recto-urethral fistula and colostomy was performed. At last follow-up, 4 months after the 2nd transplant, he is clinically stable and fully engrafted.

CONCLUSION

In this small series of cases, HCT was able to treat the immunological complications and symptoms related to this rare disease. HSCT should be considered early as a potentially curative therapeutic option.

TABLE 1

Case	Donor	Cell Source	HLA-match	Conditioning regimen	GVHD prophylaxis	CMV reactivation	Acute and Chronic GVHD	Graft failure	Chimerism D+100
1	URD	UCB	9/12 Mis-B; DP	BU + FLU+ r-ATG	Cyclosporine + MMF	No	Skin grade II	No	100%
2	URD	BM	12/12	BU+ FLU + r-ATG	Cyclosporine + MMF	No	No	No	88%
3	URD	BM	12/12	BU+FLU+ r-ATG	Cyclosporine + MMF	No	Liver grade II GI grade III	No	100%
4 (1st HCT)	URD	BM	11/12 Mismatch DPB1	BU+ FLU + r-ATG	Cyclosporine + MMF	No	Skin grade II	Yes	94%
4 (2nd HCT)	URD	BM	12/12	CY + FLU + TBI (400 rads)	Cyclosporine + MMF	No	No	No	100%

Legend: GVHD: Graft-versus-host-disease, CMV: cytomegalovirus, URD: unrelated donor, UCB umbilical cord blood, BM: bone marrow; BU: busulfan FLU: fludarabine; CY: cyclophosphamide; MMF: mycophenolate mophetil; TBI: total body irradiation; r-ATG: Rabbit Thymoglobulin. Mis; mismatch

HIGH DOSE CHEMOTHERAPY AND AUTOLOGOUS PERIPHERAL BLOOD STEM CELL RESCUE FOR CENTRAL NERVOUS SYSTEM ATYPICAL TERATOID/RHABDOID TUMOR: A CASE REPORT

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INTRODUCTION

Atypical teratoid/rhabdoid tumor (AT/RT) of the central nervous system (CNS) is a rare pediatric malignancy with a dismal prognosis. Consolidation with tandem high-dose chemotherapy with autologous peripheral blood stem cell transplantation (PBSCT) rescue may improve the survival rate of children with high-risk brain tumors who have a poor outcome with standard treatment. ~

OBJETIVE

To demonstrate the feasibility of triple tandem autologous PBSCT in a case of metastatic CNS AT/RT treated with multimodal therapy.

METHOD - Case report.

RESULTS

We treated a nine-year-old girl with metastatic AT/RT with molecular features of pleomorphic xantoastrocytoma who received an intensive multimodal treatment according to COG ACNS0333 protocol. After a surgical approach and the last cycle of chemotherapy, she had severe infectious complications and radiotherapy was postponed. Due to local disease progression and neuraxial metastatic involvement, detected by MRI, the radiotherapy dose was increased to neuraxial also. BRAF inhibitors (dabrafenib and trametinib) were associated after histopathology review with new immunohistochemistry, who detected mutation BRAF v600e. Both inhibitors were suspended during consolidation. She was a poor mobilizer and plerixafor was added to G-CSF. After four apheresis the total CD34+/Kg dose collected was 6.24 x 106. She received the same myeloablative conditioning in three transplants, with carboplatin (510mg/m2 x2) and thiotepa (300 mg/m2 x2). The first one was performed on Feb 02,2024 and she had grade III mucositis, typhlitis, depressive crisis and a bloodstream infection. All three transplants were performed 28 days apart. In the second and third transplants there were no serious complications. In the MRI, there was significant tumor reduction after the last PBSCT. Patient was discharged on the D+14, in good clinical condition despite the long treatment. She is currently awaiting a new MRI evaluation to schedule surgery and return of BRAF inhibitors.

CONCLUSIONS

Multimodal therapy with maximal surgical resection, chemotherapy, radiotherapy and consolidative autologous PBSCT may improve prognosis of CNS AT/RT. However, infection or other complications can delay treatment phases, increase disease progression and compromise clinical conditions necessary to perform tandem transplants. We report a case with metastatic AT/RT treated with triple tandem PBSCT with good tolerance and response. Literature shows that, for children undergoing tandem transplants, increasing CD34+ cell dose was associated with significantly improved OS and PFS, and lower relapse rates, without increased NRM or endothelial-injury complications.

KEYWORDS - Atypical teratoid/rhabdoid tumor; high-dose chemotherapy; tandem autologous peripheral blood stem cell transplantation.

LETERMOVIR FOR CITOMEGALOVIRUS (CMV) PROPHYLAXIS IN PEDIATRIC ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT)

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Cytomegalovirus (CMV) represents a critical risk to pediatric patients undergoing HCT, especially with few HLA-matched donors and a high CMV prevalence. The hematological toxicity of the only widely available therapy, ganciclovir, and the need for effective CMV prevention call for safer alternatives. The objective of this study is to describe the safety and efficacy of letermovir (LTV) in preventing CMV reactivation among pediatric patients undergoing HCT.

METHODS

This retrospective study involved 30 pediatric patients receiving letermovir from December 2021 to April 2024. The cohort included patients under 21 years of age at risk of CMV disease due to recipient seropositivity or early CMV reactivation, as primary or secondary prophylaxis, respectively. Dosing was based on body weight (<20Kg: 120mg or 240mg every other day, 21-30Kg: 240mg, >31Kg: 480mg). All HSV IgG positive recipients also received acyclovir. Weekly CMV PCR were performed up to D+100, with a sensitivity threshold of 34 IU/ml. After this, or following the discontinuation of letermovir, PCR was tested in the presence of clinical suspicion or severe GVHD. Letermovir was interrupted if ganciclovir was used for HHV6 or HHV7 infections. Adverse events related to letermovir use were prospectively documented.

RESULTS

The characteristics of the patients and transplants are described in Tables 1 and 2. In this cohort, 24 patients (80%) received letermovir via nasoenteral tube. In primary prophylaxis, letermovir was initiated at a median of D+5 (range 1-74) and discontinued on D+117 (range 45-612); in secondary prophylaxis (n=7; 23%), on D+53 (38-105) and on D+130 (77-267), respectively. During treatment, 19 patients (63%) had interruptions to manage HHV6 or HHV7 reactivations, with 7 experiencing more than 1 episode. Additionally, 2 patients with optic neuritis and hepatitis were treated empirically with ganciclovir and foscarnet, but etiology could not be established. No patients had severe complications. Adverse reactions were minimal, with only one patient discontinuing letermovir due to gastrointestinal intolerance, which was followed by one episode of CMV reactivation and one episode of esophagitis occurring one and three months later, respectively. Throughout the treatment period, six patients (20%) showed a positive CMV PCR with the highest recorded viral load being 266 IU/ml, which resolved without further intervention. The median follow-up was 523 days (range 23-873), with an overall survival rate of 73%.

CONCLUSION

This substantial cohort demonstrates that letermovir is an effective and well-tolerated option for CMV prophylaxis in pediatric HCT recipients, suggesting its potential to reduce major complications and improve survival rates. The findings advocate for letermovir's integration into standard care protocols, offering a significant advance in the management of high-risk pediatric populations.

Table 1. Demographics of 30 pediatric patients receiving letermovir

Characteristic (n=30)	Number (%)
Age (median)	6 (2-20 years)
Female sex	9 (30%)
Median weight (Kg)	23 (12-60)
Underlying disease	
Malignant disease	23 (77%)
Non-malignant disease	7 (23%)
Cytomegalovirus IgG serostatus	
Recipient positive/donor positive	23 (77%)
Recipient positive/donor negative	7 (23%)
HLA-matching and donor type	
Matched unrelated donor	6 (20%)
Haploidentical donor	24 (80%)
Graft source	
Bone marrow	22 (73%)
Peripheral blood stem cells	8 (27%)
Immunosuppression	
Tacrolimus / Sirolimus	14 (47%)
Cyclosporin A	16 (53%)
Neutrophil engraftment day (day post-HSCT)	18 (14-27)
GVHD	
Acute	12 (40%)
Chronic	6 (20%)
Stop of all immunosuppression (day post-HSCT)	117 (50-299)

Table 2. Treatment details of 30 pediatric patients receiving letermovir

Variable	Number (%)
Start of letermovir (day post-HSCT)	5 (1-105)
Primary prophylaxis	5 (1-74)
Secondary prophylaxis	53 (38-105)
Primary CMV prophylaxis	23 (77%)
Route of administration	
Nasogastric/enteral tube	24 (80%)
Oral	6 (20%)
Discontinuation due to intolerance	1 (3%)
Treatment ongoing	3 (10%)
Treatment completed	27 (90%)
Follow-up after completed LTV treatment – days (n=27)	225 (10-738)
Duration of letermovir treatment - day post-HSCT (median – range)	119 (45-612)
Primary prophylaxis	117 (45-612)
Secondary prophylaxis	130 (77-267)
Transient increase in CMV viral load without change treatment	6 (24%)
Maximum viral load – UI/ml (n=6)	266

NUTRITIONAL STATUS OF CHILDREN SUBJECTED TO TOTAL BODY RADIATION DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

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INTRODUCTION

Nutritional status impacts treatment, so pre-nutritional assessment and nutritional monitoring after Hematopoietic Stem Cell Transplantation is essential and directly influences the patient's quality of life.

OBJECTIVE

To describe the prevalent pre- and post-HSCT nutritional status of children undergoing total body radiation during conditioning for HSCT

Sample: The study included pediatric patients undergoing hematopoietic stem cell transplantation admitted to a private hospital in São Paulo, who underwent total body radiation.

METHOD

This is a retrospective study with 14 patients who underwent HSCT between 2022 and 2023. Data were obtained through electronic medical records. Nutritional status was classified according to arm circumference (B) and evaluated in the pre-HSCT and post-HSCT periods.

RESULTS

The average age was 10 years, with a prevalence of patients with a previous diagnosis of acute lymphoblastic leukemia (71%), followed by sickle cell anemia (14%), acute myeloid leukemia (7%) and spinal cord aplasia (7%). Related allogeneic HSCT (79%) predominated over unrelated allogeneic HSCT (21%). In the pre-BMT period, the nutritional status of patients with eutrophy (71%) predominated, followed by malnutrition (29%). In the post-BMT period, patients with normal weight (64%), malnutrition (29%) and overweight (7%) predominated. No patient worsened their nutritional status classification during the period evaluated. Only 1 patient evolved with a change in nutritional status during the evaluated period, progressing from eutrophy to overweight.

CONCLUSIONS

The majority of patients who underwent conditioning with total body radiation had a normal nutritional status both in the pre-HSCT and post-HSCT periods, with no changes in classification during this period. A broader assessment is suggested to detect the real nutritional status of these patients.

KEYWORDS - Transplant. Nutritional status. Nutrition.

NUTRITIONAL THERAPY AND SYMPTOMS RELATED TO THE GASTROINTESTINAL TRACT OF CHILDREN UNDERGOING TOTAL BODY RADIATION DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

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INTRODUCTION

Adequate nutritional therapy during Hematopoietic Stem Cell Transplantation can minimize adverse effects resulting from conditioning.

OBJECTIVE

To describe established nutritional therapy and prevalent symptoms in children undergoing total body radiation during conditioning for HSCT

SAMPLE

The study included pediatric patients undergoing hematopoietic stem cell transplantation admitted to a private hospital in São Paulo, who underwent total body radiation.

METHOD

This is a retrospective study with 14 patients who underwent HSCT between 2022 and 2023. Data were obtained through electronic medical records. Nutritional status was classified according to arm circumference (B) and evaluated in the pre-HSCT and post-HSCT periods.

RESULTS

The average age was 10 years, with a prevalence of patients with a previous diagnosis of acute lymphoblastic leukemia (71%), followed by sickle cell anemia (14%), acute myeloid leukemia (7%) and spinal cord aplasia (7%). Related allogeneic HSCT (79%) predominated over unrelated allogeneic HSCT (21%). Most patients experienced nausea (93%), followed by diarrhea (79%), emesis (64%), mucositis (57%), and constipation (29%). All patients required oral nutritional therapy during some period of HSCT. Enteral nutritional therapy during HSCT predominated (93%) compared to parenteral nutritional therapy (57%).

CONCLUSIONS

The majority of patients who underwent conditioning with total body radiation presented nausea and diarrhea. Supplementary nutritional therapy was largely necessary in the sample studied, probably due to the high symptomatology.

KEYWORDS

Transplant. Nutritional status. Nutritional therapy.

PREVALENCE OF GENITAL CHRONIC GRAFT-VERSUS-HOST DISEASE (GVHD) IN FEMALE CHILDREN AND ADOLESCENTS

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INTRODUCTION

GVHD adversely affects the life-expectancy and quality of life, the latter particularly important and functionally relevant in pediatric patients, who have a longer life-expectancy than adults. Genital GVHD studies are mostly based on the adult population, and few studies report a low prevalence in children and adolescents yet emphasizing that the actual number is unknown. The symptoms of genital GVHD are varied and may include dysuria, vulvar pain, itching, and signs are diverse, ranging from swelling and redness to severe anatomical distortions such as resorption of the labia minora, vaginal obstruction and clitoral hood agglutination. The objective of this study is to determine the prevalence and its characteristics of genital GVHD in girls.

METHODS- Rretrospective study conducted through the review of patient records.

RESULTS

51 girls underwent hematopoietic cell transplantation (HCT) from October 2021 to January 2024 in a single pediatric center. Excluding early deaths (before D+100), relapses, and patients discharged to the primary physicians, 32 girls were studied and 8 of them (25%) had genital GVHD according to the NIH criteria. All patients had malignant diseases, 87.5% acute leukemias, underwent a myeloablative conditioning regimen, 37.5% had a HLA identical sibling. At the time of the genital GVHD diagnosis, 75% were not receiving immunosuppression; all received topical corticosteroid treatment. Half of the patients had concurrent oral GVHD. The mean time to diagnosis was 10.5 months post-HCT, and only 37.5% had symptoms at diagnosis.

CONCLUSION

The prevalence of genital GVHD is likely underestimated due to the lack of regular gynecological follow-up and the low number of reported symptoms. Active surveillance through objective questioning and appropriate physical examination and follow-up with a gynecological team is essential for early diagnosis and prevention of definitive anatomical alterations that compromise the long-term quality of life of these girls.

RED CELL TRANSFUSION REQUIREMENT AND OVERALL SURVIVAL IN PEDIATRIC PATIENTS UNDERWENT MAJOR ABO-MISMATCH ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Major ABO-mismatch in allogeneic hematopoietic stem cell transplantation (allo-HSCT) is associated with delayed red blood cell engraftment and pure red cell aplasia (PRCA), which increases the need for red blood cell transfusion, resulting in iron overload and increased morbidity. Few data exist about pediatric patients who underwent allo-HSCT diseases and major ABO incompatibility.

OBJECTIVE

This study sought to establish the transfusion demand and overall survival in pediatric patients who underwent major ABO incompatibility allo-HSCT, compared with identical ABO-type transplants.

METHODS

A total of 103 pediatric (up to 18 years old) allo-HSCT for non-malignant and malignant diseases with identical or major incompatibility in ABO blood type, between 2010 and 2022, in a single center were retrospectively evaluated. Transfusion demand in two periods post-HSCT (t1= 0-30 days; t2= 31-180 days) and clinical outcomes, like overall survival, graft-versus-host disease (GVHD), and graft failure, were evaluated in major ABO-mismatch group and compared with identical ABO blood type transplants. Statistical analyses were performed with Mann-Whitney and Fisher's exact tests; significance was set at $p< 0.05$.

RESULTS

Identical ABO group (n= 79; 76.7%) and major-mismatch group (n= 24; 23.3%) were homogenous regarding patient and transplant characteristics (Table 1). Major ABO-mismatch group required more red blood cell transfusion and for a more extended period, according to the last day of transfusion, than identical ABO transplants: median of 56 (12-182) versus 23 (7-252), respectively; p= 0.002 (Figure 1). Major ABO-mismatch had no influence, in non-malignant and malignant allo-HSCT on overall survival and was not associated with graft failure (p= 0.65; p=0.25, respectively), acute (p= 0.19; p=0.13) and chronic (p= 0.65; p=1) GVHD, compared with identical ABO transplants.

CONCLUSION

Major ABO-mismatch in pediatric allo-HCT for non-malignant and malignant diseases is associated with increased red blood cell transfusion, and for a longer time, however, does not influence overall survival, graft failure and GVHD rates.

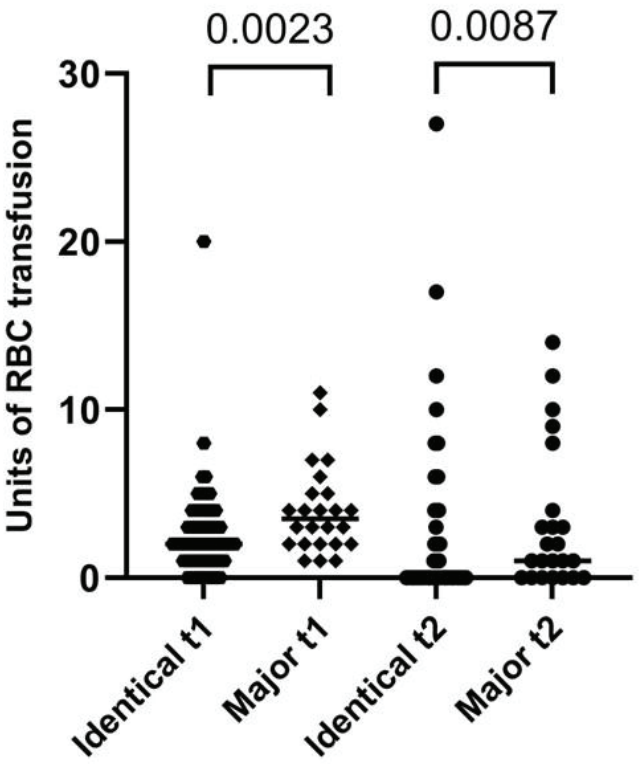
KEYWORDS - Major ABO-mismatch; allogeneic hematopoietic stem cell transplantation, red blood cell transfusion, pediatric.

TABLE 1. Patients and transplant characteristics according to ABO group compatibility

Characteristics	Identical (n= 79)	Major-mismatch (n= 24)	P-value
Age	10 (0-18)	12.5 (1-18)	0.33
Male (%)	48 (60.7)	18 (75)	0.23
Diagnosis			0.63
Non-malignant			
SAA	26	5	
Hemoglobinopathy	20	8	
Other	3	1	
Malignant			
Acute leukemia/MDS	26	8	
Lymphoma	3	0	
Histiocytosis	1	1	
Type of transplantation (%)			0.26
Related	48 (60.8)	14 (58.3)	
Unrelated	10 (12.7)	5 (20.8)	
Haploidentical	21 (26.6)	5 (20.8)	
Conditioning regimen (%)			1.0
MAC	57 (72.1)	16 (66.6)	
RIC	28 27.9)	8 (33.4)	
Stem cell source (%)			0.72
BM	71 (90)	21 (87.5)	
PB	8 (10)	3 (12.5)	

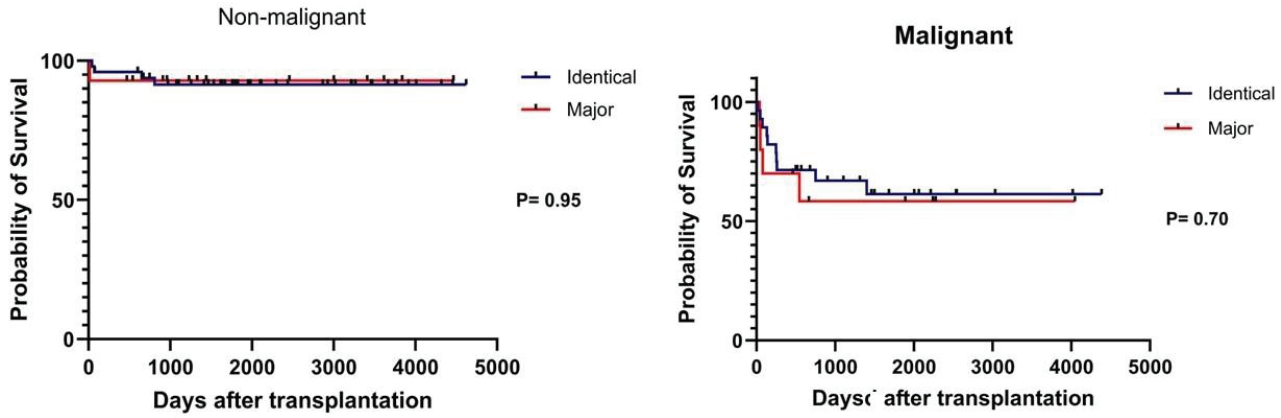
SAA: Severe Aplastic Anemia; MDS: Myelodysplastic Syndrome; MAC: Myeloablative conditioning; RIC: Reduced intensity conditioning; BM: Bone marrow; PB: Peripheral blood.

Figure 1: Units of RBC transfusion by ABO group on two periods of time



T1: 0-30 days after HSCT; T2: 31-180 days after HSCT

Figure 2: Probability of Survival by disease group



WHY DO PATIENTS WITH SICKLE CELL ANEMIA REFERRED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) AND WILLING TO UNDERGO TRANSPLANT MAY NEVER HAVE IT? CAN WE CHANGE THIS REALITY?

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INTRODUCTION

HCT is the only curative option for patients with sickle cell anemia in our country. Unfortunately, few have an unaffected HLA-identical sibling donor. Haploidentical donors are a feasible and effective option. The objective of this study is to understand the reason why sickle cell patients with indication for transplantation were unable to undergo HCT.

METHODS

Retrospective evaluation of the reasons why patients were referred for HCT but did not have it performed.

RESULTS

Between September 2016 and May 2024, a total of 76 patients were referred for HCT. 34 patients underwent allogeneic HCT, 9 with a matched sibling (26%) and 25 (73%) with haploidentical donors; 15 (20%) could not be transplanted for a variety of non-exclusive reasons: 3 had only ABO incompatible donors, 2 had only old donors (> 50 years), 3 had family conflicts, including religious reasons to refuse the donation, 2 were not successful in the IVF process, 8 had high titers of positive anti-donor specific anti-HLA antibodies; despite desensitization (rituximab, bortezomib, daratumomab, plasmapheresis, immunoglobulin), the patients remained with very high MFI titers and were not transplanted due to high risk of rejection. Two children were so alloimmunized that it was very difficulty finding compatible red blood cell. In addition, patients with sickle cell anemia cannot be enrolled in REREME to search for an unrelated donor, which aggravates their situation, as they need to look for a donor only within the family.

CONCLUSIONS

20% of the patients were unable to perform HCT. Since allogeneic HCT is the only curative treatment available in our country, not performing it may impact the patients' quality of life and ultimately their survival. Despite the small number of patients, the importance of this survey is to understand the problems of our patients and, therefore, to implement strategies that can minimize some of the factors that prevented HCT from being performed. Universal leukodepletion of red blood cells has significantly decreased alloimmunization on other countries and must be considered in patients who may need a HCT or may need to be transfused for many years. The possibility of searching for an unrelated donor must be respected as a universal right of the patients in need for an allogeneic HCT.

INFECTIOUS COMPLICATIONS

ASSESSING THE SIGNIFICANCE OF CYTOMEGALOVIRUS REACTIVATION IN RECIPIENTS OF ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: A COMPREHENSIVE EVALUATION

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INTRODUCTION

Cytomegalovirus (CMV) infection poses a challenge to recipients of allogeneic hematopoietic stem cell transplantation (allo-HSCT), often leading to systemic disease, heightened susceptibility to other opportunistic infections, graft rejection, and elevated morbimortality. Despite advancements in prevention and treatment, CMV reactivation and its associated problems remain significant concerns following allo-HSCT.

OBJECTIVE

Deepen the understanding of CMV reactivation associated risk factors in allo-HSCT recipients and its impact on patient survival post-transplantation.

CASUISTIC

Data were collected from patients and their donors' medical records. Inclusion criteria encompassed individuals of all genders, races, and ages with any hematological disease, possibly including those with a history of prior HSCT, and a minimum follow-up period of 100 days.

METHODS

A retrospective observational cohort study included 83 allo-HSCT recipients at a private hospital in Belo Horizonte, Brazil from 2019 to 2022. Data covered clinical, lab, and procedural aspects. Statistical analyses were in RStudio v2023.12.0, with $p < 0.05$ as significant. Fisher's exact test assessed qualitative variables. Overall survival used Kaplan-Meier method. The assessment of risk factors for CMV reactivation was carried out using the Cox model, with the results presented by hazard ratio (HR) and respective 95% confidence intervals (CI). The variables were included in a full model, and using the backward strategy, the final model was reached. To evaluate the effect of CMV reactivation as a risk factor for death, a Cox model of competing risks was constructed. The results were presented as HR and 95% CI for the general model and marginal models. The proportionality of risks in the Cox models was assessed using Schoenfeld residuals.

RESULTS

The median age of cohort patients was 43.4 years, in which 53.3% were female. The most frequent indication for allo-HSCT was acute myeloid leukemia (30.1%), followed by myelodysplastic syndrome (18.1%). The CMV reactivation occurred in 60.2% of cases, and the median time to CMV DNAemia was 32 days. Few patients presented CMV endo-organ disease (90.4% systemic disease-free), and gastrointestinal involvement was the most common (4.8%). In multivariate analysis, risk factors for CMV reactivation included acute lymphoblastic leukemia (p=0.012), mismatch unrelated donors (p=0.029), and graft-ver-

sus-host disease (GVHD)(p=0.007). Overall survival was 50.7%, however, CMV reactivation was not significantly associated with mortality after controlling for confounding factors.

CONCLUSION

Understanding CMV recurrence risk factors can improve treatment customization for patients, reducing end-organ disease and minimizing post-transplant complications. Our findings emphasize HLA-mismatch, and GVHD as significant risk factors. The relationship between CMV-serostatus and mortality is complex, requiring further investigation with larger cohorts.

KEYWORDS

Cytomegalovirus, hematopoietic stem cell transplantation, allogenic transplantation

BONE MARROW TRANSPLANTATION IN PATIENTS INFECTED WITH HIV: RESULTS IN A SINGLE CENTER

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INTRODUCTION

Lymphomas are an important complication of HIV infection and are a significant cause of morbidity and mortality. The most common HIV-associated lymphomas are diffuse large B-cell lymphoma (DLBCL) and Burkitt lymphoma (BL). The T-cell lymphoma is a rare subtype. Nowadays, after the use of the highly active antiretroviral therapy (HAART), improved outcomes in treatment of HIV associated lymphomas have been achieved and patients with good HIV control can withstand intensive therapies, including autologous and even allogeneic hematopoietic stem cell transplantation, requiring, however, additional care with prophylaxis and drug toxicity.

OBJECTIVE - To describe the clinical evolution of patients living with HIV undergoing HSCT in a public service in the Northeast.

METHODS - We included datas of BMT realized in our service from 2020 until February 2024, in patients infected with HIV.

RESULTS

We realized 174 autologous BMT and 116 allogeneic BMT. Only four patients had HIV infection. All of them were autologous. 2 males and 2 females, aged below 30-40 years old. 2 patients without comorbidities and 2 with diabetes. The diagnosis are one large B cell lymphoma and three T cell lymphoma (2 periferic and 1 anaplastic ALK negative). Response pre BMT: 3 partial responses and 2 completed responses. All of them used the same HAART: dolutegravir, lamivudine and tenofovir. Three patients had viral charge undetectable before transplant, one had 104 copies before transplant and 61 copies after with 104 of CD4 count.

All of them used mobilization with vinorelbine and GCSF. It was realized 1 apheresis to collected. The conditioning was Carmustine, citarabine, etoposide and cyclophosphamide in 3 patiets and the other one used lomustine. The CD34 infusions 3,6-8,9x10e6/Kg the recipient. The recovery of neutrophils are at media D+9, plaquets D+16 the same results in patients without HIV and 27 days at inpatient (22 days is the media without HIV). The toxicity: 2 mucositis grade 3, 2 diahrrea grade 3 and 1 with kidney toxicity grade 4. The last patient changed from tenofovir to abacavir. One had septic shock (febrile neutropenia) and 2 with positive culture (Pseudomonas aeruginosa multidrug resistant and Sphingomonas paucimobilis).

Two patients had complete response at D+100, but only 1 patient had documented complete response still at D+360. PET CT was unavailable for one patient.

CONCLUSION

Surprisingly, in this series of cases, the most frequent subtype was T cell lymphoma. There was no difference in time for grafting and post transplant infections compared to patients without HIV, as seen in previous studies, but we had more toxicity grade 3, and one patient had to change drug from tenofovir to abacavir, because of kidney toxicity.

The unavailability of PET CT makes it difficult to evaluate the response and follow-up of these patients.

REFERENCES

Noy A. Optimizing treatment of HIV-associated lymphoma. Blood. 2019 Oct 24;134(17):1385-1394. doi: 10.1182/blood-2018-01-791400. PMID: 30992269; PMCID: PMC7493463.

Berhan A, Bayleyegn B, Getaneh Z. HIV/AIDS Associated Lymphoma: Review. Blood Lymphat Cancer. 2022 Apr 29;12:31-45. doi: 10.2147/BLCTT.S361320. PMID: 35517869; PMCID: PMC9063794.

Hübel K. The Changing Landscape of Lymphoma Associated with HIV Infection. Curr Oncol Rep. 2020 Aug 15;22(11):111. doi: 10.1007/s11912-020-00973-0. Erratum in: Curr Oncol Rep. 2021 Aug 9;23(10):121. PMID: 32803474; PMCID: PMC8302507.

Wang C, Liu J, Liu Y. Progress in the Treatment of HIV-Associated Lymphoma When Combined With the Antiretroviral Therapies. Front Oncol. 2022 Jan 13;11:798008. doi: 10.3389/fonc.2021.798008. PMID: 35096597; PMCID: PMC8792758.

Shindiapina P, Pietrzak M, Seweryn M, McLaughlin E, Zhang X, Makowski M, Ahmed EH, Schlotter S, Pearson R, Kitzler R, Mozhenkova A, Le-Rademacher J, Little RF, Akpek G, Ayala E, Devine SM, Kaplan LD, Noy A, Popat UR, Hsu JW, Morris LE, Mendizabal AM, Krishnan A, Wachsman W, Williams N, Sharma N, Hofmeister CC, Forman SJ, Navarro WH, Alvarnas JC, Ambinder RF, Lozanski G, Baiocchi RA. Immune Recovery Following Autologous Hematopoietic Stem Cell Transplantation in HIV-Related Lymphoma Patients on the BMT CTN 0803/AMC 071 Trial. Front Immunol. 2021 Sep 3;12:700045. doi: 10.3389/fimmu.2021.700045. PMID: 34539628; PMCID: PMC8446430.

CHARACTERIZATION OF INFECTIONS AFTER THE FIRST YEAR OF HEMATOPOIETIC STEM CELL TRANSPLANTATION AT A BRAZILIAN REFERENCE CENTER

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) represents a significant therapeutic advancement. It involves the replacement of diseased or deficient bone marrow with healthy cells to restore hematopoiesis. Following transplantation, patients become susceptible to infections, which are closely linked to elevated rates of morbidity and mortality. The risk of infections is directly related to factors such as alternative donor utilization, novel immunosuppressive agents, and other procedure-related measures that directly influence the type and intensity of immunosuppression. Consequently, managing infections in HSCT recipients is primarily contingent upon local epidemiology and the unique characteristics of each patient and the specific type of transplantation performed.

OBJECTIVE

The objective of this study was to analyze the types of infections that affected patients after HSCT.

METHOD

We conducted a cross-sectional study involving 71 patients with hematological cancers who underwent hematopoietic stem cell transplantation within the first year at a public institution in Northeast Brazil. Data were extracted from patient records at an outpatient clinic within a regional reference center. The inclusion criteria encompassed patients aged 18 to 66 years who underwent the procedure in 2018. Variables considered included age, sex, transplant type, underlying disease, infection types, and duration of hospitalization.

RESULTS

Our findings revealed that 36 (50.7%) patients were female, with a mean age of 45 ± 15 years. Among them, 22 (31%) had completed secondary education, 47 (66.2%) were married, and 64 (90.1%) had a mixed racial background. Autologous transplantation (49; 59.2%) was the most common type, followed by allogeneic transplantation (19; 26.8%). Bacterial infections predominated (71%), followed by viral (39%) and fungal (29%) infections. The most prevalent etiological agent was Staphylococcus epidermidis. Notably, 15% of patients experienced three or more hospitalizations due to infections. The median length of stay during hospitalizations was 22 days, with an interquartile range of 16 to 37 days. Additionally, a mortality rate of 28% was observed. Autologous transplantation was the predominant procedure, and leukemia was the primary underlying disease among those who developed infections.

CONCLUSIONS

Given the findings, the importance of epidemiological analyses in post-HSCT patients cannot be overstated. Understanding patient profiles allows stakeholders involved in the entire process to establish parameters for infection prevention, thereby minimizing readmissions and substantially reducing mortality risk. The research project received ethical approval from the Research Ethics Committee of HUWC under protocol number 43965121.3.0000.5045.

KEYWORDS - Hematological cancer. Hematopoietic stem cell transplantation. Infectious diseases.

EPIDEMIOLOGICAL PROFILE IN BLOOD CULTURES OF PATIENTS HOSPITALIZED IN A HEMATOLOGY AND BONE MARROW TRANSPLANT UNIT OF A UNIVERSITY HOSPITAL

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INTRODUCTION

Healthcare-Associated Infections (HAIs) constitute a serious public health problem due to their detrimental impact on patients' clinical outcomes, in addition to being associated with high mortality rates, especially in immunocompromised patients, such as individuals undergoing bone marrow transplantation or those with hematological disorders. Numerous microorganisms are considered potential causes of HAIs, with emphasis on some highly pathogenic and multiresistant species to antimicrobials. In this context, conducting epidemiological surveillance within hospital settings targeting high-risk patient groups is crucial for combating these infections and guiding empirical antimicrobial therapy decisions, surveillance measures are essential in combating these infections and decision-making during the adoption of empirical antimicrobial therapies.

AIM

To examine the microbiological profile of patients who underwent blood cultures upon admission to a Hematology and Bone Marrow Transplant unit of a university hospital at Brazil.

CASUISTRY

The study comprised patients admitted to the Hematology and Bone Marrow Transplant unit of a university hospital who exhibited at least one positive result in microbiological cultures between July 2022 to June 2023.

METHOD

This was an epidemiological, descriptive, retrospective study employing a quantitative approach of positive blood samples obtained from microbiological cultures. Data collection was conducted by the Microbiology Sector of the hospital's Central Clinical Analysis Laboratory through the REDCap management system. For clinical and demographic characterization of patients, the most recent result was selected in the case of patients where there was more than one positive sample during the analyzed period. The analysis of isolated microorganisms used the entire sample of positive blood cultures. Data analysis was performed using the statistical software R (Version 4.3.3) to determine the 95% Confidence Interval (95% CI).

RESULTS

During the study period, 546 blood cultures were conducted, 126 (23.08%) of which were positive, involving 72 individual patients. The mean age of the patients was 43.96 years, with ages ranging from 19 to 75 years. Among these 72 patients, 26 (36.11%) experienced death as a clinical outcome. Detailed clinical and demographic characteristics of the study participants are provided in Table 1. More than 25 species of microorganisms were identified among the 126 positive samples, with 88 (69.84%) isolates being Gram-negative bacteria, 33 (26.19%) Gram-positive bacteria and 5 (3.97%) yeast. The main isolated species belonging to each group mentioned can be seen in tables 2, 3 and 4.

CONCLUSIONS

Conducting epidemiological studies in microbiology is imperative for guiding healthcare professionals in clinical practice, especially for the management of immunocompromised patients, such as those undergoing bone marrow transplant or suffering from hematological diseases.

TABLE 1 - Clinical and demographic characteristics of patients admitted to the Hematology and Bone Marrow Transplant sectors associated with microbiological culture evaluated from July 2022 to June 2023 at a university hospital at Brazil.

Variables (n= 72)	N	%	IC 95%
Sex			
Masculine	37	51,39	39,41 - 63,22
Feminine	35	48,61	36,78 - 60,59
Age			
Average (years)	43,96	-	-
Minimum-maximum (years)	19 - 75	-	-
Length of stay			
Average (days)	30,84	-	-
Minimum-maximum (days)	2-191	-	-
Clinical Outcome			
Hospital discharge	46	63,89	51,65 - 74,63
Death	26	36,11	25,37 - 48,35

Source: Author's construction.

TABLE 2 - Gram-negative bacteria isolated from blood cultures of patients admitted to the Hematology and Bone Marrow Transplant sectors evaluated from July 2022 to June 2023 at a university hospital at Brazil.

Isolated Gram negative microorganisms (n= 88)	N	%	IC 95%
Klebsiella pneumoniae	28	31,82	22,52 - 42,72
Pseudomonas aeruginosa	20	22,72	14,75 - 33,13
Escherichia coli	12	13,64	7,55 - 22,99
Acinetobacter baumanii	6	6,82	2,81 - 14,81
Enterobacter cloacae	4	4,54	1,47 - 11,87
Serratia marcescens	4	4,54	1,47 - 11,87
Stenotrophomonas maltophilia	3	3,42	0,88 - 10,34
Burkholdeira cepacia complex	2	2,28	0,39 - 7,05
Other Gram negative isolates	9	10,22	5,07 - 18,99

Source: Author's construction.

TABLE 3 – Gram-positive cocci isolated from blood cultures of patients admitted to the Hematology and Bone Marrow Transplant sectors evaluated from July 2022 to June 2023 at a university hospital at Brazil

Isolated Gram negative microorganisms (n= 33)	N	%	IC 95%
Staphylococcus epidermidis	13	39,40	23,43 - 57,76
Staphylococcus hominid	9	27,27	13,94 - 45,78
Staphylococcus aureus	2	6,06	1,06 - 21,62
Staphylococcus haemolyticus	2	6,06	1,06 - 21,62
Streptococcus spp.	2	6,06	1,06 - 21,62
Coagulase-Negative Staphylococcus	2	6,06	1,06 - 21,62
Enterococcus spp.	2	6,06	1,06 - 21,62
Other isolated coconuts	1	3,03	0,16 - 17,52

Source: Author's construction.

TABLE 4 – Yeast isolated from blood cultures of patients admitted to the Hematology and Bone Marrow Transplant sectors evaluated from July 2022 to June 2023 at a university hospital at Brazil

Isolated Gram negative microorganisms (n= 5)	N	%	IC 95%
Candida parapsilosis	3	60,00	17,04 - 92,74
Candida albicans	1	20,00	1,05 - 70,12
Candida tropicalis	1	20,00	1,05 - 70,12

Source: Author's construction.

GASTROINTESTINAL HISTOPLASMOSIS IN A PATIENT WITH MULTIPLE MYELOMA AFTER AUTOLOGOUS BONE MARROW TRANSPLANTATION: ORAL ULCER DIFFERENTIAL DIAGNOSIS. CASE REPORT

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Histoplasmosis is an opportunistic fungal disease caused by Histoplasma capsulate. In immunocompetent patients, it is generally asymptomatic. However, in immunocompromised host it can cause different clinical subtypes as pulmonary, disseminated, or gastrointestinal presentation. Immunocompromised patients, such as those with hematological malignancies, can be infected by Histoplasmosis and the prognostic is poor if several organs are affected. The incidence of histoplasmosis after HSCT is believed to be rare. There are few reports in the literature of histoplasmosis infection in Hematologic patients in patients who underwent autologous bone marrow transplantation (BMT) has been described. Mainly in non-endemic areas of the disease. The purpose of this case report is to highlight the importance of histoplasmosis in the differential diagnosis of those patients with a clinical history oral ulcers and non bacterial diarrhea. Outside endemic areas it might be under diagnosed even in immunocompromised patients so it could be a challenging diagnosis. The present case highlights the unusual, but possible, clinical scenario of Histoplasmosis gastrointestinal involvement after autologous stem cell transplant in a Myeloma patient.

CASE

P.H.D.S.M, male, 52 years old, with light chain (Kappa) multiple myeloma, ISS3 B treated with Daratumumab, Bortezomib, Lenalidomide and dexamethasone (DVD) 6 cycles and Autologous Stem cell transplant. On the 65th day after transplant he presented diarrhea, fever and multiple shallow oral mucosal ulcers, with a yellowish fibrinopurulent background with painless perilesional hyperemia. It was suspected to be Cytomegalovirus infection (CMV), despite negative quantitative PCR test. Oral and GI biopsy were performed and he was started on venous ganciclovir treatment. The oral biopsy result showed no viral inclusion but ulcered lesion infiltrated by neutrophils, lymphocytes and macrophages. The Macrophage cytoplasm showed many roundish structures compatible with Histoplasma Capsulatum. Gancyclovir was changed to Liposomal Amphotericin B. The patient improved diarrhea resolved and oral ulcers healed.

CONCLUSION

We report a case of gastrointestinal histoplasmosis infection in a Myeloma patient after autologous stem cell transplant and DVD treatment. Thus, we recall the attention for the importance of histoplasmosis suspicion as a differential diagnosis in patients undergoing stem cell transplant and possibly the impact of new immunotherapies for MM treatment.

KEYWORDS

Histoplasmosis, multiple myeloma, autologous bone marrow transplantation

GRAM NEGATIVE BACILLI CARBAPENEMASE PRODUCERS: AN EMERGING CHALLENGE IN HEMATOLOGY AND BONE MARROW TRANSPLANTATION UNIT

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INTRODUCTION

Bacterial multidrug resistance is a significant factor contributing to the severity of Healthcare-Associated Infections (HAIs), posing a substantial public health challenge. In most cases, this resistance is mediated by proteolytic enzymes capable of degrading and/or inactivating antimicrobial agents, reducing their therapeutic efficacy and compromising patient treatment outcomes. Gram-negative bacteria are particularly notable in this context because they include several highly virulent species that produce such enzymes, with resistance to carbapenems, being one of the biggest concerns for the clinic due to the wide use of the class in the treatment of these infections. Investigating the enzymatic resistance mechanisms, particularly carbapenemases and the genes responsible for their synthesis is a fundamental step to guide the choice of antibiotics in empirical therapy.

AIM- To analyze the sensitivity profile and resistance mechanisms in strains of Pseudomonas aeruginosa and Klebsiella pneumoniae, isolated from blood cultures of patients admitted to the Hematology and Bone Marrow Transplant units of a university hospital.

CASUISTRY

The study included isolates from Pseudomonas aeruginosa and Klebsiella pneumoniae, obtained from positive blood cultures of patients admitted to the Hematology and Bone Marrow Transplant units of a university hospital, from July 2022 to June 2023.

METHOD

This was an epidemiological, descriptive, retrospective study, with a quantitative approach to positive blood culture samples. The data was collected by the Microbiology Sector of the hospital's Central Clinical Analysis Laboratory through the REDCap management system. The statistical program R (Version 4.3.3) was used in data analysis to perform Pearson's Chi-square test ($\chi 2$) and determine the 95% Confidence Interval (95% CI). Significance level applied in all tests was 5%, it was considered significant when $p<0.05$.

RESULTS

Throughout the study period, a total of 28 samples positive for Klebsiella pneumoniae, with 16 of them categorized as Carbapenem-Resistant Enterobacteriaceae (CRE). Regarding Pseudomonas aeruginosa, 20 strains were isolated, with 9 of them classified as Pseudomonas aeruginosa Resistant to Carbapenems (CRPA). The isolation percentages and the resistance genes identified in each resistant strain are detailed in tables 1 and 2. Tables 3 and 4 present the antibiotic sensitivity profiles of the bacteria included in this investigation. Additionally, the relationship between clinical outcomes and the presence of a carbapenem resistance mechanisms in these species can be seen observed in tables 5 and 6.

CONCLUSIONS

Conducting data collection on bacterial resistance profiles is essential for guiding healthcare professionals in clinical practice, especially in the management of immunocompromised patients, while contributing to the assertive use of antibacterial treatments.

KEYWORDS - Carbapenemase. Antimicrobial therapy. Hematology.

TABLE 1 – Gram-negative bacteria isolated from blood cultures of patients admitted to the Hematology and Bone Marrow Transplant unit evaluated from July 2022 to June 2023 at a university hospital.

Gram-negative microorganisms isolated (n= 48)	N	Sensitive to carbapenems (n)	Sensitive to carbapenems (%)	IC 95%
Klebsiella pneumoniae	28	9	32,14	16,58 - 52,43
Pseudomonas aeruginosa	20	8	40,00	19,97 – 63,58

TABELA 2 – Microorganisms resistant to carbapenems isolated and resistance genes identified in bacteria producing serina-beta lactase and metallo-beta lactamase, from patients admitted to the Hematology and Bone Marrow Transplant unit evaluated from July 2022 to June 2023 in a hospital university.

Microbiological characteristics	N=31	(%)	IC de 95%
Identified bacteria			
Klebsiella pneumoniae	19	61,29	42,28 – 77,58
Pseudomonas aeruginosa	12	38,71	22,42 – 57,72
Identified resistance gene			
KPC	21	67,74	48,53 – 82,67
NDM	05	16,12	6,09 – 34,47
Co-producers KPC/NDM	01	3,23	0,17 – 18,51
Nom tested	04	12,91	4,22 – 30,76

TABLE 3 – Sensitivity test of infections caused by serine-beta lactamase-producing bacteria, in patients admitted to the Hematology and Bone Marrow Transplant unit evaluated from July 2022 to June 2023 at a university hospital.

Antibiotic	Sensitivity (%)	Resistance (%)
Ampicillin	0	100
Ampicillin/sulbactam	0	100
Piperacycline/tazobactam	0	100
Cefuroxime	0	100
Ceftazidime	0	100
Ceftriaxone	0	100
Cefepime	0	100
Imipenem	0	100
Meropenem	0	100
Ciprofloxacin	0	100
Ceftazidime - avibactam	60	40
Amicacin	33,33	66,66
Gentamicin	26,66	73,33
Colistin	53,33	46,66

TABLE 4 – Sensitivity test of infections caused by metallo-beta lactamase-producing bacteria, in patients admitted to the Hematology and Bone Marrow Transplant unit evaluated from July 2022 to June 2023 at a university hospital.

Antibiotic	Sensitivity (%)	Resistance (%)
Ampicilin	0	100
Ampicilin/sulbactam	0	100
Piperacycline/tazobactam	0	100
Cefuroxime	0	100
Ceftazidime	0	100
Ceftriaxone	0	100
Cefepime	0	100
Imipenem	0	100
Meropenem	0	100
Ciprofloxacin	0	100
Amicacin	55,55	44,44
Gentamicin	66,66	33,33
Colistin	100	0

TABLE 5 – Clinical outcome associated with carbapenem-resistant Pseudomonas aeruginosa in patients admitted to the Hematology and Bone Marow Transplant unit evaluated from July 2022 to June 2023 at a university hospital.

Resistences (n=31)		Clinical outcome		p-value
		Discharge	Death	
Pseudomonas aeruginosa resistant to carbapenems (n= 12)	N	04	08	0,409
	%	33,33	66,67	
Pseudomonas aeruginosa sensible to carbapenems (n= 8)	N	05	03	
	%	62,50	37,50	
Total (n= 20)	N	09	11	
	%	100	100	

TABLE 6 – Clinical outcome associated with carbapenem-resistant Klebsiella pneumoniae in patients admitted to the Hematology and Bone Marrow Transplant unit evaluated from Junuary to December 2022 at a university hospital.

Resistances		Clinical outcome		p-valor
		Discharge	Death	
Klebsiella pneumoniae resistant to carbapenems (n= 19)	N	08	11	0,993
	%	42,11	57,89	
Klebsiella pneumoniae sensible to cabapenems (n=09)	13	04	05	
	%	44,45	55,55	
Total (n= 28)	28	12	16	
	%	100	100	

HEMORRHAGIC CYSTITIS DUE TO ADENOVIRUS INFECTION IN ALLOGENEIC TRANSPLANT RECIPIENT

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INTRODUCTION

Hemorrhagic cystitis (HC) is a common complication following allogeneic hematopoietic cell transplantation (HCT), occurring in approximately 30% of recipients. It is a cause of prolonged hospitalization and reduced quality of life due to symptoms such as urgency, polyuria, and dysuria. Risk factors for hemorrhagic cystitis include alternative donor, donor age, use of busulfan, ATG and cyclophosphamide (rare cause due to mesna prophylaxis), total body irradiation, and identification of CMV and BKV (detected in approximately 80% of HC) in urine.

OBJECTIVE

To describe a case of hemorrhagic cystitis due to adenovirus infection in a patient undergoing allogeneic HCT.

METHODS - Review of medical records and local databases.

RESULTS

A 20-year-old male patient diagnosed with T-cell lymphoblastic lymphoma in first remission underwent allogeneic HCT with matched-unrelated donor. Myeloablative conditioning with busulfan and cyclophosphamide (BUCY) was used. GVHD prophylaxis consisted of cyclosporine and methotrexate. Anti-thymocyte globulin (ATG) was used at a total dose of 4.5 mg/kg.

During hospitalization, he presented febrile neutropenia, viral infection with Parainfluenza 3 and coronavirus OC43, and grade 3 mucositis. On day +24 post-transplant, cytomegalovirus reactivation was identified, and preemptive treatment was initiated. On day +45, he developed symptoms of dysuria, polyuria, and hematuria.

He was admitted for supportive measures with bladder irrigation and tapering of immunosuppression, leading to resolution of hematuria. Further investigation revealed undetectable CMV and BK virus, and detectable adenovirus in both serum and urine.

CONCLUSIONS

The differential diagnosis of hemorrhagic cystitis in the context of post-allogeneic transplantation includes adverse drug effects, acute GVHD, viral (BKV, JCV, CMV, and AdV), and bacterial infections. Hemorrhagic cystitis due to viral infection still lacks effective methods for prophylaxis and treatment in order to mitigate its high morbidity.

FIGURE 1- Urine amplification plot. Kit Multiplex Neuro 9 (Xgen, Mobius)/QuantStudio 5

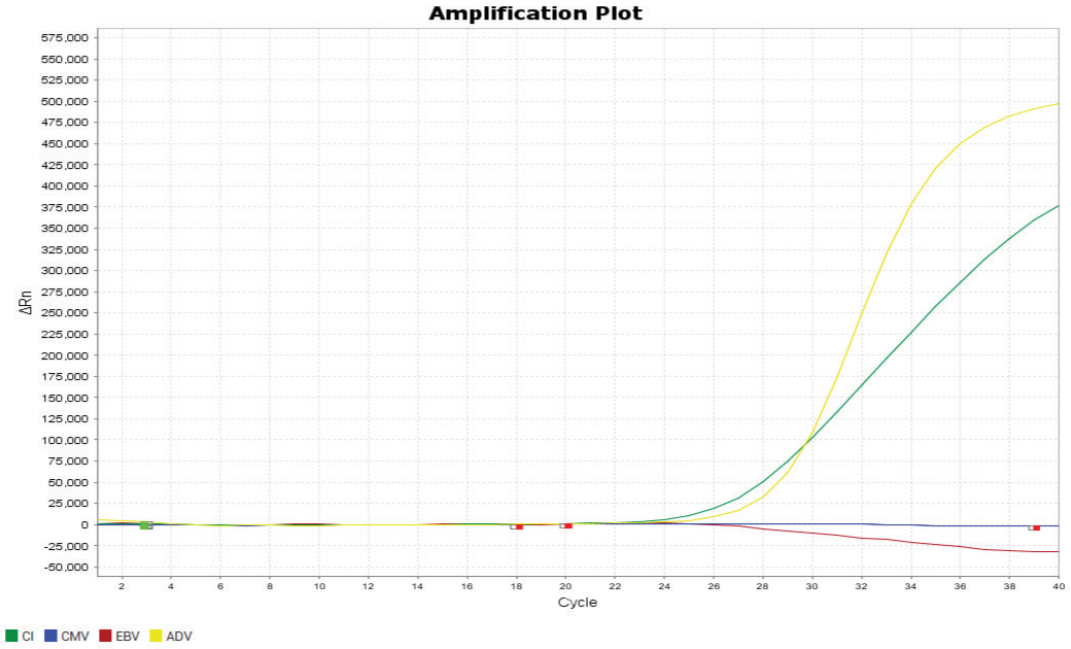
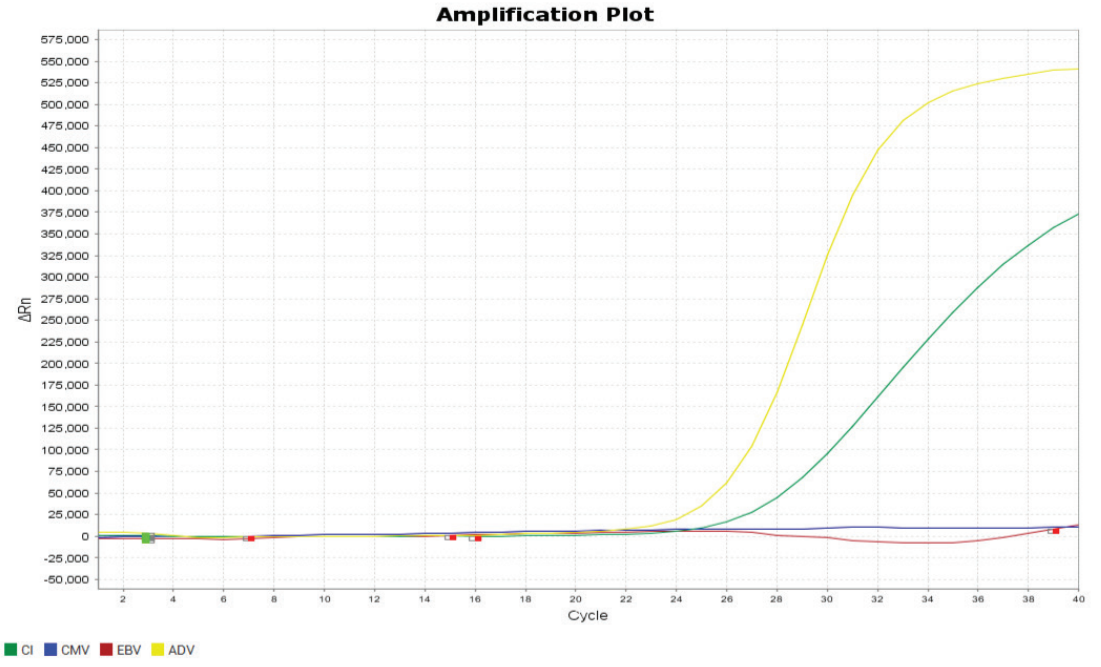


FIGURE 2 - Serum amplification plot. Kit Multiplex Neuro 9 (Xgen, Mobius)/QuantStudio 5



HERPES VIRUS TYPE 7 (HHV-7) INFECTION AS A DIFFERENTIAL DIAGNOSIS FOR FEVER AND DISSEMINATED SKIN RASH IN A PATIENT UNDERGOING AUTOLOGOUS BONE MARROW TRANSPLANTATION FOR NON-HODKING LYMPHOMA

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INTRODUCTION

Infections in the period after autologous bone marrow transplantation are commonly observed phenomena, with bacterial infections being the predominant ones. Viral infections are less common in the period of aplasia that follows autologous bone marrow transplantation, and there are no data on the incidence of HHV-7 reactivation in this transplant model.

OBJECTIVE

To report the case of a patient who underwent autologous bone marrow transplantation as consolidation therapy for mantle cell lymphoma in 2023, whose conditioning was carried out with the R BEAM protocol, evolvinf on D-1 of the transplant with fever and rash type scarlatiniform with cranio-caudal dissemination, having tested positive for HHV-7.

METHOD

The patient developed fever and rash with cranio-caudal dissemination, and cefepime and vancomycin were startes, with the former being discontinued and replaced by meropenem due to the possibility of associating the worsening of the rash with pharmacodermia induced by cephalosporin, with no improvemente in rash after such replacement. On D0 (zero) of the transplant, viral multiplex was collected in peripheral blood, which showed the presence of HHV-7. Despite the rash, he had a good general condition and neutrophilic engraftment on D+10.

RESULTS

The patient showed improvement in fever after neutrophilic grafting and disseminated rash after starting low-dose systemic corticosteroid therapy on D+14, which was used for a short period of time, with complete resolution of the rash. Conclusion: HHV-7 is a virus that commonly infects children, with the ability to remain latent for life in CD34+ hematopoietic stem cells and reactivate in immunodeficient adults and may be associated with skin rash.

KEYWORDS

Lymphoma, Non-Hodgkin; Herpesvirus 7, Human; Transplantation, Autologous

INTRAVENOUS AND INTRAVESICAL CIDOFOVIR FOR ADENOVIRUS HEMORRHAGIC CYSTITIS: A CASE REPORT AND A REVIEW OF THE LITERATURE

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INTRODUCTION

Hemorrhagic cystitis (HC) is a frequent complication after haematopoietic cell transplantation (HCT). The main risk factor is infection by polyomavirus BK (BKPyV), whereas other viruses such as adenovirus (ADV), cytomegalovirus and JC polyomavirus have been rarely implicated. The diagnosis of HC is defined by the presence of macrohematuria (>grade 2), of clinical symptoms/signs of cystitis (dysuria, increased urinary frequency, lower abdominal pain) and of high-load viruria.

CASE REPORT

A 56-year-old male patient diagnosed with high-risk myelodysplastic syndrome with excess blast 1 (MDS-EB1) underwent first-line treatment with a matched related donor allogeneic HCT. Conditioning regimen consisted of fludarabine (30 mg/m^2, 5 days) and intravenous (IV) busulfan (3.2 mg/kg, 2 days). GVHD prophylaxis consisted of post-cyclophosphamide and cyclosporine. On day 43, the patient presented with dysuria, abdominal cramps, gross hematuria with clots and PCR assay detected ADV (12 x 109 genome/mL). Despite supportive therapies, immunosuppressant tapering, administration of antibiotics and administration of intravenous immunoglobulin (IVIG), these symptoms persisted. On day 45, acute skin grade 2 GVHD occurred, and systemic steroid administration was initiated and promptly improved. On day 72, IV cidofovir (CDV; 5mg/kg/week) was initiated along with probenecid but as renal dysfunction, bilateral hydronephrosis due to urinary tract cloth obstruction and medullary toxicity developed, no further doses were administered. On day 464, a new episode of ADV HC presented and intravesical CVD was preferred because of chronic renal dysfunction and poor graft function, and symptoms improved dramatically without showing any systemic side effects.

DISCUSSION

HC is multifactorial and includes the combined effects of the extensive viral cytopathic damage of the bladder mucosa, the chemical or actinic damage induced by the conditioning regimen and the immune donor-derived alloreactivity targeting bladder mucosa. Administration of IV CDV, an acyclic nucleoside analogue with broad-spectrum activity DNA viruses, has been reported to be effective for viral HC, but it can cause several nephrotoxicity. The renal toxicity can be limited by saline hydration and by the use of probenecid that inhibits the capture and transport of cidofovir into the renal tubular epithelial cells. Alternatively, CDV can be administered intravesically to reduce this risk, at the dose of 5 mg/kg/body weight/week and left in situ for 1–2 h after clamping the vesical catheter, with response rate being about 50%.

CONCLUSION

The standard management of severe viral HC after allo-HSCT has not been established. Clinical general measures and antiviral agents administration such as CDV has been reported to be effective but nephrotoxicity is a major limiting factor. Intravesical route of administration can be a safe option.

KEYWORDS

1: hemorrhagic cystitis 2. adenovirus 3. hematopoietic stem cell transplantation.

LATE REACTIVATION OF CYTOMEGALOVIRUS IN A POST BONE MARROW TRANSPLANT PATIENT USING DASATINIB

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INTRODUCTION

Cytomegalovirus (CMV) reactivation disease is common in patients with suppressed cytotoxic T cell-mediated immunity, such as in hematopoietic stem cell transplantation (HSCT). Dasatinib is a tyrosine kinase inhibitor (TKI) that, in addition to BCR-ABL, can also suppress kinases from the SRC and TEC families, inhibiting the immune response of T lymphocyte subpopulations, compromising key mechanisms that prevent CMV reactivation. Therefore, dasatinib is potentially associated with infections, with a potential increased risk of CMV reactivation after HSCT (adjusted hazard ratio, 7.65; 95% confidence interval, 1.84 – 31.7).

OBJECTIVE

Report a case of late CMV reactivation during dasatinib maintenance after HSCT, without concomitant association with other immunosuppressive agents.

METHOD

Case report. Data obtained via clinical records. Retrospective. Observational.

CASE REPORT

Male patient, 52 years old, underwent unrelated allogeneic HSCT in May 2023 for Philadelphia chromosome-positive B-ALL, busulfan conditioning and cyclophosphamide (reduced intensity), graft-versus-host disease (GVHD) prophylaxis with thymoglobulin, cyclosporine and methotrexate, male donor. On D+34, there was reactivation of CMV and hemorrhagic cystitis due to BK virus, with good evolution after 14 days of ganciclovir and bladder irrigation. On D+84, cyclosporine was suspended and in the subsequent weeks there were no infectious complications or GVHD. On D+246, while maintaining dasatinib and without the use of immunosuppressants, he presented with intermittent diarrhea, associated with fatigue and lymphocytosis. Multicolor Cytometry Flow Peripheral blood was performed, which ruled out lymphocyte clonality, and the cause of colitis was confirmed with a positive CMV PCR (65,939 copies). Dasatinib was suspended and Valganciclovir was started, with rapid resolution of symptoms and negative PCR results after 36 days of treatment. After the end of the antiviral, ITK was restarted, without new CMV reactivation to date, while secondary prophylaxis with valganciclovir was in effect.

CONCLUSIONS

It's likely that the late CMV reactivation was triggered by the immunosuppressive effects of dasatinib. Therefore, despite the need for larger cohorts and randomized studies, it's prudent to closely monitor CMV reactivation in post-HSCT patients using dasatinib or other ITKs.

KEYWORDS

UNRELATED DONOR, IMMUNOSUPRESSION, TYROSINE KINASE INHIBITOR

MANAGEMENT OF HEPATITIS B VIRUS INFECTION IN HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hepatitis B virus (HBV) infection is an important public health problem. HBV reactivation is a serious but preventable complication of immunosuppression, which can result in liver damage of varying severity. HBV can be reactivated after loss of immune control induced by the institution of conditioning chemotherapy treatments for hematological stem cell transplantation (HSCT), autologous (auto-HSCT) or allogeneic (allo-HSCT), requiring specific indications for prevention of reactivation.

The indication for prophylactic treatment includes all HBsAg positive patients, considered at high risk for viral reactivation. Recipients with latent HBV (HBsAg negative, anti-HBc antibodies positive with or without anti-HBs antibodies) have a lower risk of HBV reactivation. However, the best strategy, in the latter case, is still to be preventive anti-HBV therapy with the use of antivirals (lamivudine or entecavir), which is more effective than administering treatment after the development of reactivation. Actually, it was agreed that the duration of the antiviral prophylaxis post-HSCT would be 6 months after completion of immunosuppressive therapy.

There are still no consolidated guidelines for the management of patients who receive stem cells from HBsAg-positive donors. Antiviral treatment to reduce circulating levels of HBV DNA in HBsAg-positive donors, induction of passive immunity in HBsAg-negative recipients using hepatitis B immunoglobulin, and prophylactic antiviral treatment of recipients are considered reasonable for the management of these donors.

GOAL

To analyze the rate of HBV reactivation in HSCT recipients with latent HBV infection using antiviral prophylaxis in an HSCT service at a university hospital.

CASUISTRY

Twelve patients positive for anti-HBc were included in the study. Eleven patients underwent auto-HSCT (10 used entecavir prophylaxis and 1 used lamivudine) and one patient underwent allo-HSCT, using entecavir prophylaxis.

METHOD

A retrospective descriptive study was carried out, analyzing electronic records of 12 patients from the HSCT service. Patients were evaluated for the possibility of antiviral reactivation during transplantation, using viral prophylaxis.

RESULTS

After analyzing the data, we identified in the study that no patient presented changes in transaminases or liver function that could be associated with HBV reactivation during transplantation. None of the patients had reverse seroconversion (seroconversion to a positive HBsAg status).

CONCLUSIONS

We concluded that the viral reactivation rate in HBV-infected patients undergoing HSCT and receiving entecavir prophylaxis, the rate of viral reactivation was non-existent. This underscores the importance and effectiveness of such prophylaxis in this patient population.

A point that requires further study is the strategy to accept HBsAg positive donors, with the aim of expanding the application of allo-HSCT in HBV endemic areas, allowing the inclusion of these donors.

KEYWORDS - Haematologic stem cell transplantation, HBV prophylaxis, HBV reactivation

MULTIDRUG-RESISTANT GRAM-NEGATIVE BACTERIA IN HEMATOLOGICAL PATIENTS: INSIGHTS FROM A COMPREHENSIVE CLINICAL, MICROBIOLOGICAL AND GENOMIC STUDY

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The emergence of multidrug-resistant (MDR) in Gram-negative bacteria (GN) is a global event that directly impacts lives lost, especially in patients with hematologic diseases. More data regarding MDR needs to be collected in Brazil. In this prospective study, we analyzed the microbiological profile of GN in a cohort of hematologic patients, including the characterization of phenotypic and genotypic resistance profiles, the presence of antimicrobial resistance genes, clonal distribution, and correlation with clinical outcome (30-day mortality).

METHODS

For this study, we prospectively followed hematological patients for 16 consecutive months. We studied GN from blood cultures or weekly surveillance swabs. Additionally, we conducted clinical follow-up, antimicrobial consumption tracking, and ward colonization density.

RESULTS

207 patients were followed, with a median age of 56 years, including MM (30%) and AML/MDS (24%), in 380 hospitalizations during the study period (median hospital stay of 28 days). 68% of hospitalizations were related to HSCT. Of the 207 patients, 60 (29%) developed GN- bloodstream infections (BSI), with 81% of BSI occurring during febrile neutropenia and 10% with polymicrobial etiology. The most frequent GN was Klebsiella (n=27), Escherichia (n=22), and Pseudomonas (n=13). Fourteen sequence types (STs) were identified among K. pneumoniae. ST11 strains formed a distinct cluster on the phylogenetic tree from other study strains, appearing in infections and colonization in different patients during the study. ST111, ST441, and ST15 strains were isolated in different patients, indicating horizontal transmission. Other STs did not repeat among patients. Antimicrobial resistance genes from infection and colonization strains were distinct, with the most frequent in K. pneumoniae infections being sul1 (45%), blaKPC-2 (41%), mphA (41%), blaOXA-1 (36%), blaCTX-M-15 (36%), and for colonization, they were strA (82%), strB (82%), blaTEM-1D (82%), blaOXA-1 (73%). Regarding carbapenemase presence, blaKPC-2, blaNDM-1, and blaKPC-25 were identified in different frequencies, but blaKPC-25 and blaNDM-1 were concomitantly present in one strain. In 8 patients, the initial identification of K. pneumoniae was reclassified as K. quasipneumoniae subsp. quasipneumoniae, all in colonization samples, by four distinct sequence types (ST1681, ST544, ST671, and ST1416). All strains presented carbapenemase profile, with ST671 presenting blaKPC-2, and all others presenting blaNDM-1. For E. coli, 14 sequence types were identified, with ST10, ST69, and ST127 isolated in more than one patient. All E. coli strains showed the acquisition of resistance genes. In outcome analysis, we identified different outcomes depending on ST, but the most impactful variable was appropriate empirical antimicrobial therapy (p=0.024).

CONCLUSION

We identified that most isolates were unrelated to horizontal acquisition, and there were different profiles between infection and colonization agents. We documented horizontal transmission in specific STs for Kp and E. coli. There is a wide variation of resistance genes, including plasmid-derived genes. K. quasipneumoniae may represent a reservoir of resistance genes. Studying the microbiological profile of clinical and colonization isolates, based on genomic sequencing data, provided a map of the dynamics of colonization vs. infection within an onco-hematology ward.

PARTIAL ANALYSIS OF THE COSTS OF VIRAL, BACTERIAL AND FUNGIC INFECTIONS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) consists of replacing deficient cells with healthy cells and contributes to healing by restoring the bone marrow after myeloablative cancer eradication treatments. Post-transplant infections of hematopoietic stem cells are considered important complications, being directly related to the high rates of morbidity and mortality, being responsible for the increase in health costs with hospitalization, inputs, drugs and greater use of technologies.

OBJECTIVE

To analyze the partial costs of viral, bacterial and fungal infections in post-transplanted patients of hematopoietic stem cells.

METHODS

This is a retrospective study of partial cost analysis, carried out using primary data in medical records of patients undergoing hematopoietic stem cell transplantation in 2018. The costs refer to the amount reimbursed by the Health Ministry to the hospital, based on the Management System of the Table of Procedures, Medicines and Orthoses, Prostheses and Special Materials of the SUS (SIGTAP). The unit of analysis was the transplanted patient, followed up in terms of costs and clinical events, such as the occurrence of infection. The estimate and association between the costs of transplantation and the occurrence of infection was carried out by means of a multivariate regression model. Infections were categorized into (bacterial infection, fungal infection, viral infection, viral and bacterial infection, viral, bacterial and fungal infection). The research was approved by the ethics and research committee of the Walter Cantídio-HUWC University Hospital, under statement Nº 4.686.566.

RESULTS

Were analyzed 71 medical records of patients who underwent HSCT in the period listed for the study. The patients were then divided into two groups according to the presence of infection, where we had 36 patients who had infections and 35 who did not have infections. In the research it was possible to observe that about 51% of patients had infection after HSCT, and of the total number of patients evaluated 71% developed bacterial infections, followed by viral (39%) and fungal infection (29%). The presence of infection was associated with higher financial expenses. As for the type of infection, it was observed that viral infection was related to higher financial costs (p=0.004), but when investigating groups that had or did not have bacterial infection or fungal infection), no statistical relevance was observed between the groups for financial expenses (p=0.113 and 0.147, respectively).

CONCLUSION

With this study it was possible to analyze the costs of infections in post-transplanted patients of hematopoietic stem cells. The results show an increase in hospital costs due to the occurrence of infections, especially when it comes to viral infection, which can directly impact the success of the proposed treatment.

KEYWORDS - Cost Analysis. Infections. Hematopoietic Stem Cell Transplant.

PNEUMOCYSTIS PNEUMONIA (PCP) DIAGNOSED THROUGH THE KARIUS TEST IN A STEM CELL TRANSPLANTATION RECIPIENT

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INTRODUCTION

Pneumocystis pneumonia (PCP) is a serious infection that can occur in immunocompromised patients. Traditionally, diagnosing PCP involves bronchoalveolar lavage (BAL), an invasive procedure that can delay diagnosis. Early diagnosis is crucial for successful treatment of PCP, but current diagnostic methods have limitations.

The Karius test, a next-generation sequencing (NGS)-based blood assay, offers a promising alternative that may detect PCP in blood samples, avoiding invasive procedures and potentially reducing costs. Studies have shown the Karius test to be highly sensitive and specific for PCP, making it a promising tool for improving diagnosis and outcomes.

OBJECTIVES

To report a case of pneumocystis pneumonia diagnosed using the Karius test in a stem cell transplant recipient with persistent fever.

CASE PRESENTATION

A 61-year-old female patient from São Paulo underwent an unrelated donor bone marrow transplantation for high-risk acute myeloid leukemia with conditioning FluBu 9.6 + ATG 4.5 and GVHD prophylaxis with mycophenolate and sirolimus. Infectious prophylaxis consisted of trimethoprim/sulfamethoxazole until D+180, voriconazole during neutropenia, and aciclovir for one year post-transplant. At D+122, the patient developed xerostomia, dry eye, and vaginal dryness, which were refractory to steroids and responded to ruxolitinib. The patient presented with persistent fever and dry cough at D+284. An exhaustive viral and bacterial investigation (viral panel and sputum culture) yielded no definitive results. At D+299, after 15 days of fever, the patient exhibited dyspnea, hypoxemia, and required supplementary oxygen therapy. Due to clinical deterioration, the patient was admitted to the ICU. Pneumocystis jirovecii infection was suspected, and treatment with trimethoprim/sulfamethoxazole 15mg/kg and steroids was initiated. A peripheral blood sample was collected to perform the Karius that yielded a positive result for Pneumocystis jirovecii. The patient showed clinical improvement, was weaned off oxygen therapy, and was discharged from the hospital.

CONCLUSION

The Karius test was extremely helpful in detecting PCP in this case, and potentially avoided the need for a bronchoalveolar lavage (BAL), an invasive procedure. This not only improves patient comfort but also reduces the risk of complications associated with BAL. Additionally, the Karius test offers a cost-effective approach compared to traditional diagnostic methods. This makes it a valuable tool for immunocompromised patients by enabling faster treatment and potentially reducing overall healthcare costs.

PREVALENCE OF POSITIVE BLOOD CULTURE AND FEBRILE NEUTROPENIA IN A HEMATOPOIETIC CELL TRANSPLANTATION UNIT

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INTRODUCTION

Infection is a major complication of hematopoietic cell transplantation (HCT). We used the antibiotic de-escalation and discontinuation strategies in clinically stable patients without prior infection or colonization by resistant bacteria, alongside those with an unstable clinical condition or prior history of resistant bacteria, all while maintaining fluoroquinolone prophylaxis.

OBJECTIVE

To describe the results of febrile neutropenia and blood culture positivity in early phase of HCT recipients.

METHODS

We included data from HCT performed in our institution between 2020 and April 2024.

RESULTS

We performed 201 autologous HCT. Only one patient had colonization pre-HCT with carbapenem-resistant Klebsiella pneumoniae (KPC). Among these patients, 75% experienced febrile neutropenia, with a 20% rate of positive blood cultures.

The pathogens identified were: 15 Staphylococcus epidermidis (we considered it a sample contamination), 2 Acinetobacter baumanni multidrug-sensitive (MS), 1 Staphylococcus aureus MS, 2 Escherichia coli or Klebsiella pneumoniae sensitive for carbapenem, 5 E. coli or K. pneumoniae MS, 4 Sphignomonas paucimobilis, 4 Pseudomonas aeruginosas multidrug-resistance (MR) and 3 MS. Other bacterias were less frequent. Two patients succumbed to febrile neutropenia.

In allogeneic HCT, 120 procedures were performed, consisting of 70 matched-sibling donor (57%), 24 haploidentical (20%) and 28 matched-unrelated donor (23%). 19 patients had colonization or infection previous to the HCT (15,8%): 3 with KPC and Vancomicin-Resistant Enterococcus (VRE), 4 VRE only, 9 KPC only, 2 previous infections with Acinetobacter MR and 1 with previous P. aeruginosas MR, KPC and VRE.

Among these patients, 85% presented with febrile neutropenia with a 43,7% rate of positive blood culture. 10 (8,3%) patients developed hemodynamic instability, all of whom died; only one had negative cultures.

Pathogens identified included 18 cases of carbapenem-sensitive E. coli or K. pneumoniae, 7 cases of MR P. aeruginosa, 2 cases of Staphylococcus aureus, 1 case of Candida parapsilosis, 2 cases of Stenotrophomonas, 4 cases of S. paucimobilis, and 11 cases of S. epidermidis (considered contamination), along with 9 cases of MR K. pneumoniae.

CONCLUSIONS

The majority of blood cultures identified Gram-negative bacteria. Allogeneic HCT had a higher risk for positive blood cultures and multidrug-resistant bacteria. All patients with septic shock died in our cohort. Infection remains the main cause of early mortality in HCT recipients.

TABLE 1. Frequency blood culture pathogens identified.

	Autologous	Allogeneic
Staphylococcus epidermidis	15	11
Acinetobacter baumanni multidrug-sensitive (MS)	2	0
Staphylococcus aureus MS	1	2
Escherichia coli or Klebsiella pneumoniae sensitive for carbapenem	2	18
E. coli or K. pneumoniae MS	5	0
Sphignomonas paucimobilis	4	4
Pseudomonas aeruginosas multidrug-resistance (MR)	4	7
Pseudomonas aeruginosas MS	3	0
Klebsiella pneumoniae MR	0	9
Candida parapsilosis	0	1

PSEUDOMONAS AERUGINOSA EFFLOW PUMP EXPRESSIONS IN PATIENTS ADMITTED TO THE BONE MARROW TRANSPLANT SECTOR OF A UNIVERSITY HOSPITAL

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INTRODUCTION

Pseudomonas aeruginosa is a microorganism frequently associated with healthcare-associated infections, and is also a pathogen correlated with bacterial infections after organ transplants. This bacterium exhibits various resistance mechanisms to antibiotics, including the upregulation of efflux pumps, which directly impede antimicrobial therapy and consequently the survival of patients affected by these infections, particularly those who have undergone bone marrow transplants.

OBJECTIVES

The primary objective of this study is to assess the activity of efflux pumps of strains of Pseudomonas aeruginosa isolated from patients admitted to a Bone Marrow Transplant unit of a university hospital.

CASUISTRY

The research encompassed clinical strains of Pseudomonas aeruginosa obtained from patients admitted to the Bone Marrow Transplant unit of a university hospital.

METHOD

The study comprises 4 clinical strains of Pseudomonas aeruginosa designated as MB2, NID29, SRN35 and SRN65. These strains were identified using the VITEK® 2 Compact equipment in the Microbiology Sector of the hospital's Central Clinical Analysis Laboratory and subsequently sent to the bacteriology laboratory at the University, where the activity of the microorganisms' efflux pumps was evaluated. Strain ATCC 27853 was added as an experimental control. To evaluate efflux pump activity, bacterial isolates were cultivated overnight (18h) in BHI broth. After this period, the samples were centrifuged, the supernatant was discarded and the cells were resuspended in Mueller Hinton broth (MH) and adjusted to a turbidity of 0.5 on the McFarland scale. In flat-bottomed 96-well microtiter plates, 100 µL of MH Broth, 100 µL of bacterial inoculum and 5 µL of ethidium bromide (EtBr) were added to a final concentration of 5 mg/L. The plates were incubated at 37 °C in a shaking oven for 1 hour. After this period, fluorescence was measured at 540 nm excitation and 600 nm emission on the CytationTM 5 equipment (Biotek).

RESULTS

The standard strain presented fluorescence of 1515.4 relative fluorescence units, while the clinical strains strains showed indices of 1924.6 (MB2), 165.5 (NID29), 0.0 (SRN35) and 1213.4 (SRN65) (figure 1). Ethidium bromide functions as a DNA intercalator, fluorescing upon binding to bacterial genetic material. When strains overexpress efflux pumps, this dye is less successful in reaching the intracellular

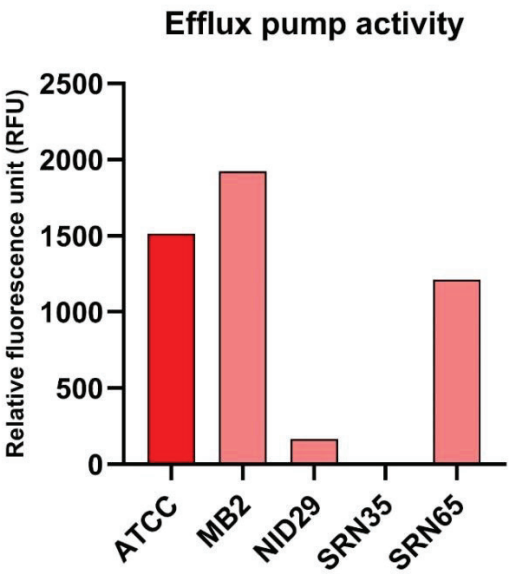
environment and, consequently, decreases fluorescence. Therefore, the bacterial strains with lower fluorescence indices demonstrate higher efflux pump activity, thus, the NID29, SRN35 and SRN65 strains have greater efflux pump activity than the ATCC bacterial strain, indicating the presence of this active resistance mechanism in these clinical isolates.

CONCLUSION

However, in these studies we detected that another unexplored mechanism - the overexpression of efflux pumps, in strains encountered in clinical settings.

KEYWORDS - Pseudomonas aeruginosa. Antimicrobial therapy. Resistance.

FIGURE 1 - Efflux pump activity of clinical strains of Pseudomonas aeruginosa isolated from patients admitted to the Bone Marrow Transplant unit of a university hospital.



Source: Prepared by the author.

USE OF PROPHYLACTIC LETERMOVIR IN SECOND HEMATOPOIETIC STEM CELL TRANSPLANTATION DUE TO SECONDARY GRAFT FAILURE FOLLOWING CYTOMEGALOVIRUS REACTIVATION: A CASE REPORT

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INTRODUCTION

Reactivation of Cytomegalovirus (CMV) presents a significant challenge for recipients of allogeneic hematopoietic stem cell transplantation (allo-HSCT), often resulting in systemic illness, increased susceptibility to additional opportunistic infections, graft rejection, and elevated morbidity and mortality rates. Despite advances in prevention and treatment, CMV reactivation and its associated issues remain major concerns post-allo-HSCT.

OBJECTIVE

To describe a case report of secondary graft failure due to CMV and Herpes simplex virus (HSV) reactivation, highlighting the importance of secondary prophylaxis in subsequent transplantation.

METHODS

A case report was conducted based on the patient's medical record.

RESULTS

A 25-year-old female patient with acquired bone marrow aplasia at age 16, initially responding well to immunosuppression, developed severe paroxysmal nocturnal hemoglobinuria overlapped with aplasia in 2022, without access to eculizumab, leading to worsening of her aplastic anemia. She underwent a 10/10 HLA-unrelated donor transplant, with both donor and recipient CMV positive status, receiving myeloablative conditioning with Busulfan and Fludarabine, anti-thymocyte globulin (ATG), Cyclosporine, and Methotrexate for conditioning and graft versus host disease (GVHD) prophylaxis, respectively. The patient developed CMV viremia (> 500 copies/µL) and Herpes-6 (15777 copies/ml), which later progressed to pancytopenia. Initial treatment with ganciclovir yielded a good response, with CMV and Herpes-6 viremia becoming negative within 2 weeks. However, the patient continued to experience pancytopenia, and a subsequent bone marrow analysis revealed secondary graft failure on Day +34 post-transplant. Anti-HLA testing was negative. Subsequently, the patient developed fungal infection (Candida parapsilosis) and an Extended-Spectrum Beta-Lactamase (ESBL) infection, which were treated with voriconazole and meropenem. After 73 days from the first transplant, the patient underwent a second transplant with the same donor cells. The conditioning regimen included Fludarabine, Cyclophosphamide, and 2GY total body irradiation (TBI), with ATG at 7.5mg/kg, Cyclosporine, and Methotrexate for GVHD prophylaxis; letermovir was used as secondary prophylaxis. Letermovir was well tolerated, with no adverse effects observed. Since starting letermovir, the patient has not required further therapy for CMV viremia. Letermovir prophylaxis was discontinued after 100 days of treatment. Currently, the patient is 1 year and 5 months post-second transplant without complications and no longer requiring immunosuppression.

CONCLUSION

CMV reactivation can result in post-transplant complications, such as secondary graft failure. Letermovir can reduce infections and reactivations of this virus, particularly in high-risk patients, and decrease mortality compared to conventional therapy. This medication demonstrates utility as secondary prophylaxis, as evidenced in this case report.

KEYWORDS

Cytomegalovirus, hematopoietic stem cell transplantation, allogenic transplantation

NON INFECTIOUS COMPLICATIONS

ACQUIRED HEMOPHILIA SECONDARY TO HEMATOPOIETIC STEM CELL TRANSPLANTATION. A SYSTEMATIC REVIEW.

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BACKGROUND

Acquired hemophilia (AH) is a severe bleeding disorder caused by autoantibodies directed against coagulation factor VIII or IX. Hematopoietic stem cell transplantation (HSCT) has been associated with the development of AH though evidence is limited.

OBJECTIVES

To describe the clinical characteristics, therapeutic approaches, and outcomes in patients with AH developed after HSCT.

METHODS

A systematic review of case reports was conducted following the PRISMA statement (PROSPERO: CRD42024512037). Case reports of post-transplant patients with confirmed AH diagnosis were included. The risk of bias was assessed, and qualitative synthesis of data was performed (Table 1).

RESULTS

Twelve clinical cases were included. The 58% presented high quality. Patients developed AH within a variable post-transplant time range (4 days to >2 years), with clinical presentations including hematomas, systemic hemorrhages, and epistaxis. A variety of pre-transplant conditioning regimens were observed, with thiotepa/cyclophosphamide being the most common. Allogeneic transplantation was more frequent than autologous. Most patients developed inhibitors to factor VIII and exhibited reduced levels of FVIII activity. Treatment included prothrombin complex concentrates, corticosteroids, and immunosuppressants, with Rituximab showing significant improvements in some cases. Despite treatment initiation, 50% of patients recovered, 25% had disease relapse and 25% died of hemorrhagic complications (Figure 1).

CONCLUSIONS

Post-transplant AH is a severe complication requiring multidisciplinary evaluation and management. Navigating treatment especially in allogeneic HSCT recipients for malignant diseases where graft preservation is crucial poses a unique challenge. Although improvements were observed with different treatments, complications are notable, highlighting the need for further research to guide optimal management of this population.

TABLE 1

Table 1. Analysis of the Risk of Bias of the Case Reports included

Study	Tool from the Joanna Briggs Institute adapted for clinical cases of Hematopoietic Stem Transplantation									
	1	2	3*	4*	5*	6*	7*	8		
	Patient demographic characteristics	History of hematopoietic stem cell transplantation	Clinical condition of the patient at the time of evaluation in the case report	Tests or diagnostic methods and their results	Treatment intervention(s) or procedure(s)	Follow-up period	Result	Takeaway Lessons	Total score	Quality
Mitani et al. (2022)	1	1	2	2	2	1	2	1	12	Medium quality
Harada et al. (2022)	1	1	2	2	2	2	2	1	13	High quality
Jiao et al. (2019)	1	1	2	2	2	2	2	1	13	High quality
Borsani et al (2019)	1	1	2	1	2	2	2	1	12	Medium quality
Jones et al (2018)	1	1	2	2	2	2	2	1	13	High quality
Donnini et al (2015)	1	1	2	2	2	2	2	1	13	High quality
Fan et al (2014)	1	1	2	2	2	2	2	1	13	High quality
Nishida et al (2011)	1	1	2	2	2	2	2	1	13	High quality
Kaloyannidis et al (2004)	1	0.5	2	1	2	2	2	1	11.5	Medium quality
Uminsky et al (2022)	1	1	2	2	2	1	1	1	11	Medium quality
De Langhe et al (2014)	1	1	2	2	2	2	2	1	13	High quality
Lozier et al (2014)	1	1	2	1	2	1	2	1	11	Medium quality

*For this question **YES** a score of 2 points is given and **UNCLEAR** 1 point

PARAMETERS:		
	Yes:	1 point
	No:	0 points
	Unclear:	1/2 point
	Not applicable	0 points

SCORE:	
High quality:	13
Medium quality:	11-12.5
Low quality:	<10.5

FIGURE 1

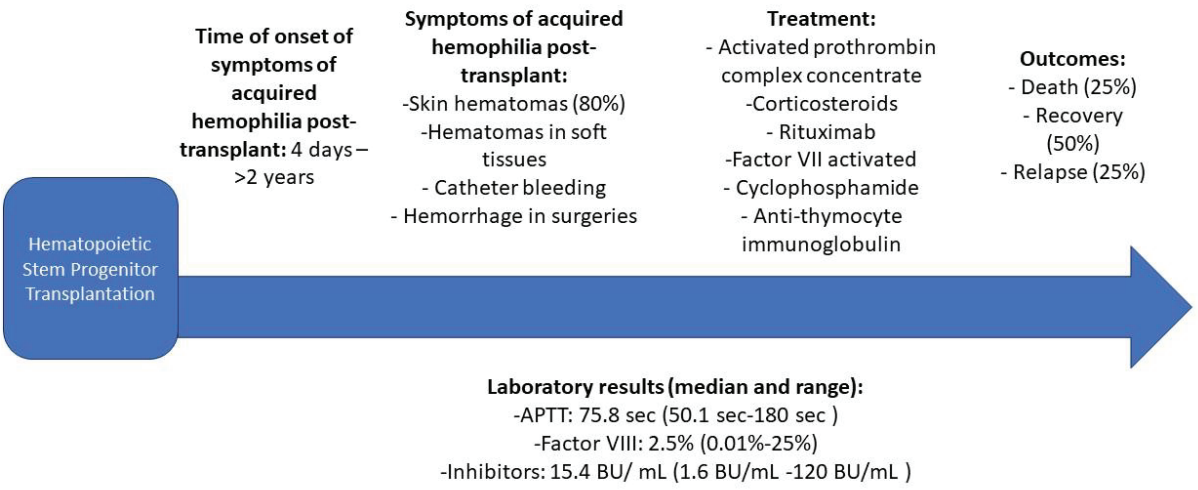

Figure 1. Timeline of the clinical evolution of Acquired Hemophilia secondary to Hematopoietic Stem Progenitor Transplantation.

CREATION OF THE FIRST FECAL BANK IN THE NORTH-NORTHEAST REGIONS BASED ON THE EVALUATION OF FECAL MICROBIOTA TRANSPLANTATION IN THE COURSE OF GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

Fecal microbiota transplantation (FMT) has shown promise in various conditions, and in this context, graft-versus-host disease (GVHD) after allogeneic hematopoietic stem cell transplantation, which is a serious condition, has gained prominence. Corticosteroids and immunosuppressive drugs are routinely used as initial therapies. However, the efficacy of these treatments is unsatisfactory, and there are no drugs with proven efficacy against steroid-resistant GVHD. Recent evidence suggests that changes in the composition of the intestinal microbiota are associated with the occurrence of intestinal GVHD. Thus, FMT could fit as a possible promising and feasible treatment. To prove this, there is a need to establish a stool bank, where samples would be analyzed and studied.

OBJECTIVES

Establishment of a stool bank through the investigation of the impact of oral fecal microbiota transplantation on the treatment of graft-versus-host disease after allogeneic hematopoietic stem cell transplantation.

METHOD

Healthy individuals are selected, excluding those with bloodborne infectious diseases or FMT and situations that increase the risk of transmission of multidrug-resistant organisms. Donors are interviewed, and their laboratory and stool tests are collected. Stool samples are stored in a stool bank developed in the Pharmacology laboratory of a University Hospital in the Northeast region. An average of 50 g of fecal substrate is mixed and diluted in sterile 0.9% saline solution. To ensure the viability of the samples, they must be processed and stored within 6 to 8 hours. Cryopreservation is a fundamental step in creating a stool bank as it does not compromise the clinical effect of FMT, prevents material crystallization, and allows on-demand treatment. Stool processing differs according to the administration route. Capsules are promising due to their easy administration, less invasive nature, and absence of risks associated with invasive procedures. A prospective interventional clinical trial is then conducted, and twenty patients are divided into two groups, one receiving conventional treatment for GVHD and the other FMT, and followed for 2 years.

RESULTS

The importance of a stool bank involves providing products ready for immediate use and of high quality, as well as enabling the monitoring of treatment responses, side effects, and long-term effects of FMT. It is expected that FMT will be safe and viable for participating patients, with a low incidence of adverse events and the ability to repopulate the intestinal microbiota for gastrointestinal tract recovery, as well as maintaining a favorable clinical response long-term and reducing GVHD recurrence.

CONCLUSION

The impact of FMT as a promising and viable option for intestinal GVHD is best demonstrated when there is a well-structured and monitored stool bank, as responses become much more reliable and reproducible.

EPIDEMIOLOGICAL AND SURVIVAL ANALYSIS OF HEMATOPOIETIC STEM CELL TRANSPLANTATION AT A SINGLE PUBLIC HOSPITAL IN SÃO PAULO

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) constitutes a therapeutic option for various pathologies. The procedure involves autologous or allogeneic hematopoietic stem cell administration (HSC)[1,4]. Complications are diverse and entail significant morbidity and mortality. Mortality related to autologous HSCT is around 1-5%, while in allogeneic HSCT it can reach 30%[2]. Besides the risk of disease relapse, infections, rejection, toxicities, and graft-versus-host disease (GVHD) are the main causes of death[3,5].

OBJECTIVES

To evaluate overall survival (OS) of patients undergoing HSCT in a public hospital in São Paulo and correlate it with outcomes. As a secondary objective, we carried out a descriptive and epidemiological analysis of the sample.

METHODS

All 1000 HSCTs performed at the institution from 1997-2024, were evaluated. The subjects were evaluated regarding clinical and epidemiological characteristics. In subjects lost to follow-up, the date of last contact was considered until 03.01.2024.

The groups were compared using a chi-square test. Survival curves were constructed using Kaplan-Meier. Comparison between the curves of two or more groups was performed using the Log-rank test. Significance level adopted was equal to 5%. Statistical analyses were performed using R software.

RESULTS

Table 1 shows the descriptive analysis of the sample, comparing the groups according to the type of transplant. The median age of the sample was 50 years (3-75). The median follow-up was 59 months (95%CI 52-67). The median survival was 60 months (95%CI 49-71) and the median year of transplantation was 2,015.

The death rate was 46.4% (n=464) up to the date of last contact, with 15.4% of the sample having a cause of death related to the transplant (n=154). The death rate within 30 days was 5.9% (n=59), and 11.6% (n=116) within 100 days.

The median OS of the sample was 5 years (95%CI 4.13-5.96), figure 1. There was a difference in OS by diagnosis of the underlying disease (p<.001), type of transplant (p<.001), and intensity of conditioning (p=.0015), figures 2-4. The OS of subjects with Myelodysplastic Syndrome/Leukemia was 1 year (95%CI 0.65-1.37), lymphomas 9.8 years (95%CI 6.35-13.42), multiple myeloma/amyloidosis 5.6 years (95%CI 4.70-6.56), myeloproliferative neoplasms 2.4 years (95%CI 1.24-3.54) and for the other diagnoses, OS was 11.9 years. The OS of subjects undergoing allogeneic HSCT was 1.35 years (95%CI 0.67-2.02), compared with autologous HSCT of 6 years (95%CI 5.01-7.15). The OS of subjects undergoing myeloablative conditioning was 5 years (95%CI 4.70-7.21), compared to reduced intensity conditioning, which was 3.62 years (95%CI 2.42-4.81).

There was no difference in OS by sex (p=.44) and source of HSC (p=.20).

CONCLUSIONS

Median OS of the sample was 5 years (95%CI 4.13-5.96). There was a difference in OS for diagnosis, type of transplant, and conditioning intensity. The majority of transplants performed were autologous, with 62% being multiple myeloma.

KEYWORDS - Autologous transplantation; allogeneic transplantation; post-HSCT survival.

Table 1. Clinical and demographic variables among all HSCT types from the 1000 subjects sample

Variables and categories	HSCT types		
	Allogeneic (n=266)	Autologous (n=734)	*p* value
Age	34(3-68)	55(6-75)	*<0,001*
Gender			
Male	166 (62,4%)	384 (52,3%)	P=0,005
Female	100 (37,6%)	350 (47,7%)	
Ethnicity			
White	78 (29,3%)	342 (46,6%)	<0,001
Black	6 (2,3%)	51 (6,9%)	
Brown	73 (27,3%)	243 (33,1%)	
Unknown	109 (41%)	98 (13,4%)	
Diagnostic			
Acute leukemia and MDS	149 (56%)	24 (3,3%)	*<0,001*
Lymphoma	23 (8,6%)	247 (33,7%)	
MM/Amyloidosis	0 (0%)	456 (62,1%)	
Myeloproliferative neoplasms	59 (22,2%)	0 (0%)	
Marrow failure / others	35 (13,2%)	7 (1%)	
Stem cell source			
Peripheral blood	157 (59%)	718 (97,8%)	*<0,001*
Marrow	109 (41%)	16 (2,2%)	
Conditioning intensity			
MAC	196 (73,7%)	557 (75,9%)	0,476
RIC	70 (26,3%)	177 (24,1%)	
Death			
No	91 (34,2%)	445 (60,6%)	*<0,001*
Yes	175 (65,8%)	289 (39,4%)	
Cause of death			
Unrelated to HSCT	71 (26,7%)	239 (32,6%)	*<0,001*
Related to HSCT	104 (39,1%)	50 (6,8%)	

*Median expressed values. Minimum and maximum values in parentheses.
MAC= myeloablative conditioning. MM=Multiple myeloma. RIC=Reduced intensity conditioning. MDS = myelodysplastic syndrome. HSCT = hematopoietic stem cell transplant

Figure 01 - Overall survival

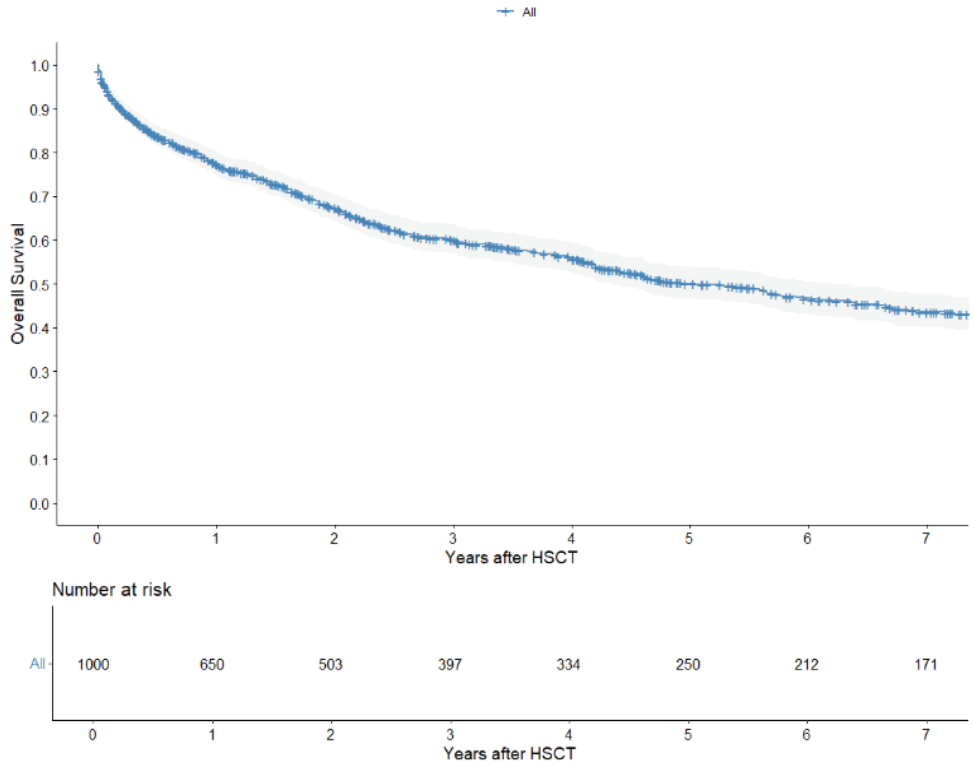


Figure 02 - Overall survival related to diagnostic

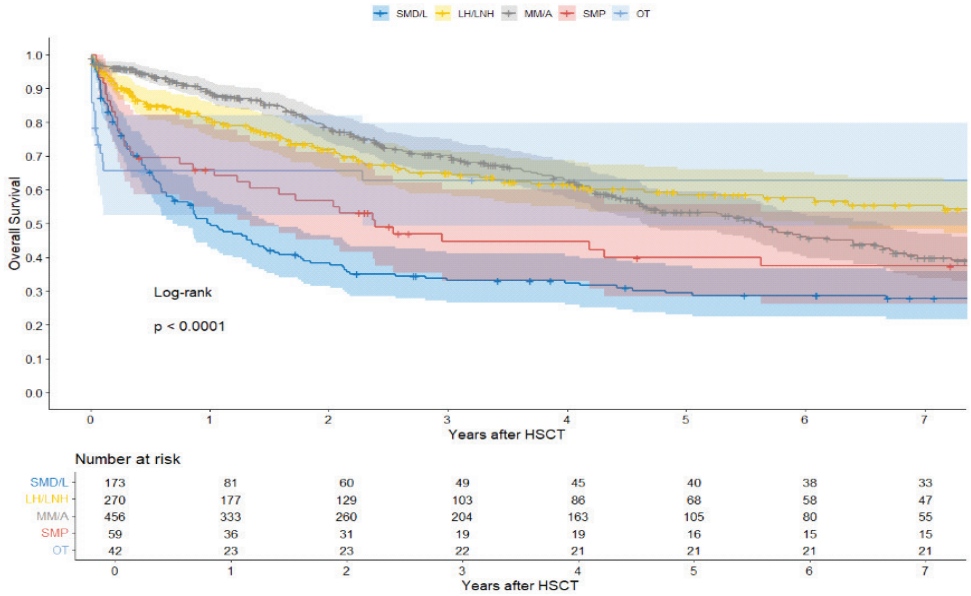


Figure 03 - HSCT types survival comparison

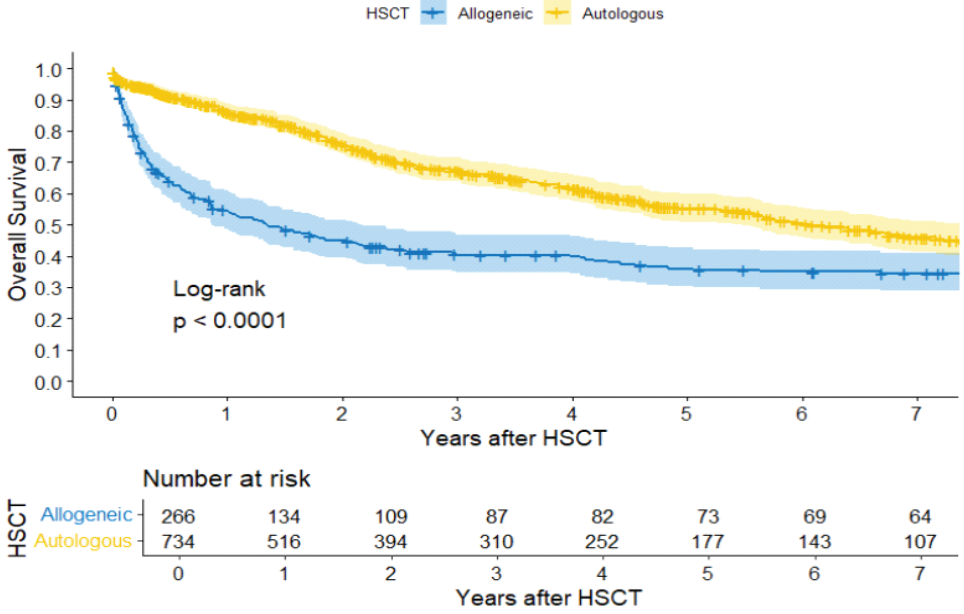
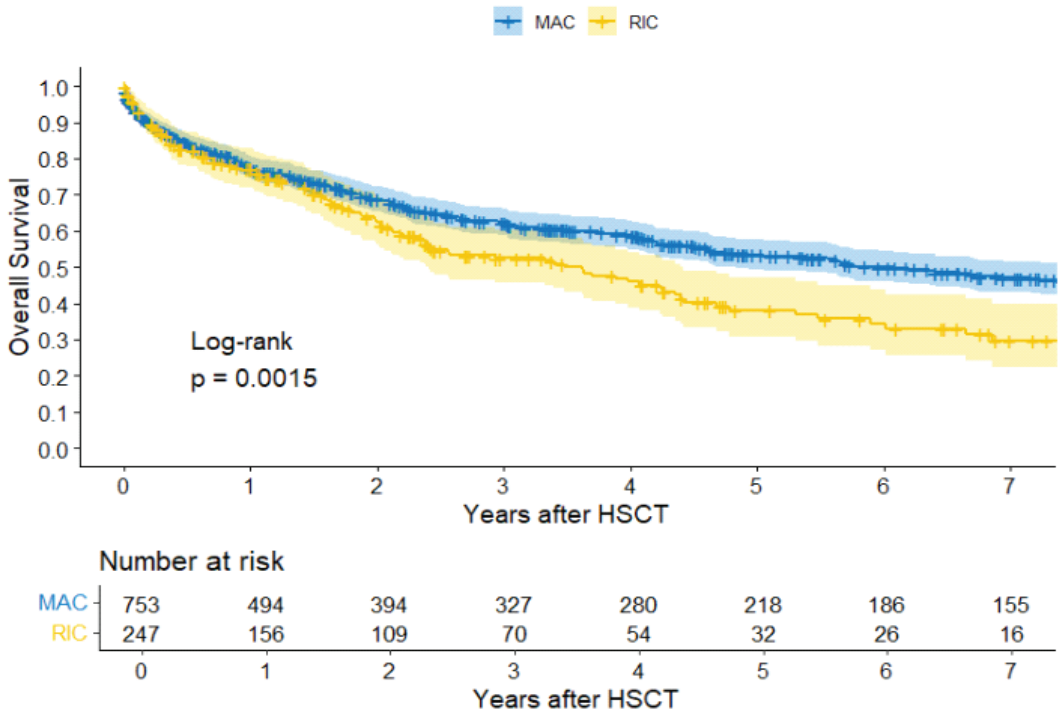


Figure 04 - HSCT conditioning regimen survival comparison



REFERENCES

1. Majhail NS, Farnia SH, Carpenter PA, Champlin RE, Crawford S, Marks DI, et al. Indications for Autologous and Allogeneic Hematopoietic Cell Transplantation: Guidelines from the American Society for Blood and Marrow Transplantation HHS Public Access. Biol Blood Marrow Transpl. 2015;21(11):1863–9.
2. Juric MK, Ghimire S, Ogonek J, Weissinger EM, Holler E, van Rood JJ, et al. Milestones of hematopoietic stem cell transplantation - From first human studies to current developments. Front Immunol. 2016;7(NOV):1–16.
3. Styczyński J, Tridello G, Koster L, Iacobelli S, van Biezen A, van der Werf S, et al. Death after hematopoietic stem cell transplantation: changes over calendar year time, infections and associated factors. Bone Marrow Transplant. 2020;55(1):126–36.
4. Shantanam S, MUELLER. HHS Public Access. Physiol Behav. 2018;176(1):139–48.
5. Gooley TA, Chien JW, Pergam SA, Hingorani S, Mohamed L, Boeckh M, et al. transplantation. 2011;363(22):2091–101

IBRUTINIB IN THE SETTING OF CHRONIC GRAFT-VERSUS-HOST DISEASE AFTER PRIOR THERAPY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION

Ibrutinib is a 'on-label' treatment for relapsed/refractory chronic GVHD (RR cGVHD) in Brazil. Its approval was based on phase 2 trial, with a reported overall response rate (ORR) of 69%. Real world evidence (RWE) published by Chin et al, ORR = 11.3%, brought its efficacy into question.

METHODS

to assess its efficacy and gauge possible scenarios where its use is warranted over other options for RR cGVHD, we conducted the present SR and MA. Searches on EMBASE and Pubmed and grey literature (manual review of scientific programs of the EBMT, TCT and ASH Annual meetings). Longitudinal studies with a minimum of 10 patients describing patients with RR cGVHD that received ibrutinib and its results objectively were to be included. We used Rayyan.org for literature screening and R version 4.3.2 for meta-analysis.

RESULTS

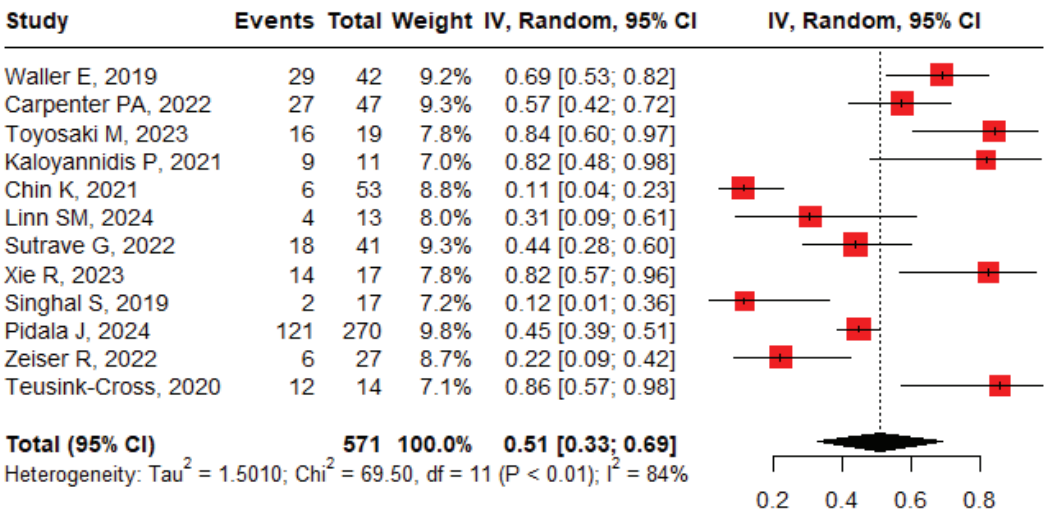
Nineteen references regarding 12 studies (4 abstracts, 15 full manuscripts) were included from 119 references in the present meta-analysis. Two studies included pediatric patients, most studies reported a median of 2 prior lines of therapy (n = 8) and data on lung GVHD was available in 9 references. The ORR was 51,1% (CI95% 32,9-68,9%, k = 12, I^2 = 84%). The complete response rate was 7,34% (CI95% 0,03-13,6%, k = 11, I^2 = 74,6%). Conducting a meta-regression on ORR, lung GVHD was independently associated with worse results with response rates - 19% (IC95% -33% to – 5%, p = 0,007), residual heterogeneity measured by I^2 was 27,3%.

DISCUSSION

Our findings suggest that approximately 50% of patients with RR cGVHD present an objective response, this summary measure had high heterogeneity. We theorize that this derives from cGVHD's highly variable manifestations, and a diverse set of patients included in each report.

KEYWORDS - Graft-versus-host-disease, Systematic Review, Meta-Analysis

FIGURE 1- Forest plot of ORR of Ibrutinib in cGVHD across the selected studies



REFERÊNCIAS

1. Waller EK, Miklos D, Cutler C, Arora M, Jagasia MH, Pusic I, et al. Ibrutinib for Chronic Graft-versus-Host Disease After Failure of Prior Therapy: 1-Year Update of a Phase 1b/2 Study. Biology of Blood and Marrow Transplantation: Journal of the American Society for Blood and Marrow Transplantation [Internet]. 2019 Oct 1 [cited 2024 May 13];25(10):2002–7. Available from: https://pubmed.ncbi.nlm.nih.gov/31260802/

2. Chin KK, Kim HT, Inyang EA, Ho V, Koreth J, Romee R, et al. Ibrutinib in Steroid-Refractory Chronic Graft-versus-Host Disease, a Single-Center Experience. Transplantation and Cellular Therapy [Internet]. 2021 Dec 1 [cited 2024 May 13];27(12):990.e1–7. Available from: https://pubmed.ncbi.nlm.nih.gov/34481113/

3. Carpenter PA, Kang HJ, Yoo KH, Zecca M, Cho B, Lucchini G, et al. Ibrutinib Treatment of Pediatric Chronic Graft-versus-Host Disease: Primary Results from the Phase 1/2 iMAGINE Study. Transplantation and Cellular Therapy [Internet]. 2022 Nov 1 [cited 2024 May 13];28(11):771.e1–10. Available from: https://pubmed.ncbi.nlm.nih.gov/36044977/

4. Long-term Use of Ibrutinib in Japanese Patients with Steroid Dependent/Refractory cGVHD: Final Analysis of Multicenter Study. Blood cell therapy. 2023 Jan 1;6(4).

5. Linn SM, Novitzky-Basso I, Abduljalil O, Pasic I, Lam W, Law A, et al. A Single-center, Real-world Experience of Chronic GVHD Treatment Using Ibrutinib, Imatinib, and Ruxolitinib and its Treatment Outcomes. Hematology/Oncology and Stem Cell Therapy [Internet]. 2023 Jul 20 [cited 2024 May 13];17(1):60–71. Available from: https://pubmed.ncbi.nlm.nih.gov/37581458/

IDIOPATHIC PNEUMONIA SYNDROME AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplant (HSCT) is the replacement of the patient's bone marrow with hematopoietic stem or progenitor cells, in order to restore immune-hematopoietic function. Pulmonary complications can occur in up to a third of hematopoietic stem cell recipients, and can lead to significant morbimortality. Usually between 20 and 42 days after the transplantation, there's a chance of occuring Idiopathic Pneumonia Syndrome, that is a noninfectious lung injury. Patients affected by this condition, in order to fit diagnosis, need to present pneumonia's symptomatology, absence of lower respiratory tract infection, or of an etiology related to cardiac dysfunction, acute renal failure, or iatrogenic fluid overload. The mortality of IPS ranges between 60-86%, which indicates that the syndrome has a poor prognosis.

OBJECTIVE

The objective of this review was to summarize the literature findings that describe the development of Idiopathic Pneumonia Syndrome after a hematopoietic stem cell transplantation.

METHOD

The following study consists in a literature review constructed based on the comprehensive search of articles from the past 5 years in PubMed, Scielo and Embase databases. Using the keywords "Idiopathic Pneumonia Syndrome", "Pulmonary Complications" and "Hematopoietic Stem Cell Transplantation", combined by boolean operator "AND", we were able to find 5 articles that fit the objective of this review.

RESULTS

Patients subjected to HSCT have an incidence of developing IPS that varies from 4% to 12%. Although IPS tends to occur shortly after the procedure, some studies have reported cases that only initiated 3 months after the expected. There is a higher risk of acquiring this syndrome for patients with acute graft-versus-host disease (GvHD), and for individuals who have received intense myeloablative conditioning with high-dose total body irradiation (TBI). Advanced patient age is also a relevant risk factor for IPS. The use of chest computed tomography is an essential scanning tool for patients with IPS, and bilateral multilobar opacities are the predominant findings. The incidence of IPS cases that are non-responsive to corticosteroids reaches up to 85%, progressing to respiratory failure, of which 90% require mechanical ventilation. Higher doses of TBI have many harmful effects on the lungs, including damages to lung endothelial DNA that culminates in the death of alveolar macrophage colony-forming cells, which reduces the lung's damage repair capacity. The use of nonmyeloablative conditioning and better GvHD management suggests a possible decrease in the incidence of IPS, as long as there are continuous advances in the technique and in the knowledge associated with HSCT.

CONCLUSION

The findings of the present review indicate the need for physicians who care for HSCT patients to remain vigilant to the possibility of IPS, in order to provide an early diagnosis and, by extension, a more favorable prognosis.

KEYWORDS

Idiopathic Pneumonia Syndrome, Hematopoietic Stem Cell Transplantation, Pulmonary Complications.

IMPACT OF NEOADJUVANT THERAPY ON PATIENTS WITH ACUTE MYELOID LEUKEMIA IN CHILDHOOD

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INTRODUCTION

Acute myeloid leukemia (AML) is a cancer of the blood and bone marrow. AML is the second most common childhood leukemia after acute lymphoblastic leukemia (ALL), being much more prevalent in adults. Childhood AML is most common during the first 2 years of life and during adolescence, affecting the blood cells called myeloid stem cells. However, the main therapeutic approach for pediatric AML has not substantially changed for decades, and improvement in event-free survival is quite modest. This is partly due to the disease's heterogeneity, the scarcity of targeted therapies, and the relatively slow development of immunotherapy compared to ALL. Additionally, the limits of treatment intensity have been reached, and even with excellent supportive care, further intensification of conventional chemotherapy alone is unlikely to impact relapse rates.

OBJECTIVE

Acute myeloid leukemia (AML) is the second most common pediatric hematologic malignancy and requires treatment with intensive chemotherapy, which often causes substantial treatment-related morbidity, particularly cardiologic and infectious complications. Here, we review the main approaches and impacts of neoadjuvant therapy in pediatric AML.

METHOD

This study is a literature review constructed from a comprehensive search of articles and reviews from the past 10 years available for free in academic databases: PubMed, BVS, and Scielo. The search strategy used the descriptors "Acute Myeloid Leukemia," "Chemotherapy," and "Pediatric"; the boolean operator (AND) was used to associate the terms.

RESULTS

The discussed results address the efficacy and side effects of different anthracyclines in the treatment of Acute Myeloid Leukemia (AML), highlighting idarubicin and liposomal daunorubicin as promising in different aspects. In consolidation, the quality of remission after initial chemotherapy is crucial, with evidence suggesting that four courses may be as effective as five, especially in patients receiving Gemtuzumab Ozogamicin. The use of high-dose cytarabine as a single agent in consolidation has been shown to be effective and less demanding of support, especially in patients with adverse cytogenetics. However, studies on maintenance chemotherapy in pediatric AML have not found clear benefit, although it is still adopted by some groups. Regarding prophylaxis and treatment of the central nervous system in AML, prophylactic intrathecal chemotherapy is preferred, with clinical observations suggesting the benefit of triple intrathecal chemotherapy.

CONCLUSION

It was observed that AML causes significant complications in pediatric patients undergoing neoadjuvant therapy. The lack of specific studies for this population highlights the need for research to better understand these complications and develop more effective treatment strategies, as there are significant impacts on morbidity and mortality.

KEYWORDS

Acute Myeloid Leukemia, Chemotherapy, Pediatric.

OUTCOMES OF THE ASSOCIATION BETWEEN MULTIPLE MYELOMA AND AMYLOIDOSIS IN ONCO-HEMATOLOGIC PATIENTS: LITERATURE REVIEW

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INTRODUCTION

Multiple myeloma (MM), also known as Kähler's disease, myelomatosis and plasma cell myeloma, is a malignant neoplasm of hematological origin characterized by the unregulated and clonal proliferation of plasma cells in the bone marrow. It causes numerous health problems for the people with this condition, especially when associated with other diseases that can contribute to a worse prognosis. One of them is Amyloidosis, characterized as a group of rare diseases, in which protein fragments are pathogenically deposited in the extracellular space of organs and tissues.

OBJECTIVE

This study aimed to analyze in the literature the effects of the coexistence of multiple myeloma and amyloidosis in onco-hematologic patients.

METHOD

This is a literature review conducted in the LILACS and PubMed databases. The descriptors used were "Multiple Myeloma" AND "Immunoglobulin Light-chain Amyloidosis". Inclusion criteria were those that met the objective of the study, in English, Portuguese and Spanish. And the exclusion criteria defined were those not available in full text, duplicates, and gray literature studies.

RESULTS

In the search, 12 studies were found, 9 from PubMed and 3 from LILACS. Of these, 7 studies were selected after analysis and exclusion of 2 duplicates. The studies used reveal that the coexistence of multiple myeloma (MM) and amyloidosis leads to unfavorable outcomes for its carriers. It was verified that the diagnosis of multiple myeloma is often suspected through the diagnosis of amyloidosis, as according to one of the studies, the deposition of amyloid plaque was identified in the dermis of a patient through biopsy, leading to the diagnosis of light chain amyloidosis and subsequently identified multiple myeloma through bone marrow biopsy. Complications are also observed in internal organs, where one of the studies showed the formation of a rare occurrence of pulmonary amyloidoma and plasmacytoma coexisting in a single lung mass proven by tissue biopsy. This combination represented AL amyloidosis with MM, thus representing a poor prognostic feature. Osteolytic bone lesions in patients with MM can involve joints and are often associated with light chain, amyloid protein deposition, which is a rare complication of MM. Furthermore, hematopoietic impairment is quite significant when there is an association between myeloma and amyloidosis. Around 10% of the hematopoietic component was compromised in a patient where the presence of amyloid proteins was identified, and the infiltrated interstitial plasma cells with an abnormal phenotype.

CONCLUSION

Although the coexistence between multiple myeloma and amyloidosis is rare, it has unfavorable repercussions. It is of utmost importance that health professionals acquire skills and knowledge to properly manage the complications caused by this event.

MULTIDISCIPLINARY - **NURSING**

ADULT QUALITY OF LIFE AFTER HEMATOPOETIC STEM CELL TRANSPLANTATION (HSCT)

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INTRODUCTION

The WHO defines quality of life as "an individual's perception of their position in life, according to their culture and the values in which they live. And through established tools that assess QoL, such as the SF-36, it is possible to encourage patients to describe their symptoms and limitations in daily follow-up after the procedure, revealing information that helps the transplant team to seek the best approach.

OBJECTIVE

To verify the quality of life of adult HSC recipients undergoing HSCT using the SF-36 quality of life scale in outpatient follow-up after the procedure.

METHOD

This is a descriptive, prospective study, in the period after related, unrelated and haploidentical autologous and allogeneic HSCT in the BMT service of a philanthropic hospital in the interior of São Paulo from April 2023 to September of the same year (Table 1). The instrument used was the SF-36, for a broad assessment of multidimensional health, as this scale is based on two spheres, the physical sphere, composed of: functional capacity, physical aspects, pain and general health, and the mental sphere, composed of : social aspects, vitality, emotional areas and mental health. All participants signed the Free and Informed Consent Form. The data were computed in the Google Forms software, subsequently tabulated in a Microsoft Excel spreadsheet and validated in the R software, v4.1.0.

RESULTS

Table 2 presents the results obtained between the pre- and post-transplant groups, measured by the SF-36 scale. It was observed that the functional capacity of those evaluated continued to improve from 100 days after the procedure in relation to the pre-phase (p= 0.001). The improvement in the Limitation of Physical Aspects was also observed in participants at different times after HSCT, namely: 100 days after, 1 year, 3 and even 5 years, we can notice such an increase (p=0.001). In terms of the social aspects of the participants, we obtained significantly greater results after the procedure, from a period of 100 days after grafting, with a median of 75% and increasing in the remaining periods: 1 year with a median of 80% and 3 years with a median of 92% (p=0.005).

CONCLUSIONS

This research allowed us to verify that despite the complexity of the treatment, the non-negligible toxic effects and the possible complications, the results of this study demonstrate that patients undergoing HSCT of both modalities consider their overall quality of life to be relatively good after the procedure.

DESCRIPTORS

Quality of life. Bone marrow transplant. Onco-hematological diseases.

TABLE 1- Population Characteristics

Patient Profile	
Total	**172**
Age at Transplant	
Average	42.8 (15.7)
Sex	
Feminine	77 (44.8)
Masculine	95 (55.2)
Type of Transplant	
Allogeneic	112 (65.1)
Autologous	60 (34.9)
Diagnosis	
Aplasia de BM	8 (4.7)
LymphomaHodgkin	7 (4.1)
Lymphoma não Hodgkin	15 (8.7)
LLA	32 (18.6)
LMA	32 (18.6)
LMC	12 (7)
Multiple Myeloma	40 (23.3)
MPN	5 (2.9)
Outras Leucemias	5 (2.9)
SMD	16 (9.3)

TABLE 2 - Comparison of SF-36 scores in the pre-HSCT periods and 40 days, 100 days, 1 to 5 years post-procedure.

	Pré HSCT	40 days after HSCT	100 days after HSCT	1 Year after HSCT	
Total	**52**	**12**	**46**	**31**	
Functional capacity					
median (IQR)	65 (33.8,85)	52.5 (46.2,60)	70 (55,80)	80 (52.5,87.5)	
Limitation Physical Aspects					
median (IQR)	0 (0,50)	0 (0,0)	0 (0,75)	25 (0,100)	
Pain					
median (IQR)	62 (41,100)	56.5 (41,100)	73 (51,100)	74 (54.5,96)	7
General Health Status					
average (SD)	64.7 (19.1)	72.7 (16.4)	73.9 (15.3)	66.5 (19)	6
Vitality					
average (SD)	64.2 (23.3)	65 (18.7)	73.4 (15.1)	65 (22.1)	7
Social aspects					
median (IQR)	62.5 (42.5,87.5)	50 (50,67.5)	75 (50,100)	80 (58.1,98.1)	
Emotional Aspects					
median (IQR)	33.3 (0,100)	33.3 (0,100)	33.3 (0,66.7)	33.3 (0,100)	
Mental health					
median (IQR)	76 (60,96)	88 (68,98)	84 (77,96)	74 (64,87)	

CHALLENGE IN DEVELOPING SKILLS OF NURSE TRAINEES IN HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic Cell Transplantation (HCT) is a complex procedure that requires specialized nursing assistance. However, undergraduate studies frequently lack comprehensive coverage of this topic. Advanced and postgraduate nursing education options in Brazil are limited with HCT receiving only superficial attention within oncology and/or hematology specializations. This deficiency prevents the acquisition of both adequate theoretical knowledge and practical skills for clinical practice in this critical area.

OBJECTIVES

To describe the development and implementation of a training plan aimed at enabling the development of nurse trainees skills involved in the care of patients undergoing HCT in a pediatric transplant center.

METHOD

Applied methodological research conducted from January 2022 to January 2024. The target audience was newly graduated nurses working as trainees. The training plan was developed based on the needs of the HCT unit and aligned between coordination and nursing assistance, resulting in a checklist describing competencies to be developed within a predetermined period. This included: preparation and administration of medications and chemotherapeutic agents, transfusion of blood components, care and use of central venous catheters (Hickman, double lumen, Port-A-Cath, and PICC), fluid balance control, catheterization, enteral and parenteral nutrition, types of transplant (autologous and allogeneic), infusion protocol of hematopoietic stem cells with and without ABO incompatibility, main post-HCT complications (mucositis, CMV, GvHD, and VOD), complexity assessment scale, unit management, risk management, and analysis of clinical indicators. Feedback sessions were conducted at 3, 6, 9, and 12 months from the beginning of professional monitoring and recorded in a specific form.

RESULTS

Fourteen nurse trainees were individually monitored for one year each. Out of these professionals, 10 were promoted to the role of clinical nurse for successfully achieving all required competencies. Despite efforts to include management-related training topics, which deviates from the typical responsibilities of nurses in the unit, we faced challenges in integrating them into management and leadership roles. The primary focus remained on improving technical-assistance and qualifications. The lack of available positions in the specialty to accommodate new nurses contributed to frustration experienced by some professionals who had invested time in acquiring specific scientific knowledge – a crucial foundation for providing qualified and safe care in this highly specific and challenging field.

CONCLUSION

The training plan proves both feasible and impactful in addressing the need for specialized professionals within an HCT unit. Led entirely by nurses, this project is cost-effective, and can be easily replicated across many institutions.

KEYWORDS

Transplantation, Pediatric, Nursing

CRITICAL ANALYSIS OF THE NORMATIVE OPINION ON NURSING STAFFING AND ITS TRANSPOSITION TO A DAY HOSPITAL UNIT IN HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) exposes the patient to various toxicities and complications, thereby affecting the nursing care provided. In this sense, the patient can be characterized as having greater technical complexity, requiring an adequate number of staff to ensure safety. It is noteworthy that providing care safely to patients is one of the greatest responsibilities in healthcare of all time. Nursing plays a significant role as the largest category within the healthcare system, besides, it can perform in one of the major barriers, which is adequate nursing staffing.

OBJETIVE

To present a critical analysis about the normative opinion in nursing staffing, transposing it to a Day Hospital unit in HSCT.

METHOD

This is a critical analysis of the normative opinion issued by the Federal Nursing Council no. 1/2024, regarding parameters for nursing workforce planning, and its transposition to a Day Hospital unit in HSCT, a reference in Brazil. This facility performs all types of HSCT including unrelated, haploidentical, and pediatric patients with immunodeficiencies and Fanconi Anemia. The opinion was read in its entirety, with considerations noted regarding the target population, as well as evaluations of occupancy rates, length of stay, and nursing staff distribution. For this analysis, practical experience and management expertise in the field of HSCT nursing were considered.

RESULTS

With over 40 years of experience, the unit cares for patients classified as intensive care, palliative care, and pediatric. Therefore, according to the opinion, 18 hours, 10 hours, and 6 hours of care are required, respectively, within a 24-hour period. In this way, it is estimated that the appropriate nursing hours for the care context amount to 8 to 10 hours of care within a 12-hour period, considering it is a Day Hospital. Regarding the nursing staff, the team comprises 65% nurses, exceeding the recommendation outlined in the opinion. This is justified by the unit's profile, encompassing an oncology-hematology outpatient clinic, thereby enhancing the quality of care. Given the severity of the patients treated, who exhibit clinical instability, an average occupancy rate of 65% this year (total of 16 beds), and an average length of stay of 20 days, there is a need to adjust the quantity described in the opinion to ensure their safety.

CONCLUSIONS

The normative opinion is clearly applicable to a diverse range of populations; however, further discussion and assessment of its suitability for patients undergoing HSCT are necessary, considering their unique characteristics and care requirements. Therefore, it is recommended that more centers evaluate and engage in discussions based on the opinion, as it serves as a guiding tool for healthcare managers, administrators, and nurses to maintain an appropriate quantitative relationship between patients and professionals.

KEYWORDS - Hematopoietic Stem Cell Transplantation; Patient Care Planning; Nursing Staffing; Nursing Care; Patient Safety.

DEVELOPMENT AND IMPLEMENTATION OF A NURSING PASSOMETER IN THE BONE MARROW TRANSPLANT OUTPATIENT SERVICE

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INTRODUCTION

The process preceding a patient's hospitalization for Bone Marrow Transplantation (BMT) is permeated with evaluations by the multidisciplinary team, imaging exams, and laboratory tests. These are mandatory for Bone Marrow Transplantation, aiming at the individualized and comprehensive evaluation of the patient, due to the complexity of the procedure and the duration of treatment during hospitalization for Bone Marrow Transplantation and post-BMT. In some hospitals, nurses are responsible for overseeing these evaluations and exams, managing care in this process, characterized by managerial, assistance, and educational attributes. Given the wide scope of assessments and exam results that nurses need to monitor, it is important for them to develop strategies to ensure effective monitoring, avoiding loss of information and potential errors prior to hospitalization for Bone Marrow Transplantation.

OBJECTIVE

To report the professional experiences lived in the development and implementation of a monitoring tool, the "Nursing Passometer," in the Bone Marrow Transplant Outpatient Clinic at a 100% SUS Hospital in Minas Gerais. METHOD: This is a descriptive study, reporting the experience in the development and implementation of a Nursing Passometer in the Bone Marrow Transplant Outpatient Clinic at a 100% SUS Hospital in Minas Gerais.

RESULTS

The development of the Nursing Passometer was necessary due to the large volume of patients being monitored in the setting. The development consisted of three parts: Survey of all patients under monitoring, categorization of these patients by type of transplant, and development of evaluation criteria for patient profiles. The passometer comprises the following information: Patient identification (Full name, date of birth, mother's name, and contact phone number), Diagnosis, Transplant Type, List of mandatory interconsultations and the date of clearance by these professionals, Date of serological tests, Pending issues, and Likely date of BMT. The implementation of the Passometer took place in March/2023 and this tool is used up to the present date. After the instrument's implementation, when comparing with the previous standard, there was a reduction of 17 minutes between conventional patient information access and access to information provided by the instrument.

CONCLUSIONS

This instrument enabled the organization and optimization of information access, providing a basis for discussions with the multiprofessional team and significantly contributing to simplifying and enhancing the nursing navigation process in this setting. With this implementation, it is necessary to validate this tool by professionals with expertise in the subject, aiming to promote patient safety in this pre-BMT process.

KEYWORDS

Bone Marrow Transplantation; Health Strategies; Nursing.

EXPERIENCE OF SHARING ELECTRONIC FORMS FOR CLINICAL RESEARCH PROJECT MANAGEMENT IN REDCAP AMONG PUBLIC HEALTH INSTITUTIONS

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INTRODUCTION

Clinical research in hematopoietic stem cell transplantation plays a fundamental role in advancing medical knowledge and improving the quality of life for patients. We are in a scenario of constant transformation, where media and information technologies connect countries and continents, creating an immense global village. Therefore, establishing partnerships and sharing knowledge can optimize the processes of incorporating new technologies into the Unified Health System.

OBJECTIVE

To report the experience with sharing electronic forms for clinical research project management in REDCap between two Public Health Institutions.

METHODOLOGY

Experience report based on Oscar Jara Holliday's systematization, which proposes understanding the experience through the identification of relationships and contradictions, organized into five stages: I) starting point; II) initial questions; III) recovery of the lived process; IV) deep reflection; V) points of arrival. The institution receiving the shared electronic forms will be referred to as institution A, and the one providing them will be institution B.

RESULTS

Starting point - Institution A established an Information, Teaching, and Research Unit in 2006 with the aim of developing clinical research by providing specialized care, coordinating protocols, and ensuring the well-being of participants. Regarding the reception of research projects, institution A used paper forms, while institution B already used the REDCap web platform with electronic forms developed by them for reception, coordination, and indicator elaboration. Initial questions - Why share a technology between institutions? What are the implications of this sharing? Recovery of the lived process - In 2023, the initiative came from a research nurse working in both institutions. So, why share technology between institutions? Because sharing the technology could contribute to the tool's development and improvement in the work process, considering the previous positive experience in using it. The sharing request was made through meetings with the research coordination, the Technology Innovation Unit, and the Management of both institutions, which ultimately signed a partnership and sharing agreement. What are the implications? Safeguarding the copyrights of the donating institution of the electronic forms (Fig.1). Deep reflection - Knowledge sharing is characterized by Davenport and Prusak (1998) as the transfer of knowledge, whether spontaneous (informal) or structured (formal), among individuals. Transfer involves two actions: transmission (sending or presenting knowledge to a person or group) and absorption (incorporation or assimilation of this knowledge by the recipient).

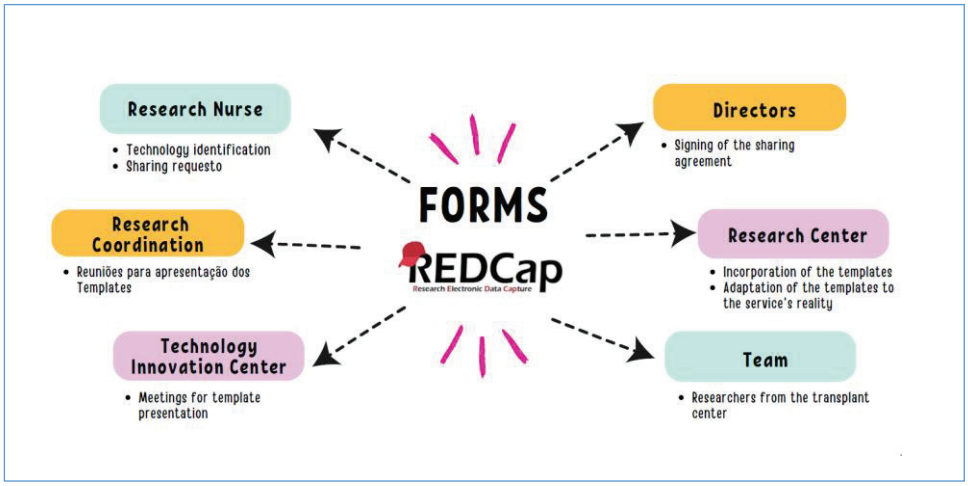
CONCLUSION

Points of arrival - Joint scientific research activities, sharing, and development of technology, product, or process can drive and disseminate knowledge development in the health sector, especially in public centers where resources are scarce.

KEYWORDS

Project Management; Clinical Research; Hematopoietic Stem Cell Transplantation.

FIGURE 1- Representative diagram of the sharing experience, 2024.



HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) IN CHILDREN WITH AUTISM SPECTRUM DISORDER: CHALLENGES AND THERAPEUTIC STRATEGIES

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INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by variable levels of impairment in social behavior and communication that can be seen even in the first months of life. The diagnosis is usually best established between 18 months and 3 years of age. Four children with stablished ASD had already been transplanted by our team but a fifth one was diagnosed by the psychology team at the time of the HCT. The objective of this report is to raise awareness of ASD in children undergoing HCT to improve diagnosis and to offer specific therapeutic interventions.

METHOD

Psychological evaluation and follow up, offered to all children and their families.

RESULT

A 1 year and 9-month-old boy underwent allogeneic HCT for the treatment of Myelodysplastic Syndrome (MDS). Due to difficulty in administering medications and eating (he only accepted liquid food), the psychology team reassessed the patient, suggested the possibility of ASD and referred the patient for evaluation. GVHD prophylaxis was adapted to weekly IV methotrexate. The patient was shown to have communication difficulties, low social interaction, restricted interests, repetitive behaviors, echolalia, and excessive use of screens. Due to weight loss, a nasoenteral tube was reinserted after inpatient discharge, later replaced by gastrostomy (G-Tube). He gradually developed partial acceptance of solid foods, improved social interaction, and acquired control of his urinary sphincter. The patient could later start attending school and made gains in the ASD therapeutic process. The healthcare team has been extremely respectful, avoiding excessive noise, unnecessary touching, always explaining each procedure and giving time to the child to adjust and allow it. Two other patients with ASD have significantly improved socialization after the transplant but, if it is due to the psychological interventions or due to a possible anti-inflammatory effect of the stem cell therapy (Dawson G, et al. A Phase II Randomized Clinical Trial of the Safety and Efficacy of Intravenous Umbilical Cord Blood Infusion for Treatment of Children with Autism Spectrum Disorder. J Pediatr. 2020;222:164-173.e5) remains to be studied.

CONCLUSION

We highlight the importance of preparing professionals to diagnose and manage ASD Care during the HCT process. It remains a major challenge and it is worth emphasizing the importance of expanding knowledge and building tools that can help the HCT process.

KEYWORDS

Hematopoietic Stem Cell Transplantation; Autism Spectrum Disorder; Graft versus Host Disease.

IMPLEMENTATION OF A POST-ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANT MONITORING TOOL BY THE NURSE NAVIGATOR: AN EXPERIENCE REPORT

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INTRODUCTION

The nurse navigator is responsible for coordinating the patient's journey. Their role is to educate, assess psychosocial needs, eliminate barriers to care and empower the patient to take an active part in clinical decisions. The navigator's competencies have already been described, but it is necessary to consider the distinctions of navigating hematologic malignancies. Hematopoietic cell transplantation (TCH) is a treatment modality for some hematologic malignancies and the role of the navigator is fundamental. When the patient is discharged after TCH, the nurse is responsible for ensuring that patients remain adherent to the therapeutic regimen through the educational process and is able to identify small changes to prevent complications.

OBJETIVE

To report on the experience of a philanthropic hospital in implementing a monitoring flow for patients after allogeneic TCH.

METHODOLOGY

Review of the best practices available for post-HCT patients and development of a monitoring tool.

RESULTS

Weekly meetings were held for 1 month with nurse navigators and quality assurance to gather the best evidence. No specific post- TCH follow-up instrument applied by navigators was found. Defined which data would be relevant for follow-up. In March 2024, an instrument was structured with: adherence to continuous medication (prophylactic and immunosuppressive), signs and symptoms of infectious complications and graft versus host disease (GVHD), functional status, nutritional aspects, control of exams and current complaints. Periodicity is established according to the progress of the transplant, weekly until D+30, fortnightly until D+100, quarterly D+180 and annually thereafter. Monitoring is carried out by telephone or in person. The service performed 22 allogeneic transplants in 2024, 17 of which were monitored by navigation. The instrument was applied as a pre-test to 4 patients up to D+100 for a period of one month. We observed that the application of the instrument made it possible to systematize the follow-up of post- TCH patients, unifying information in a single document to track possible complications and low adherence to oral therapy. We found that the information collected can help with national and international support for recording transplant data. As a challenge, we are working with the information technology sector to build an electronic medical record tool for migrating and extracting the data.

CONCLUSION

With the creation of a monitoring flow for patients after allogeneic transplant by the nurse navigator, we present an opportunity to improve care and follow-up of the clinical condition after hospital discharge. Long-term monitoring of the results is necessary to stratify the perceived benefits, transforming them into service quality metrics.

KEYWORDS

Telemonitoring, Bone Marrow Transplantation,Patient Navigation

IMPLEMENTATION OF NURSING NAVIGATION IN THE PRE-BMT OUTPATIENT CLINIC: EXPERIENCE REPORT

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INTRODUCTION

The Nurse Navigator's role is to assist the patient throughout the healthcare service, aiming to optimize the proposed treatment. Patients who are indicated for Bone Marrow Transplantation (BMT) are referred to the transplant service, where various social, psychosocial, and clinical adjustments are necessary. In this context, the Nurse Navigator plays a fundamental role in preparing and planning for BMT, aiming to optimize adjustments and expedite hospitalization for BMT, with a focus on patient safety and quality of care.

OBJECTIVE

To report professional experiences in implementing Nursing Navigation in the Bone Marrow Transplant Outpatient Clinic at a 100% SUS Hospital in Minas Gerais.

METHOD

This is a descriptive study, reporting on the experience of implementing Nursing Navigation at a 100% SUS Hospital in Minas Gerais.

RESULTS

The implementation of Nursing Navigation in the Pre-BMT outpatient clinic occurred in July/2022. In the year 2023, the nurse navigator provided care for 1,109 patients in the pre-BMT process, in addition to completing 107 BMTs. In this context, the nurse navigator not only managed care and provided comprehensive patient support but also implemented data management, health education in groups, development of navigation tools, multidisciplinary educational booklet, and collaborative practice, addressing the patients' daily needs.

CONCLUSIONS

Nursing Navigation in the pre-BMT outpatient clinic proved to be an effective strategy for care management throughout the process. The results obtained not only demonstrate the Nurse Navigator's ability to manage care and provide comprehensive patient support but also highlight the importance of group educational interventions, orientation tools, collaborative practices in promoting patient safety and quality of care, and the integration of the nurse navigator as a data manager in reporting data to regional, national, and international bodies. The medical team in this setting played an important role in providing support, sharing knowledge, training, and recognizing the Nurse Navigator's importance in the pre-BMT process. Therefore, the integration of a nurse for navigation in this setting is of utmost importance, and it is recommended to assess the outcomes of this modality in other nursing practice settings with patients undergoing Bone Marrow Transplantation.

KEYWORDS

Bone Marrow Transplantation; Health Strategies; Nursing.

INTEGRATIVE REVIEW: REASONS FOR READMISSIONS AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is associated with a high mortality rate, especially during the first year, due to immune system alterations, with a high risk of infections, graft-versus-host disease (GVHD) and relapse. This vulnerability leads to complications for months after allo-HSCT, often requiring rehospitalization. It is important for management and healthcare teams to understand the profile of outpatient-transplanted patients with higher risk and the main reasons for their readmission.

OBJECTIVE

To identify in the scientific literature the profile of readmissions of post allo-HSCT patients. Method

Integrative literature review. Five databases were used and articles with full texts up to the year 2022 were included. Exclusion criteria were articles that did not have allo-HSCT as a central theme, grey literature and non-English or non-Latin language texts. Searches were conducted in March 2023, using the PICo acronym: "P" transplanted patient; "I" post-transplant complications; and "Co" outpatient care. The search resulted in the final selection for full-text reading of 462 texts. Of these, 61 addressed hospital readmission post allo-HSCT.

RESULTS

¼ of the patients were readmitted within 30 days of discharge from index hospitalization; 80% were readmitted within one year (average of two readmissions/patient). Most readmissions occurred between D+30 and D+70, with an average length of stay of nine days. The time increased to 30 days if cytomegalovirus (CMV) or refractory GVHD was present. Early readmission was associated with worse prognosis. The most frequent cause of readmission was fever without an identified source, followed by infection and GVHD. Other reasons included gastrointestinal disorders, renal failure, electrolyte abnormalities, cardiopulmonary problems and bleeding. A series of factors were related to the risk of readmission: neutropenia, GVHD, viral infection, presence of three or more comorbidities, pre-existing psychiatric disorder, haploidentical transplant, unrelated donor, umbilical cord and placental blood source, myeloablative conditioning, total body irradiation, transplantation of advanced disease and documented infection in the previous hospitalization.

CONCLUSIONS

The post allo-HSCT patients presents several risk factors contributing to readmission, mainly in the 1st and 2nd months post-transplant. It is important for the healthcare team to have an even more careful approach to patients with neutropenia and GVHD. Signs and symptoms of infection, worsening of GVHD and medication-related toxicities should be thoroughly investigated to promptly identify complications. Early communication about observed changes at home should be emphasized and encouraged, and instructions on preventive care for communicable diseases should be reinforced at each visit to the ambulatory.

KEYWORDS

Hematopoietic Stem Cell Transplantation; Allografts; Patient readmission

KNOW-HOW OF THE HEMATOLOGIST NURSE IN THE IMPLEMENTATION OF CAR-T CELL THERAPY IN AN ONCO-HEMATOLOGICAL UNIT IN A HIGH COMPLEXITY HOSPITAL IN NITERÓI: EXPERIENCE REPORT.

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INTRODUCTION

CAR-T Cell therapy is a powerful and promising immunological therapy currently used to treat some types of hematological malignancies. This treatment involves the genetic modification of the patient's T cells to identify and destroy tumor cells. The process begins with the collection of T lymphocytes from the patient through leukapheresis, then they are sent to the laboratory where chimeric antigen receptors (CAR) are inserted into the cells, designed to bind to an antigen characteristic of tumor cells, recognizing and attacking them. Subsequently, the CAR-T cells are treated so that they multiply and are reinfused into the patient, so that the process of searching for cancer cells that express the target antigen begins, joining them and triggering an immunological response. In some patients, this immunological response can cause some adverse effects such as cytokine release syndrome, neurotoxicity and graft-versus-host disease, which can be treated with the administration of specific medications.

OBJETIVE

To describe the experience of hematology nurses in the process of implementing CAR-T Cell Therapy in a private Onco-Hematology unit of a highly complex hospital located in the city of Niterói, State of Rio de Janeiro.Método: This is a descriptive study, of the experience report type, which describes actions and aspects related to the process of implementing CAR-T Cell Therapy, focusing on the stages of service organization, unit structure, partner sectors.

RESULTED

Planning of courses and training, drawn up with the Quality and IT sector to implement the ICE scale in the hospital system. Training of medical staff to fill out specific forms requested by the industry. Development of processes and logistics from cell collection to product infusion with the outsourced hemotherapy service. Training of the multidisciplinary team on therapy, pre-infusion care, infusion care, post-infusion care. Training on the CRS and ICANS assessment scales. Training of the multidisciplinary team regarding the management of complications to therapy. Guarantee of targeted therapy for complications. Training with the intensive care team ensuring intensive therapy beds.

CONCLUSIONS

It was demonstrated that the process of planning and implementing a new therapy in a hematology service requires accurate multidisciplinary work, review of care protocols, ongoing education, and individualized care and people management. It can be concluded that all professional training in the unit was important to ensure patient safety throughout the process and quality nursing care.

CAR-T Cell; nursing; hematology.

KNOWLEDGE OF THE NURSING TEAM ABOUT THE HICKMAN CATHETER IN THE INTENSIVE CARE UNIT: AN ANALYSIS IN A HOSPITAL IN MINAS GERAIS

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INTRODUCTION

The Central Venous Catheter is an extensive device that allows for central venous access. Patients undergoing Bone Marrow Transplantation (BMT) undergo implantation of this catheter at the beginning of their hospitalization, and may remain with the catheter for up to two years after insertion. During hospitalization for the BMT process, there may be a need to transfer patients to intensive care unit (ICU) beds. It is known that care for these patients in the Intensive Care Unit (ICU) is provided by the nursing team. Therefore, it is believed to be important for the nursing team to understand what the Hickman catheter is and the related care for this invasive device to better manage the care provided to them.

OBJECTIVE

To analyze the knowledge of the nursing team working in the adult ICU regarding the care of Hickman catheter handling.

METHOD

This is a descriptive study with a quantitative approach, conducted at a large philanthropic hospital, 100% funded by the Unified Health System (SUS), in Minas Gerais during the year 2022. For data collection, a questionnaire was developed, divided into two parts containing sociodemographic and specific information about the handling and maintenance of the Hickman catheter. This project was approved under protocol number CAAE 65307622.8.0000.5138.

RESULTS

A total of 156 nursing professionals were interviewed, including 30 nurses and 126 nursing technicians. Of the 156 participants, 131 were female. The most prevalent academic training time was >10 years (41%), and 51% reported working in the ICU for 1 to 5 years. Regarding knowledge about the Hickman catheter, 2 (7%) nurses and 35 (28%) nursing technicians reported being unfamiliar with the catheter; among nurses, 11 (37%) and 64 (50%) technicians reported difficulties in handling and caring for the Hickman catheter. Regarding the use of the Hickman catheter in the ICU, 12% reported that they would not use this catheter in the ICU. Regarding participation in training on the handling and care of the Hickman catheter, 25 (83%) nurses and 114 (90%) nursing technicians reported not participating in training.

CONCLUSION

The importance of nursing staff knowledge regarding Hickman catheter care for patients undergoing bone marrow transplantation is highlighted. Therefore, it is possible to identify that the absence of training for the nursing team regarding a device may compromise the care provided to this patient during their stay in the ICU. Continuous education in healthcare for the nursing team is necessary given the routines and diversity of existing invasive devices. Qualification of the team is expected to minimize adverse events, prolonged length of stay, and high hospital costs.

KEYWORDS

Bone Marrow Transplantation; Central Venous Catheters; Nursing.

NURSE NAVIGATOR ASSESSMENT OF ADHERENCE TO ORAL DRUG THERAPY IN PATIENTS UNDERGOING ALLOGENEIC BONE MARROW TRANSPLANTATION: AN EXPERIENCE REPORT

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INTRODUCTION

Approximately 50,000 people undergo hematopoietic cell transplantation worldwide each year. Patients undergoing an allogeneic bone marrow transplant receive an extensive prescription of oral medications at discharge, such as immunosuppressants and prophylactic drugs. Adherence to these medications is crucial to minimize complications such as graft-versus-host disease and infections. Studies have shown a decline in medication adherence over time in post-bone marrow transplant patients. In this context, the nurse navigator is the professional with clinical knowledge in oncology responsible for coordinating the patient's journey. Among their competencies: ensuring continuity of care, boosting adherence to therapy through educational actions, helping to eliminate biopsychosocial barriers and empowering the patient. Studies show that monitoring by a nurse navigator improves the patient's experience and adherence to the therapeutic plan. Considering the intense regimen of drugs prescribed at hospital discharge, the nurse navigator identified the need for a multidimensional intervention capable of monitoring adherence to the post-transplant patient's therapeutic plan.

OBJECTIVE

To report on the experience of the nurse navigator in implementing an assessment of oral medication adherence and the therapeutic plan in patients undergoing allogeneic bone marrow transplantation.

METHODOLOGY

Experience report. In 2023, the service carried out 40 allogeneic transplants, of which 43% (17 - private, health insurance and human resources, all of them accompanied by a nurse navigator with expertise in oncohematology.

RESULTS

It was decided that all patients would be assessed for their cognitive and physical ability to adhere to oral therapy before undergoing transplantation. In the service we have an instrument already applied to cancer patients, in which barriers to non-adherence are identified at the start of therapy. A brainstorming session was held with the navigation, quality and data management teams to develop an instrument with open and closed questions for evaluation by the nurse navigator, to be applied weekly to patients up to D+30 and fortnightly up to D+100. The nurse evaluates all the medicines in use, checking dosage, periodicity and adherence. In the questionnaire, factors such as food acceptance and complaints that may influence adherence are assessed, and the results are discussed weekly with the multidisciplinary team for adjustments and interventions in the therapeutic plan.

CONCLUSION

The implementation of medication adherence monitoring by the nurse navigator brings benefits such as a reduction in complications and a better patient experience. As a future action, we will start collecting data using the instrument developed to measure medication adherence in patients undergoing allogeneic transplantation.

KEYWORDS

Medication Adherence, Bone Marrow Transplantation,Patient Navigation

NURSE NAVIGATOR IN TRANSPLANTS: TRAINING THROUGH A STRUCTURED AND CONTINUOUS PROGRAM IN A PRIVATE TRANSPLANT CENTER IN THE CITY OF SÃO PAULO, 5-YEAR FOLLOW-UP

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INTRODUCTION

The care pathway for hematopoietic stem cell and solid organ transplants involves multifaceted infrastructures and complex interdisciplinary interactions. When initiating transplant navigation nurses need training especially since hospitals aspiring to be transplant centers lack this specialized nursing expertise. To effectively train them prior experience is important along with exposure to established transplant centers and interdisciplinary care pathways. Furthermore, nurses must be guided by experienced preceptors during their initial learning phase. Following this period preceptors will assist them in assuming their role in the hospitals. Objectives: The aim of the study was to train nurse navigators in the care pathways for HSCT and solid organs through immersive experiences at a private transplant center under continuous preceptorship.

METHODS

This descriptive study outlines the development of a training and monitoring program for novice transplant navigators. Established in 2019 and ongoing this program is based at a highly specialized private transplant center in São Paulo with over 15 years of experience in performing adult and pediatric transplants quality certified by the Joint Commission International. The program primarily targeted emerging or expanding transplant centers across three regions of Brazil: Northeast (3), Rio de Janeiro (3), and São Paulo (4). An interdisciplinary team designed the program providing theoretical and practical instruction. Validation was conducted by local and corporate training teams. The immersion program is structured in three phases totaling 46 hours over five days followed by ongoing preceptor support. In Phase 1 nurses learn about government guidelines and regulations. Phase 2 focuses on the dynamics of transplant centers emphasizing the nurse's role from pre-transplantation outpatient care through to post-transplant follow-up. Phase 3 involves tracing the transplant care pathway through hospital units. Protocols and operational procedures serve as models adaptable to local realities. Upon completion training is integrated into the trainee's record encouraging further postgraduation. Results: Ten hospitals appointed nurse navigators to train and implement HSCT and solid organ care pathways. Since 2019 these trained professionals have effectively assumed leadership roles in their programs. 24 nurses were trained between 2019 and 2023 an average of 6 per year. 6 more are planned in 2024.

CONCLUSION

The proposed training program has proven beneficial enabling navigators to uphold care standards and support in new daily situations. Their compassionate commitment to patient care enhances the overall patient and families' journey. Theoretical training should cover regulatory ethical and legal aspects, clinical protocols, immunology, hematology, pharmacology, and ongoing professional development to adapt to evolving clinical practices.

KEYWORDS

Nurse navigator, hematopoietic stem cell transplantation, solid organ transplantation

NURSES' ACTING IN COLLECTING HEMATOPOIETICS STEM-CELLS IN THE SURGERY CENTER

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INTRODUCTION

Hematopoietic stem-cells (HSC) can be collected in the bone marrow, peripheral blood or umbilical cord blood. The bone marrow (BM) is the most common collect source of HSC in non-related donors, around 49%. The bone marrow HSC are collected in the surgery center (SC), it is an elective process and usually under general anesthesia, such includes several punctures on the posterior iliac crest. Objective: Describe the nurses' acting in collecting HSC in the SC using a checklist.

METHODOLOGY

Regards to a descriptive study reporting the actions of nurses collecting HSC using a checklist from 2016 to 2019. The checklist (Fig.1) was adapted by the authors based on the verification list proposed by the WHO. The study was approved by the Ethical Committee (CAAE: 15962819.4.0000.5274).

RESULTS

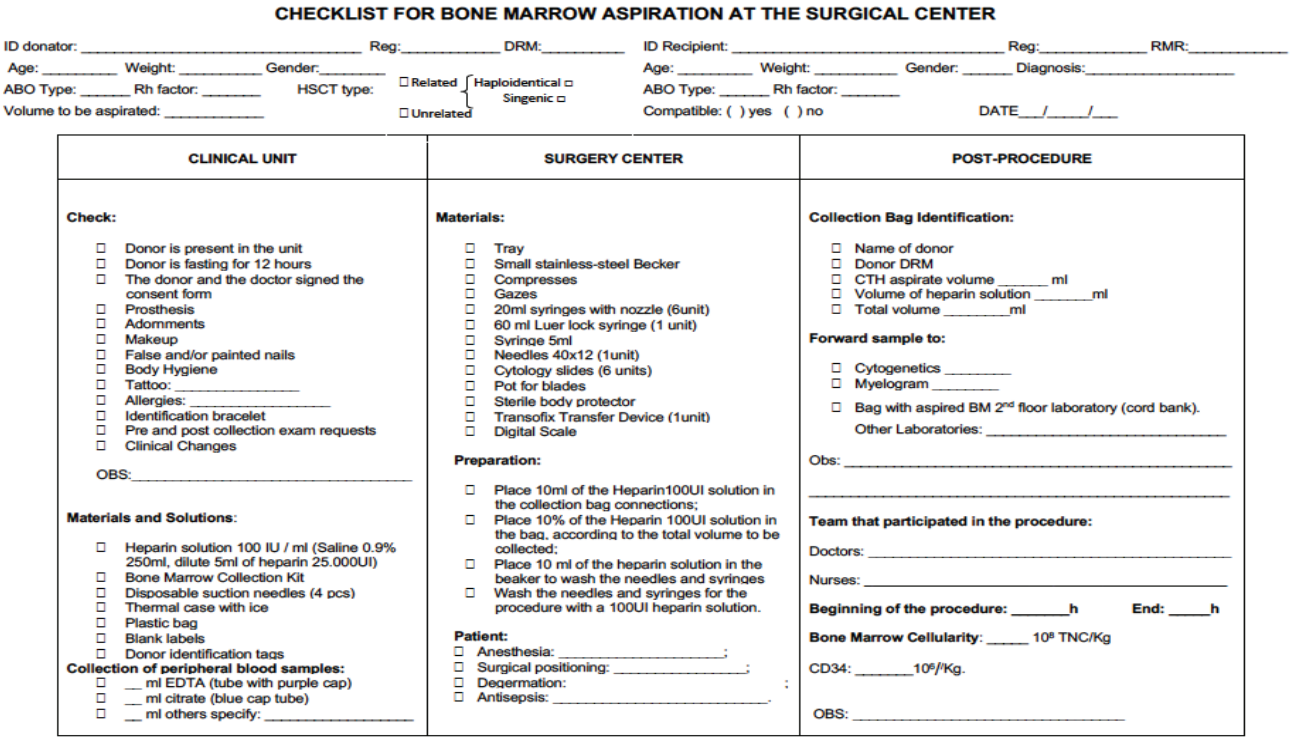
The Nurses acting in the HSC collecting team have as tenet to ensure that all the stages are fulfilled in order to minimize possible flaws and to promote the donor's safety. The nurses' actions encompass three stages: Stage I – Clinical Unity: Donor identification; National Registry of Bone Marrow Donors number; HSCT' type (related or non-related); age, weight, blood type and Rh factor, target volume to be aspirated and receptor information's. It is also verified the informed consent form; the donor's presence in the unity and remains to fast for 12 hours, as recommended. Regarding the material preparation: preparation of anticoagulant solution, thermal case; label tags, BM aspiration needles and HSC collector system; required blood collection tubes identifications. Stage II – Surgery center/before procedure: The verifications with the material to be used team are started; we confirm with the physicians the exams that'll be need (myelogram) and the blood samples (cross proof; immunophenotyping, among others); we verify if the donor autologous whole blood bag were required. It is worth to mention that are always two nurses acting in the procedure, one that stay close to the medical team with needles and syringes and the other responsible for placing the aspirated volume in the collecting system, homogenization, volume control by weighing and washing the syringes and needles with the anticoagulant solution. Stage III – Surgery center/ post-procedure: We identify the collector system with donor registration, BM aspirated volume, anticoagulant solution and total collection volume. We identify the samples that'll be sent to the labs. And we end it by checking the team that made part of the procedure, deviation notes and/or adverse events that may have occurred.

CONCLUSION

The nurses' acting in collecting HSC using a checklist establishes a routine to be followed, free of undesirable variations, ought to be fulfilled, updated and revised, periodically by al member involved in the procedure. The checklist use by the nurse goes by the second goal established by the World Health Organization: Safe surgeries saves lives.

KEYWORDS

Hematopoietic Stem Cell Transplantation; Patient safety; Nurses Acting.



CHECKLIST FOR BONE MARROW ASPIRATION AT THE SURGICAL CENTER

ID donator: _____ Reg:_____ DRM:_____
Age: _____ Weight: _____ Gender:_____
ABO Type: _____ Rh factor: _____ HSCT type: ☐ Related { Haploidentical ☐ Singenic ☐ } ☐ Unrelated
Volume to be aspirated: _____

ID Recipient: _____ Reg:_____ RMR:_____
Age: _____ Weight: _____ Gender: _____ Diagnosis:_____
ABO Type: _____ Rh factor: _____
Compatible: ( ) yes ( ) no DATE___/_____/___

CLINICAL UNIT	SURGERY CENTER	POST-PROCEDURE
Check: ☐ Donor is present in the unit ☐ Donor is fasting for 12 hours ☐ The donor and the doctor signed the consent form ☐ Prosthesis ☐ Adornments ☐ Makeup ☐ False and/or painted nails ☐ Body Hygiene ☐ Tattoo: _____ ☐ Allergies: _____ ☐ Identification bracelet ☐ Pre and post collection exam requests ☐ Clinical Changes OBS:_____ **Materials and Solutions**: ☐ Heparin solution 100 IU / ml (Saline 0.9% 250ml, dilute 5ml of heparin 25.000UI) ☐ Bone Marrow Collection Kit ☐ Disposable suction needles (4 pcs) ☐ Thermal case with ice ☐ Plastic bag ☐ Blank labels ☐ Donor identification tags **Collection of peripheral blood samples:** ☐ __ ml EDTA (tube with purple cap) ☐ __ ml citrate (blue cap tube) ☐ __ ml others specify: _____	**Materials:** ☐ Tray ☐ Small stainless-steel Becker ☐ Compresses ☐ Gazes ☐ 20ml syringes with nozzle (6unit) ☐ 60 ml Luer lock syringe (1 unit) ☐ Syringe 5ml ☐ Needles 40x12 (1unit) ☐ Cytology slides (6 units) ☐ Pot for blades ☐ Sterile body protector ☐ Transofix Transfer Device (1unit) ☐ Digital Scale **Preparation:** ☐ Place 10ml of the Heparin100UI solution in the collection bag connections; ☐ Place 10% of the Heparin 100UI solution in the bag, according to the total volume to be collected; ☐ Place 10 ml of the heparin solution in the beaker to wash the needles and syringes ☐ Wash the needles and syringes for the procedure with a 100UI heparin solution. **Patient:** ☐ Anesthesia: _____; ☐ Surgical positioning: _____; ☐ Degermation: : ☐ Antisepsis: _____.	**Collection Bag Identification:** ☐ Name of donor ☐ Donor DRM ☐ CTH aspirate volume _____ ml ☐ Volume of heparin solution _____ml ☐ Total volume _____ml **Forward sample to:** ☐ Cytogenetics _____ ☐ Myelogram _____ ☐ Bag with aspired BM 2nd floor laboratory (cord bank). Other Laboratories: _____ Obs: _____ _____ **Team that participated in the procedure:** Doctors: _____ Nurses: _____ **Beginning of the procedure:** _____h **End:** _____h **Bone Marrow Cellularity**: _____ 10^8 TNC/Kg CD34: _____10^6/Kg. OBS: _____

Figure 1: *Checklist for Bone Marrow Aspiration at the Surgical Center, 2024.*

NURSING CARE FOR PATIENTS WITH CYTOKINE RELEASE SYNDROME IN HAPLOIDENTICAL STEM CELL TRANSPLANTATION

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INTRODUCTION

Haploidentical hematopoietic stem cell transplantation (HSCT) is an effective treatment for acute leukemias and some non-malignant diseases such as aplastic anemia. Currently, this type of transplantation is growing in Brazil and worldwide. Despite its benefits, HSCT presents some complications, among them Cytokine Release Syndrome (CRS), which occurs mainly when the source is peripheral blood. CRS consists of a systemic inflammatory process of hypercytokinemia that begins after the infusion of hematopoietic stem cells, leading to increased cytokine levels and immune hyperactivation, resulting in signs and symptoms similar to sepsis (Figure 1). In severe cases, CRS can cause delayed engraftment, increased mortality, and reduced survival. Thus, qualified nursing care is also crucial to decrease the outcome of CRS and favor the success of haploidentical transplantation. Therefore, it becomes necessary to acquire knowledge and skills on this subject.

OBJECTIVE

To identify nursing care for patients with CRS who underwent haploidentical transplantation in the scientific literature. Method: A literature review was conducted in the main databases: Latin American and Caribbean Literature in Health Sciences (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE), Nursing Database - National Library (BDENF), and Google Scholar, using the keywords: Period: May 2024.

RESULTS

No articles on the subject were found. Therefore, it was necessary to use articles describing the signs and symptoms of CRS and develop nursing care by analogies and according to institutional protocols. Nursing care varies according to the severity of CRS, as can be observed in Table 1. Broadly, patients undergoing HSCT who present with non-infectious fever should have cardiac, respiratory, renal, hepatic, and neurological functions monitored by systematic vital signs monitoring, oxygen saturation, fluid balance, body weight, and constant consciousness level assessment. Any changes should be promptly communicated to the medical team.

CONCLUSION

This review identified a gap in the topic of nursing care for patients with CRS in HSCT. It is necessary to conduct studies that support this theme, aiming for evidence-based care for patients with CRS.

KEYWORDS

cytokine release syndrome; haploidentical hematopoietic stem cell transplantation; nursing care.

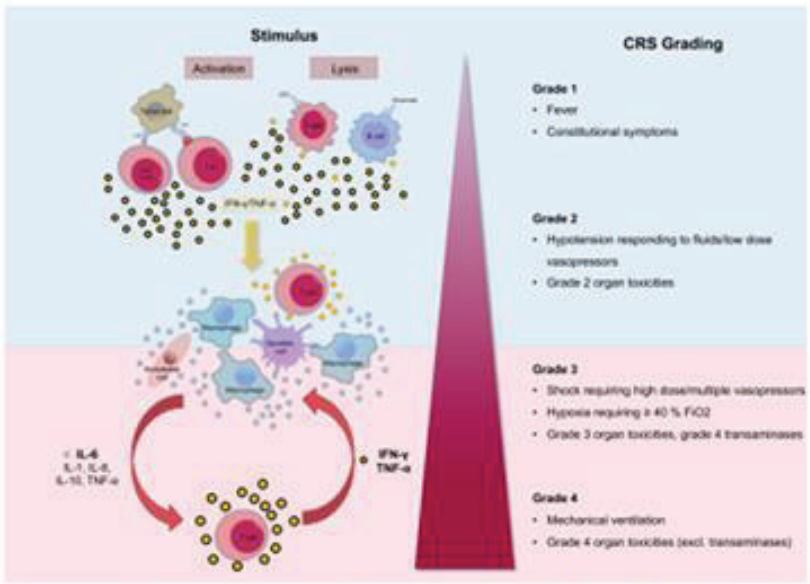

Figure 1: Signs and Symptoms of Cytokine Release Syndrome (SHIMABUKURO-VORNHAGEN, et al., 2018)

Table 1: Nursing Care in Cytokine Release Syndrome (CRS)
Grade 1 - Fever (≥ 38°C) without hypotension and hypoxia
• Implement the institution's febrile neutropenia protocol • Collect blood for requested laboratory tests • Administer medications to control symptoms (antiemetics, antipyretics, and analgesics) Keep bed rails raised (risk of falls)
Grade 2 - Fever (≥ 38°C) with hypotension without the need for vasopressors and/or hypoxia requiring nasal cannula (≤ 6L/minute)
• Monitor the patient with online electrocardiogram (ECG), pulse oximeter, non-invasive blood pressure (NIBP), and thermometer • Administer fluid replacement according to the prescription • Insert nasal cannula or assist the physiotherapist as needed • Position the patient with the lower limbs elevated at 30°
Grade 3 - Fever (≥ 38°C) with hypotension requiring vasopressors (with or without vasopressin) and/or hypoxia requiring nasal cannula (≥ 6L/minute), face mask or Venturi mask, with no other associated cause
• Monitor the patient with online ECG, pulse oximeter, NIBP, and thermometer. At this time, it may be necessary to assist in the installation of mean arterial pressure • Administer vasopressor infusion as prescribed, with or without vasopressin • Install high-flow nasal cannula, face mask, or Venturi mask as per medical guidance or assist the physiotherapist as needed • Perform an indwelling urinary catheterization (IDC) and assess urinary output
Grade 4 - Fever (≥ 38°C) with hypotension requiring multiple vasopressors (excluding vasopressin) and/or hypoxia that requiring pressure
• Administer vasopressors, antipyretics, and other medications as prescribed • Assist the physiotherapist as needed in the installation of Continuous Positive Airway Pressure or Bilevel Positive Airway Pressure • Keep a cardiorespiratory arrest cart readily accessible and ensure all materials necessary for orotracheal intubation are available. is available • Assist the doctor during the orotracheal intubation • Keep the patient on the multiparameter monitor • Keep the indwelling urinary catheter and assess urinary output

NURSING CARE IN THE PATIENT'S TRANSITION HOME AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplantation has evolved as a therapy for people affected by previously incurable hematological diseases, restoring their quality of life. The post-transplant period requires changes in the patients'/family's life routine and nursing contributes with care in the transition to home after discharge.

Objective: To find out how nurses conceive of care in preparing for the discharge of patients undergoing the transition between hospital and home after hematopoietic stem cell transplantation.

METHOD

Qualitative, comprehensive and explanatory research, developed using Robert Yin's single case study method, with the support of Afaf Meleis' Transitions Theory. Data was collected between March 2022 and August 2023 through direct observation of nine patient discharges and open-ended interviews with seven nurses from a reference service for hematopoietic stem cell transplants linked to a public teaching hospital. The inductive/deductive analysis was guided by a logical analytical model, with interpretation/coding supported by the free OpenLogos 2.0 software.

RESULTS

Three categories were constructed: From admission to post-discharge: essential conditions for the transition process; Nurses' role in the transition; Patients' response to discharge preparation. The findings were summarized in a table containing the nursing interventions extracted from the nurses' experience and in diagrams explaining this case study from Meleis' theoretical perspective. Building a therapeutic relationship between nurse/patient/family and the health education process, using a combination of written, verbal and non-verbal communication, as well as clarifying doubts, are essential conditions for transition. Nurses use their personal skills, as well as their technical and scientific skills, to act on factors that condition the transition, stimulating facilitators and intervening in inhibitors, enabling patients to respond to the expectations they experience during the transition. In line with the recommendations in the literature reviewed, the interventions in the context studied were distributed according to the areas of the nurse's professional domain, with emphasis on health education, according to the needs of the patient and family, with the aim of preventing infections, reducing complications/emergency visits and readmissions, humanizing and qualifying care after transplantation.

CONCLUSION

Systematic preparation for discharge by nursing staff, adopting a transitional care protocol, from admission (critical event) through hospitalization and post-discharge follow-up, in dialogue with the Primary Care service, if applicable, to the mastery or empowerment of the patient/family in continuing treatment at home, can contribute to achieving the patient's health goals, with resolution and safety.

KEYWORDS

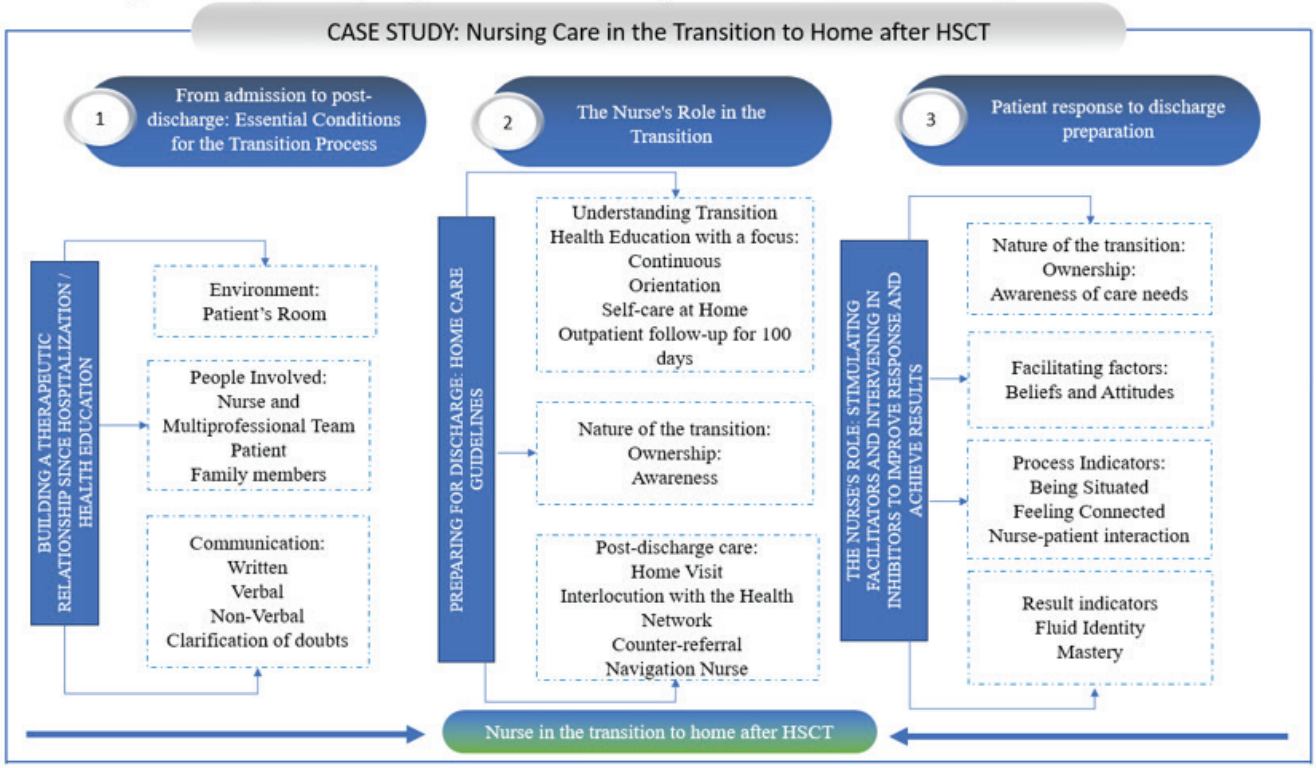
Hematopoietic Stem Cell Transplant. Nursing Care. Transitional care.

Table 1 - Sociodemographic profile, training and experience in HSCT of the nurses participating in the study. Juiz de Fora, Minas Gerais, Brazil, 2023.

Variable	Description	no.	Frequency (%)
Gender	Male	2	28.58%
	Female	5	71.42%
Age	30 to 35 years old	2	28.58%
	Over 36 years old	5	71.42%
Length of training	7 to10 years old	2	28.58%
	10 years or more	5	71.42%
Oncology Specialist	Yes	4	57.15%
	No	3	42.85%
Type of Practice	Assistance	6	85.73%
	Coordination	1	14.27%
Time working in HSCT in years	1 to 5	5	71.42%
	6 or more	2	28.58%
Work schedule	Diarist	2	28.58%
	Day Shift	4	57.15%
	Nigth Shift	1	14.27%

Source: Own elaboration, 2023.

Figure 1 - Explanatory diagram of the case study. Juiz de Fora, Minas Gerais, Brazil, 2023.



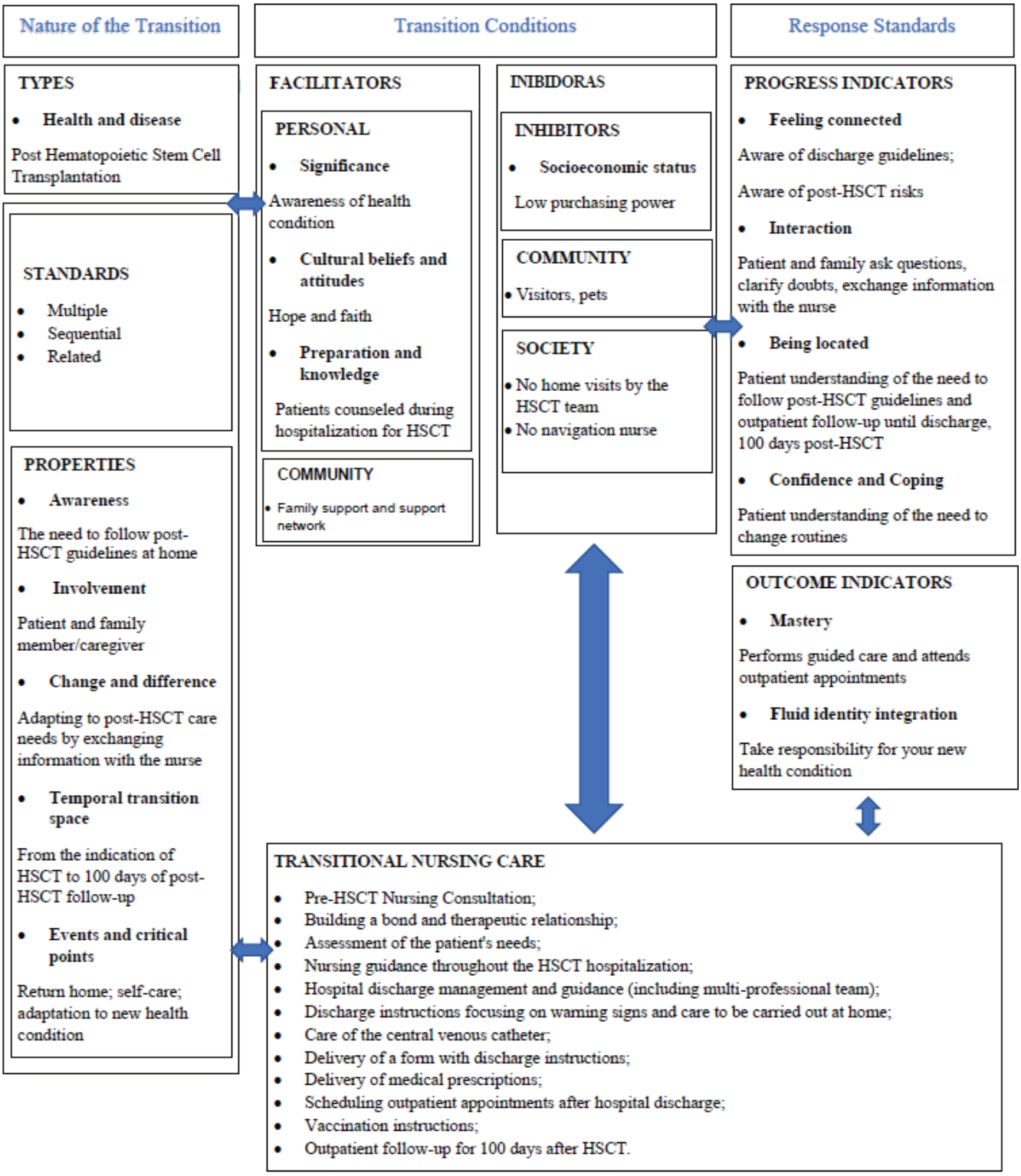
Source: Own elaboration, 2023.

Chart 1 - Nursing interventions in the patient's transition home

Type of Intervention	Activity/Resources	Objective
Assistance: (Evaluation)	Identifying care needs; building a therapeutic relationship; family context; social context (NUR01, NUR02, NUR05, NUR07)	Self-care; creating a bond; adapting language; defining the type of care.
Health Education (Guidelines)	**During hospitalization:** Answering questions about care (NUR02, NUR03, NUR04, NUR06, NUR07)	
	At discharge: Joint reading with the patient of the guidelines provided on a form created by the HSCT center (all NUR): – Preparing the home environment (NUR01, NUR05, NUR06) ❖ how to clean; ❖ contact with animals; – Lifestyle changes (NUR01, NUR02, NUR03, NUR04, NUR05, NUR06); ❖ Day-to-day routines/social life; ❖ Receiving visitors; ❖ Contact with children; ❖ Food (avoiding raw food, eating in restaurants, drinking water); – Skin care (NUR02, NUR03, NUR07): ❖ use of sunscreen; ❖ times to avoid; ❖ lip balm. – Physical Activity (which ones to do, best times) (NUR02, NUR07); – Sexual activity (NUR02, NUR03, NUR07); – Reinforce the continued use of masks (NUR01, NUR02, NUR04, NUR07); – Avoid crowds (NUR02, NUR04, NUR06, NUR07); ❖ Church visits; – When to seek help (alarm signals, return to the service/pronto-attendance): ❖ fever; ❖ vomiting; ❖ change in stool; (NUR01, NUR02, NUR03, NUR04, NUR05, NUR06, NUR07); – Central venous catheter care (NUR04, NUR05, NUR06): ❖ dressing protection for bathing; ❖ making/changing the dressing: ▪ bleeding; ▪ secretion; ▪ unfixed; ❖ avoid twisting. – Access to medication (NUR06, NUR07); – Use of medication at home (NUR02, NUR05, NUR07); – Vaccination (NUR01, NUR02, NUR04, NUR07).	Infection Prevention
	Post-discharge: – Continues as a reference for a period (NUR02, NUR03) – Provides guidance on demand (NUR01, NUR06, NUR07)	Clarifying doubts
Management	Provides contact names/numbers for further contact (NUR02, NUR03, NUR06, NUR07).	Provide referrals for continuity of care at home
	Outpatient return appointments (NUR02, NUR05).	Clinical monitoring and control
	Scheduling revaccinations (NUR01, NUR02, NUR04, NUR07).	Prevention of serious infections

Source: Own elaboration, 2023.

Figure 2 – Diagram of the transition to home after HSCT from the theoretical perspective of Afaf Meleis: nursing care



Source: Meleis' Middle Range Theory (2010) [adapted].

NURSING INTERN DEVELOPMENT METHOD IN THE BONE MARROW TRANSPLANT SECTOR OF A PRIVATE HOSPITAL IN SÃO PAULO: A CASE REPORT

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INTRODUCTION

During the nursing degree, students experience various experiences during mandatory internships. The extracurricular internship aims to attract students with an interest in the area of hematology and bone marrow transplantation (BMT) and offer opportunities for training and development in clinical practice. Care for hematological and BMT patients requires specific skills and training for the future nurse. This will be responsible for planning, executing and coordinating care in different phases of the transplant.

OBJECTIVES

To report the experience and interaction of nursing students in the development of practices and clinical reasoning during the extracurricular internship in hematology and BMT.

METHOD

This is an experience report in a hematology and BMT inpatient unit of a large hospital in São Paulo over a 12-month period.

RESULTS

Annually two nursing interns are selected for the hematology and BMT unit. As a teaching strategy and strengthening the learning culture, the development and training of the intern is monitored by a reference clinical nurse. The new nurse is inserted into care practice, in a supervised manner, in addition to being encouraged to develop critical reasoning in clinical case studies and subsequent presentation of care planning. Furthermore, it is possible to develop your systemic vision by contacting the management of care indicators. The evaluation of the technique is supported through an institutional checklist that corroborates the technique with the theory.

CONCLUSION

At the end of the period, it is possible to offer the intern specific knowledge in hematology and BMT, which allows safe nursing care and the beginning of their professional career with security and clinical vision in the specialty. In addition to the possibility of attraction and selection in the area in which it was developed.

KEYWORDS - Nursing; Learning; Bone marrow transplant

NURSING NAVIGATION: DEVELOPING A NATIONAL SERVICE IN CELL THERAPY

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INTRODUCTION

CAR-T cells are genetically modified T cells that express synthetic receptors on the cell surface to detect and eradicate cancer cells by identifying specific tumor antigens. Three CAR-T cell therapies have been granted approval for hematological cancers by ANVISA since 2022. The delivery of this therapy is complex, and many centers struggle to operationalize the various phases of this treatment, including which specialty area is best equipped to safely administer, monitor, and manage the patient for potentially life-threatening side effects during each phase of therapy. Nursing navigation aims to provide adequate and safe care in the various phases of treatment.

OBJECTIVE

Describe the process of development of the national cell therapy navigation program of a group of services in different Brazilian states.

METHODOLOGY

From November 2023 to March 2024, a working group created mapped each step of the process and developed flows, procedures, and responsibilities. Each phase was organized and specific actions were instituted. They were mainly divided into: referral, first consultation, commercial approval flowchart, pre, intra and post until long-term follow-up.

RESULTS

Patients are admitted to the program by medical referral and, as it is a nationwide group, the cases are welcomed by the national nurse navigator who is responsible for the stages of communication with the requesting physician, patient and family, and the team that will perform the procedure. This nurse communicates with the local nurse navigator, who assumes the responsibilities and ensures the following phases of the process, ensuring collection, hospitalization planning, and follow-up for discharge and long-term. From January to May 2024, 11 patients were referred to the program and of these, 07 were admitted, who are so far in different phases of treatment, during this period we were able to apply the flows and test them, to date all patients have been followed up as planned.

CONCLUSION

Defining standards of care, especially when there is a new and highly complex therapy, is essential for the safety of the procedure, in addition to ensuring specialized follow-up and providing a link with the reference team, in addition to trust and a better experience for the patient and Family. Our next steps involve follow-up in the collection of indicators as well as evaluation of the quality of life of these patients.

KEYWORDS

Cell Therapy; CarT Cell; Nursing navigation.

NURSING STRATEGIES FOR THE MANAGEMENT OF INCONTINENCE-ASSOCIATED DERMATITIS IN PEDIATRIC PATIENTS UNDERGOING HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Incontinence-Associated Dermatitis (IAD) is characterized by intense inflammation and redness in the genital area, primarily occurring in association with diaper use. IAD can affect extensive areas including the genitalia, buttocks, thighs, and lower abdomen. Triggering factors include excessive moisture, altered skin pH, friction, and the presence of microorganisms. The prevalence of IAD among transplant patients is 28%, thus it is important to implement specialized nursing care strategies to minimize associated risks and preserve skin integrity.

OBJECTIVES

To report the nursing team's experience in managing IAD in pediatric patients during the Hematopoietic Cell Transplantation (HCT) process.

METHOD

Retrospective analysis of medical records and the Key Performance Indicator (KPI) system to assess the prevalence and outcome of IAD management in pediatric patients during HCT, treated from January 2022 to December 2023. Prevention strategies for IAD included regular application of zinc oxide-based barrier cream, guidance on proper hygiene, and frequent diaper changes. Emphasis was placed on intimate area hygiene, recommending cotton and distilled water or chamomile tea, while avoiding wet wipes that may further irritate the skin. In case of lesions, the skin treatment committee is notified to assess the need for applying barrier-forming creams and spray skin protectants.

RESULTS

Out of 116 patients undergoing HCT evaluation, 32 developed IAD. The types of HCT were allogeneic (n=30) and autologous (n=2). Most patients were boys (n=22). The distribution according to the age was as follow: 0-12 months (n=1), 18-36 months (n=11), preschoolers 3-6 years (n=8), school-aged children 7-11 years (n=5), and adolescents up to 17 years (n=7). This finding can be explained by the use of diapers in prevalent age groups. Diagnoses included malignant diseases (n=12); acquired and inherited bone marrow failure syndromes (n=7), inborn errors of metabolism (n=4) and other diseases (n=5). Among patients diagnosed with IAD, 2 presented with Clostridium diarrhea. Resolution of IAD in evaluated patients occurred at a median of 11 days (range: 8 to 26 days). Ten patients presented extensive lesions with partial loss of dermis and epidermis. Eight patients had fungal infection associated with IAD and were treated with topical ketoconazole for a median of 8 days, ranging from 7 to 10 days.

CONCLUSIONS

IAD is a common condition in pediatric patients undergoing HCT. Effective management of this condition requires a multidisciplinary approach, with emphasis on the role of nurses who can early identify any skin complications. Prevention and continuous care are essential to reduce the impact of IAD. The practices and experiences discussed in this study may guide future research in the field, contributing to improving nursing care and patient well-being.

KEYWORDS

Transplantation, Dermatitis, Nursing

PROFILE OF PATIENTS UNDERGOING CAR-T CELL THERAPY AT A PRIVATE NETWORK HOSPITAL IN RIO DE JANEIRO IN 2023

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INTRODUCTION

Chimeric antigen receptor T-cell (CAR-T) therapy is widely used for B-cell malignancies including Acute Lymphoblastic Leukemia and Large B-cell Lymphoma in cases of relapse or refractory to other therapies. It has been an effective alternative in the treatment of these diseases with improved overall survival and significant response. The process begins in the multidisciplinary consultation where the patient's clinical, social, emotional aspects and laboratory tests are evaluated. Therapy begins with a process called leukapheresis, that is, the collection of T lymphocytes. These cells are cryopreserved and sent to the laboratory for genetic reprogramming. This reprogramming takes place through the genetic modification of the T cell, giving it the ability to produce the CAR molecule, becoming a specialized cell capable of identifying tumor cells and destroying them. Despite the benefits, such treatment offers potentially fatal risks such as neurological toxicity (ICANS) and cytokine release syndrome (CRS), requiring a specialized service for the management and control of such complications.

OBJECT

The objective of this study is to characterize the sample according to socioeconomic data, identify underlying disease and complications after infusion.

METOD

This is a descriptive study with a quantitative approach, with the study population being patients who were admitted to a private hospital and underwent CAR-T CELL therapy in 2023. Secondary data was collected through analysis of medical records, identifying the following variables: gender, age, education, profession, city of origin, diagnosis, comorbidities and complications during therapy. The CRS and ICANS classification was given according to assessments during hospitalization. Results: The therapy was performed on 6 patients, with a mean age of 54.1 years, one of whom was a pediatric patient. Were observed 33.3% female patients and 66.6% male patients. Regarding education, 33.3% patients had primary education,16.6% had completed secondary education and 33.3% had completed higher education. The professions found were:33.3% housewives, 33.3% civil engineers, 01 federal civil servant and student: 6.6%. Regarding the city of origin: Rio de Janeiro: 66.6% patients, Natal: 16.6% and Macaé: 16.6%. Diagnoses: LDGCB: 33.3%, diffuse large B-cell non-Hodgkin's lymphoma: 50% and ALL ph+:16.6%. Patients with other associated comorbidities: HBP: 66.6%, DM: 16.6%. Therapy-related complications: CRS Grade 1:33.3%; Grade 2:50%; Grade 3:16.6%; Grade 4:0. Only 16.6% experienced ICANS Grade 3 neurotoxicity.

CONCLUSION

The study of patients' epidemiological data aims to identify the patients' profile and the main complications for planning new strategies to improve care and mainly to prevent complications and injuries. It is expected that the information acquired in the study can contribute to assistance, financial and ongoing education in service planning.

PROFILE OF TRANSFUSION REACTIONS RELATED TO THE INFUSION OF HEMATOPOIETIC CELL IN A PEDIATRIC CENTER

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INTRODUCTION

Hematopoietic Cell Transplantation (HCT) is utilized as a significant therapeutic option for treating numerous malignant and non-malignant diseases. During the infusion of Hematopoietic Cell (HC), patients may experience adverse reactions related to ABO/Rh incompatibility, which can be categorized as mild, moderate, or severe, with immediate reactions occurring up to 24 hours after infusion and delayed reactions thereafter. These reactions can range from cutaneous rash, hypertension, hemoglobinuria, anaphylaxis, sepsis, and even death.

OBJECTIVES

To analyze the profile and events of patients who received HC infusion and developed adverse reactions.

METHOD

A quantitative retrospective study with a cross-sectional design was conducted through medical record analysis. Patients aged between 0 and 18 years who underwent allogeneic HC at a pediatric center between January 2022 and December 2023 were included.

RESULTS

A total of 108 HC infusions were conducted during the analyzed period; 37% (n=40) had malignant diseases, 31% (n=23) had hemoglobinopathies, 17% (n=18) had immunodeficiencies, 13% (n=14) had inborn errors of metabolism, and 12% (n=13) had bone marrow failures. In 50% (n=54) of cases, the donors were haploidentical, 32% (n=35) were unrelated, and 18% (n=19) were compatible related. The cell sources were peripheral blood 10% (n=11), bone marrow 89% (n=96), and umbilical cord blood 1% (n=1). ABO/Rh incompatibility was found in 56% (n=60), with 38% (n=23) having minor incompatibility, 28% (n=17) major incompatibility, 22% (n=13) Rh incompatibility, and 12% (n=7) bidirectional incompatibility. In 31% (n=34) of patients, the marrow received some form of treatment prior to infusion. Immediate adverse reactions were observed in 31% (n=34) of patients; 68% (n=23) experienced hypertension, 26% (n=9) had a cutaneous rash, and 9% (n=3) had hemoglobinuria. Treatment was administered to 38% (n=13) of patients who experienced a reaction. Regarding the severity of reactions, 18% (n=6) required urgent interventions, such as pausing marrow infusion and the use of antihistamines and corticosteroids. The median infusion time for patients who experienced a reaction was 7 hours, whereas for patients without any reaction, the median was 4 hours.

CONCLUSION

Pre-treatment of HC did not exclude the occurrence of reactions during infusion, emphasizing the importance of knowledge of infusion protocols and, especially, early recognition of signs and symptoms by nursing professionals. Rapid and appropriate treatment are crucial for a favorable outcome for all patients, especially in cases of severe reactions. Based on the presented scenario, the results supported improvements in care processes, as well as the provision of a specific kit for transfusion reactions that is currently in the implementation phase in the unit, aiming to make the control of adverse transfusion-related events more efficient and effective.

KEYWORDS

Hematopoietic Cell Transplantation, Nursing, Pediatrics.

PROVIDING CARE FOR VOLUNTEER HEMATOPOIETIC STEM CELL TRANSPLANT DONORS BY THE NURSE NAVIGATOR

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INTRODUCTION

Currently, the Brazilian Bone Marrow Volunteer Donor Registry (REDOME) has over five million registered donors, with 359 thousand new registrations in 2022 alone (INCA, 2020). Moreover, there has been a steady increase in the number of allogeneic hematopoietic stem cell transplants (ABTO, 2020). Consequently, there is a larger number of unrelated donors involved in the donation process, and rapid expansion of registries, impacting on HSCT activities. In order to enhance the care provided to volunteer donors, the role of the nurse navigator has emerged. The nurse navigator is responsible for guiding the donor through every step of the process, from scheduling the clinical evaluation appointment, conducting tests, confirming eligibility, overseeing donation, to hospital discharge.

OBJECTIVE

To describe the care pathway for volunteer hematopoietic stem cell donors developed by the nurse navigator. Method: Cross-sectional, retrospective, quantitative study. Data were collected from all volunteer donors attended from January to December 2023 at a university hospital in the southern region of Brazil, a reference center in HSCT. The data were placed into an Excel spreadsheet and underwent basic statistical analysis.

ResultsIn 2023, there were 24 workups conducted, and 23 collections from voluntary donors were successfully completed. One of these collections was canceled by the transplant center. In terms of gender analysis, there were 10 women and 14 men. The average age of the donors was 35 years (ranging from 23 to 56).

Concerning the patients' diagnoses, one was diagnosed with Thalassemia, two with Severe Aplastic Anemia, and six with Acute Myeloid Leukemia (Graph 1). Regarding the description of the care flow, 100% of the donors were received at the institution by the navigating nurse, and guided through the entire process, including clinical and social screening, physical assessment, comprehensive medical history, laboratory tests, and additional investigations such as X-rays and electrocardiograms.

CONCLUSIONS

The actions carried out by the navigating nurse in attending to voluntary donors represent a critical strategy for promoting efficiency in the consultation, screening, clinical services, and diagnostic processes, thereby enhancing satisfaction and reducing potential cancellations or withdrawals, as well as overcrowding. Furthermore, it establishes a bond of trust between the donor and the healthcare team.

KEYWORDS

Nurse Navigator, Volunteer Hematopoietic Stem Cell Transplant Donors.

QUALITY OF LIFE AFTER ALLOGENEIC BONE MARROW TRANSPLANTATION: THE IMPACT OF INTERDISCIPLINARY CARE ON IMPROVING SURVIVAL RATE

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INTRODUCTION

Faced with numerous therapeutic alternatives for cancer and/or hematologic diseases patients, hematopoietic stem cell transplantation (HSCT) stands as na alternative treatment with potential for survival and cure. Its main objective is to restore marrow and immune function. HSCT recipients face various challenges during the transplant period, becoming susceptible to various complications that require continuous care from the interdisciplinary team, both in the acute and late phases. The Niterói Hospital Complex (CHN) is a reference center for autologous and allogeneic transplants in the state of Rio de Janeiro. To enhance the monitoring of survival and quality of life of patients post allogeneic HSCT, the institution created an interdisciplinary team, composed of professionals with large experience in hematology and transplants, and established a specialized care plan for follow-up and management of complications in the post-HSCT period.

OBJECTIVES

To evaluate post-allogeneic transplant quality of life, clinical outcomes, and patient experience.

METHOD

This is a qualitative, observational, retrospective study in adult patients undergoing allogeneic HSCT from 2021 to 2023, comparing quality of life within the current criteria recommended by the WHO. The study was conducted at the Bone Marrow Transplant Service of CHN.

RESULTS

The hospital performed 121 allogeneic transplants between 2021 and 2023. 98 of these patients (81%) were entered into the Center for International Blood and Marrow Transplant Research (CIBMTR) database, and all patients (100%) were entered into the Institution's Research Electronic Data Capture (REDCap). The instruments used to assess post-allogeneic transplant quality of life were annual check-ups through in-person and online assessments, late follow-up through the application of quality of life questionnaires at 100 days, 180 days, and 365 days post HSCT through the REDCap platform. In the first quarter of 2024, 14 patients transplanted between 2021 and 2023 were seen for annual post-discharge check-ups with a hematologist at the CHN quality of life outpatient clinic. The main problems identified were frequent rehospitalizations, financial burdens, graft-versus-host disease, fatigue, psychological symptoms, recurrent infections, sexual and fertility dysfunction, secondary neoplasms, and sleep disorders.

CONCLUSION

The post-allogeneic HSCT patient maintains biopsychosocial care demands that negatively influence quality of life, highlighting the need for continued monitoring by a specialized multidisciplinary team, favoring improvement in quality of life, patient experience, and increased survival.

ROLE OF THE NURSE IN THE CELLULAR PROCESSING CENTER FROM NORTHEAST

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INTRODUCTION

The Cellular Processing Center (CPC) is responsible for cryopreservation and storage of hematopoietic progenitor cells (HPC) used for autologous and allogeneic transplantation. It also follows the infusion and makes distance monitoring of grafting and side effects during infusion and subsequently, good communication with the Transplant Centers. The CPC also notifies biosurveillance of non-conformities related to the product.

GOAL

Describe the observations made by the nurse related to defrosting, infusion and possible reactions presented by the patient during the CPH infusion. Methodology: Descriptive retrospective study, where infusion data were collected during the January 2021 to March 2024, analyzing the forms used in transplants autologous and allogeneic. The data refers to the defrosting time, the infusion and any reactions presented by patients during the procedure. Results: 272 autologous transplants were performed during the period. The average time of defrosting in a water bath with a temperature of 37°C to 38°C, it was 3 to 5 minutes depending on the volume of each bag. The infusion time generally varied from 10 to 15 minutes, depending on the volume to be infused and the conditions presented by the patient. There were 84 cases of immediate reaction recorded, which represents a percentage of 23% of cases. Allogeneic transplants totaled 154 with 14 cases of immediate reactions, that is, 9%. We emphasize that all reactions observed during the study period, were considered mild or moderate. No event considered serious was recorded. There were also reactions psychological issues such as anxiety, fear and crying. Conclusion

We emphasize the importance of the Cell Processing Center Nurse, who has by function, in this context, the responsibility of correctly handling the CPH, in additionto maintain a partnership relationship with transplant centers, being the way to CPC communication, therefore contributing to the success of the hematopoietic progenitor cell transplant.

KEYWORDS

Hematopoietic progenitor cell transplantation (HCT), Cell Processing Center (CPC), Hematopoietic Progenitor Cells (HPC).

THE ROLE OF THE NURSE NAVIGATOR IN THE FOLLOW-UP OF PATIENTS UNDERGOING CART-CELL THERAPY

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INTRODUCTION

Car-T cell therapy (Chimeric Antigen Receptors) has emerged as a promising alternative in the treatment of some types of hematologic cancer. In Brazil, this treatment is still new. It was only in 2019 that ANVISA (National Health Surveillance Agency) approved the first treatment with Car-T cells for patients with acute lymphomas and leukemias and since then, it has been made available in some institutions through clinical studies or commercially. At Hospital Albert Einstein, the first case was in October 2020 through an academic protocol and today we have 13 patients undergoing this therapy. With the increase in the number of patients with access to treatment, the team of nurse navigators is seeking to improve its role in the follow-up of these individuals. However, like other methods of advanced therapy, treatment with Car-T cells presents unique challenges, including acute and late side effects that require specialized monitoring and management. After cell infusion, patients enter a critical period of follow-up and monitoring for neurotoxicity, risk of infection and prolonged cytopenias. In this context, the role of the nurse navigator in monitoring this patient after discharge from hospital is of paramount importance.

OBJECTIVE

To describe the practice of post-CAR-T care, highlighting the fundamental role of the nurse navigator.

METHODOLOGY

Experience report on the development of the nurse navigator and workflow for the follow-up of patients undergoing Car-T cell infusion in the hematology unit. Results: With the aim of assisting patients undergoing Car-T in an individualized, continuous and systematized way, we acted from the definition of the treatment with Car-T cells by the medical team, offering support in the submission of the application process to health operators or inclusion in clinical studies, guidance on tests and multidisciplinary pre-procedure assessment, joint organization with the inpatient and cell therapy team of the patient's schedule and agenda, participation in weekly clinical meetings and offering support and education to the patient, family and/or caregiver after hospital discharge for follow-up, we monitor late side effects, neurotoxicity, infections and cytopenias with telephone contact 1x/week until D+30, fortnightly until D+100, quarterly until D+180, and then annually. In this way, we were able to eliminate barriers and navigate the patient throughout their journey.

CONCLUSION

Patients undergoing Car-T therapy face a series of physical, emotional and psychosocial challenges, including potential acute and late side effects. Monitoring these patients by the nurse navigator aims to mitigate these challenges, promoting adherence to the process. They are a facilitator in the process for the multidisciplinary team, but above all for the patient and their family.

KEYWORDS

Nurse Navigator, CarT-cell

THE ROLE OF THE NURSING TEAM IN THE APPLICATION OF THE IMMUNE EFFECTOR CELL-ASSOCIATED ENCEPHALOPATHY SCORE – ICE – SCALE FOR THE ASSESSMENT OF NEUROTOXICITY IN CELL THERAPY

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INTRODUCTION

Immunotherapy with T cells modified by the chimeric antigen receptor (CAR-T) is a promising treatment for hematological diseases. However, targeted activation of the immune response can trigger serious and specific complications. The most common adverse events include cytokine release syndrome (CRS) and immunoeffector cell-associated neurotoxicity syndrome (ICANS), which can occur days to weeks after cell infusion. Therefore, it is essential to ensure patient assessment using tools that identify neurological changes for interventions and assertive decision-making. The Immune Scale Effector Cell -Associated Encephalopathy Score - ICE ensures the neurological assessment of the patient and possible toxicities.

OBJECTIVES

To report the experience of the nursing team in applying the ICE scale during cell therapy treatment .

METHOD

This is an experience report carried out in the hematology and cell therapy inpatient unit of a large hospital in São Paulo.

RESULTS

From 2020 to 2024, 14 treatments with CAR-T cells were carried out. The application of the ICE scale is carried out by the clinical nurse, previously trained, at least twice a day, morning and night, in 100% of patients in this condition. Its application guarantees the early identification of neurological toxicity, using a score from 0 to 10 it is possible to evaluate orientation, naming ability, commands, attention and writing. In 93% of cases, no changes were identified, in 1 case the clinical nurse identified subtle changes in behavior during his assessment, corroborating the change in the ICE scale score (previous 10/later 7) and the change evidenced in electroencephalography. Its evaluation together with the expertise and use of the neurological assessment scale enabled quick and efficient actions. The nurse is the professional responsible for evaluating the patient daily and ensuring the identification of clinical and behavioral changes in behavior and ICE scale scores.

CONCLUSION

The identification of clinical changes and neurological toxicity early, during the hospitalization of patients undergoing CAR-T treatment, is essential for favorable outcomes. The use of recommended tools such as the ICE scale empowers nursing care practice by instrumentalizing clinical discussions in order to favor better outcomes for patients.

KEYWORDS

Nursing; Cellular Therapy; Patient safety

USE OF PERIPHERALLY INSERTED CENTRAL CATHETERS ON HAEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic cell transplantation (HCT) is an important procedure for treatment of several hematological and oncological diseases. During this process, the use of a central venous catheter becomes essential. Peripherally inserted central catheter (PICC) is an excellent option. It is a non-invasive device implanted bedside without anesthesia and therefore outside surgical center. It ensures safe administration of medications and blood products and it minimizes the risk of complications and infections. According to Resolution 258/2001 of the Federal Nursing Council, a qualified nurse is responsible for implanting the catheter.

OBJECTIVE

To describe the experience of nurses systematically implanting PICC in patients undergone to HCT at a public health service.

METHODS

Descriptive research on PICC with adults' patients undergone allogeneic HCT from April 2022 to April 2024. After receiving practical and theoretical training course, five nurses evaluated patients' medical history and physical exam and implanted PICC using an ultrasound transducer and the modified Seldinger technique.

RESULTS

Seventy-two patients underwent allogeneic transplantation, and those, twenty-eight patients (40%) had PICC implanted. Some patients had more than one catheter implanted. Average age was 44 years old, with 50% men and 50% women (Table 1). The main diagnosis was acute myeloid leukemia (46.4%) and the main transplant modality was haploidentical transplant (50%). There were thirty-one PICC implanted (Table 2). The right upper limb was the primary insertion site (71%) due to its anatomical ease. The average duration of PICC was 94 days, and these catheters were used mainly for procedures such as blood transfusion (87%), parenteral nutrition infusion (45.2%), and administration of antiviral drugs as Ganciclovir (48.4%). The main reason for removing catheters was confirmed or suspected catheter-related infection (34.8%), followed by the end of treatment (30.4%).

CONCLUSION

This research indicates that PICC is a very useful central venous catheter. There is low complication level since competent and trained nurses are responsible for implantation as well as maintenance care due to the high complexity of this device.

KEYWORDS

Hematopoietic Cell Transplant; Peripherally Inserted Central Catheter; Nursing.

MULTIDISCIPLINARY - **PHARMACY**

CYCLOSPORINE AND NIRMATRELVIR/RITONAVIR AN IMPORTANT INTERACTION IN PATIENTS AFTER ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: THREE CASE REPORTS

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INTRODUCTION

Patients undergoing allogeneic hematopoietic stem cell transplantation use immunosuppressive therapies combined with calcineurin inhibitors (tacrolimus and cyclosporine), which have a narrow therapeutic window, as prophylaxis for graft-versus-host disease (GVHD). In cases of infections with the COVID-19 virus, because these patients meet the criticality criteria, it is used nirmatrelvir/ritonavir as treatment, which is a combinationII of antivirals used to treat adults who do not need supplementary oxygen and who meet the criticality criteria. It must be started no later than five days after the onset of symptoms. The combination of nirmatrelvir/ritonavir with tacrolimus or cyclosporine significantly raises the serum level of these drugs, alerting the multi-professional team that will be following these patients. This multi-professional approach is essential to minimize the potential serious reactions resulting from this drug interaction.

OBJECTIVE

To report three cases of nirmaltrevir/ritonavir interaction with cyclosporine in patients after hematopoietic stem cell transplantation and the clinical management carried out to minimize potential adverse reactions.

CASES

The patients followed had a diagnosis of high-risk AML, had undergone allogeneic hematopoietic stem cell transplantation and were on use of cyclosporine for GVHD prophylaxis. The patients started with flu-like symptoms and after analyzing PCR for SARS-CoV-2, the viral infection was detected. Following the protocol for the use of nirmatrelvir/ritonavir, treatment was started. At the start of treatment, the patients' cyclosporine levels were 356.6 ng/mL; 152.6 ng/mL and 291.3 ng/mL. Three days after starting the drug, a new serum cyclosporine dosage was taken, which showed levels of 784.4 ng/mL; 643.3 ng/mL and 1013.1 ng/mL, respectively. Following the results, it was decided to omit the next cyclosporine dose and return the treatment with 50% of the previous dose, maintaining nirmaltrevir/ritonavir, which would be taken until day-5, with continuous serum cyclosporine level monitoring. Five days after the treatment with nirmaltrevir/ritonavir has finished, it was observed normal serum cyclosporine levels with dosages of 194.1 ng/mL; 159.9 ng/mL and 115,6 ng/mL. Due to adequate monitoring the patients had no adverse reactions related to the drug interaction between cyclosporine and nirmaltrevir/ritonavir.

CONCLUSION

Multiprofessional monitoring and interventions contribute to the safe use of nirmaltrevir/ritonavir in post-HSCT of patients undergoing continuous immunosuppression with cyclosporine.

KEYWORDS

Adverse Reactions; COVID-19 Drug Treatment; Allogenic Transplant

HOSPITAL DISCHARGE IN BONE MARROW TRANSPLANTATION: PHARMACIST'S PERSPECTIVE

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INTRODUCTION

Hospital discharge can characterize a moment in which the patient progresses clinically well and is able to return home and continue the recovery process. Problems related to therapy, due to possible changes in drug treatment during the transition of care between hospitalization and discharge, can cause harm to the patient.

The clinical pharmacist's role in hospital discharge of patients after hematopoietic cell transplantation (TCTH) can reduce medication discrepancies between pre- and post-hospitalization therapeutic regimens, which can occur in several ways, such as medication reconciliation, identification of related problems in adherence to pharmacotherapy, minimize both adverse events related to medications and the incidence of readmission.

OBJECTIVE

To characterize information regarding discharge guidance after HSCT in a quaternary hospital in São Paulo during the year 2023.

METHOD

A retrospective analysis of patients undergoing HSCT in 2023 was carried out. Data were obtained through consultation of the electronic medical record, identifying information regarding pharmaceutical guidance at hospital discharge.

RESULTS

In 2023, 66 HSCTs were performed, 66% allogeneic and 39% autologous. 74% of patients received hospital discharge instructions from the pharmacist. In allogeneic transplantation, the average medication for hospital discharge was 12 medications, whereas in autologous transplantation, 7. In this scenario, the pharmacist created an individualized spreadsheet for each patient, containing all medications used after hospital discharge, considering their particularities and drug interactions. Regarding the dispensing of medications upon hospital discharge, during guidance, the pharmacist identifies whether continuity of treatment is guaranteed. 57% of patients required some dispensing to continue their treatment at home and of patients hospitalized through medical insurance, 35% needed at least 1 medication to guarantee the continuity of their treatment after discharge.

CONCLUSIONS

The hospital discharge process is complex and, when evaluating the average quantity of medications prescribed, it is clear that there is a need for guidance regarding the safe use of these medications at home. In this process, the pharmacist, when analyzing and prescribing and providing guidance, can minimize the occurrence of drug interactions, provide specific information about each medication, guarantee continuity of treatment, while aiming for patient safety. This analysis demonstrates opportunities for clinical pharmacists to work in HSCT.

KEYWORDS

Pharmaceutical guidance, hematopoietic stem cell transplant, hospital discharge.

MEDICATION RECONCILIATION IN THE TRANSITION OF CARE FOR PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION: THE CONTRIBUTION OF THE CLINICAL PHARMACIST

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) is therapy widely used in the treatment of hematological diseases and requires the work of a multidisciplinary team for its successful execution. In this context, the clinical pharmacist has played an extremely important role through drug reconciliation services, which consist of a review of the patient's medication at the moment of the admission and hospital discharge, promoting individualized care and preventing medication errors by identifying discrepancies.

OBJECTIVE

To describe the main discrepancies in medication reconciliation as well as the sociodemographic and clinical profile of patients undergoing HSCT.

CASUISTRY

Patients who underwent hematopoietic stem cell transplantation during the study period.

METHODS

The study was based on the medication reconciliation records and pharmacotherapeutic follow-up carried out by the unit's clinical pharmacy team between July and December 2023 at a teaching hospital. The data collected was distributed in a padronized table of the unit of clinical pharmacy, made in Excel®, in which was describe the following information: age, gender, underlying disease, type of transplant and discrepancy between previous pharmacotherapy and current pharmacotherapy upon hospital admission. The present study was approved by the Research Ethics Commitee under opinion number 5.409.579.

RESULTS

During the time interval included in the study, a total of 68 admissions were made through medication reconciliation for 53 patients. Between these patients 45.6% were female and 54.4% male. About 61.8% of the patients were between 31 to 60 years old. The most frequent underlying diseases were as follows: 27.9% with Multiple Myeloma (MM), 17.6% of patients with Acute Lymphoblastic Leukemia (ALL), 13.2% with Acute Myeloid Leukemia (AML) and 41.3% of patients with other diagnoses. Regarding the type of transplants, the most common among the patients evaluated was autologous HSCT with (34/68) 50% of the cases, (25/34) 36.8% of related allogeneic transplants and (9/34) 13.2% of unrelated allogeneic transplants. Problems related to discrepancies between previous pharmacotherapy and current pharmacotherapy were identified, with 48.5% of patients having discrepancies, 60.6% of which were justified. Among the discrepancies, the problems related to the discontinuation of medication (30.3%) stood out, followed by failure to prescribe necessary medication (33.3%) and the substitution of medication (21.2%).

CONCLUSION

From the offering of this clinical service, it was possible to identify prescription errors and make the necessary prescription adjustments, promoting the safe use of medication in the transition of care and in relation with patients treatment, in addition to outlining a sociodemographic and clinical profile of these patients.

KEYWORDS

Drug reconciliation; Clinical pharmacy service; Patient safety.

PROFILE OF REPORTS OF ADVERSE DRUG REACTIONS IN BONE MARROW TRANSPLANT PATIENTS IN A SENTINEL HOSPITAL

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INTRODUCTION

Adverse drug reactions (ADRs) are any harmful or undesirable and unintentional response that occurs with drugs at the doses usually used, becoming a problem in healthcare. In order to monitor and reduce these events, reporting them to risk management services enables traceability with a focus on patient care. To facilitate this notification, it was created VIGIHOSP, a software for Health Surveillance and Hospital Care Risk Management, used in federal university hospitals, which facilitates voluntary notification and traceability.

OBJECTIVE

To analyze the notifications and describe the occurrence of adverse drug reactions in patients who underwent bone marrow transplantation in a public teaching hospital linked to the Ebserh Network.

CASUISTRY

Patients who underwent hematopoietic stem cell transplantation during the study period.

METHODS

This was a retrospective descriptive observational study. The research was carried out by collecting data on ADR notifications that occurred in a teaching hospital, related to hematopoietic stem cell transplant patients and that were notified through the VIGIHOSP system during the year 2023. The data collected was described using the following variables: gender, age, medication, symptoms after medication administration, risk classification and severity classification. This study was approved by the Research Ethics Committee under opinion number 5.409.579.

RESULTS

During the year 2023 there were 8 spontaneous notifications of ADRs, of these 75% (n=6) related to female patients and 25% (n=2) to males. The most prevalent age group was between 20 and 24 years old, with 37.5% (n=3). The most common medication was cyclosporine with 25% (n=2) of the cases, followed by thymoglobulin, meropenem, carmustine, teicoplanin, vinorelbine and etoposide, each with 12.5% (n=1) of the cases. The most frequent symptoms were pruritus and skin rash, followed by nausea, facial edema, facial paresthesia, facial heat, lower limbs heat, headache, injection site pain, crepitation, desaturation, vomiting followed by syncope and fall. The risk classification according to the WHO was 87.5% (n=7) mild and 12.5% (n=1) moderate. When assessing causality, according to Naranjo's algorithm, 100% (n=8) of the events were classified as possible.

CONCLUSION

The importance of voluntary reporting by all those involved in patient care is noteworthy. Under-reporting is the biggest challenge in identifying ADRs. Voluntary reporting should be encouraged for all health professionals, with a view to the safety and quality of life of patients who need bone marrow transplants.

KEYWORDS

Adverse Drug Reactions; Notification; Bone Marrow Transplant.

RESPONSIBILITIES OF THE CLINICAL PHARMACIST IN THE MULTIPROFESSIONAL AMBULATORY: MONITORING PATIENTS WITH GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

Graft-versus-host disease (GVHD) is a complex phenomenon, in which donor cells react against host cells, representing one of the main causes of morbidity and mortality after allogeneic hematopoietic cell transplantation (HSCT). The presence of the clinical pharmacist in the multidisciplinary outpatient clinic contributes to the management of therapies, identifying and analyzing pharmacotherapy. The pharmacist assists in providing guidance on the correct use of medications, ensuring effectiveness, quality and safety in the treatment of patients with GVHD.

OBJECTIVE

To describe the duties of the clinical pharmacist in monitoring post- HSCT patients with GVHD, in the multidisciplinary outpatient clinic of a quaternary private hospital in the city of São Paulo.

METHOD

A retrospective analysis of patients undergoing HSCT with GVHD was carried out between January/2023 and April/2024. The data were obtained through the collection of evidence in electronic medical records about the participation of the clinical pharmacist during multidisciplinary consultations, in which the pharmacist's duties are: reconciling and evaluating possible drug interactions; monitor serum levels of immunosuppressants; provide guidance on weaning the corticosteroid dose; identify the emergence of adverse reactions; assess adherence to treatment; provide information on the use, storage and disposal of medicines. To simplify communication with the patient, a table is shared with the list of medications for home use and corticosteroid weaning.

RESULTS

13 diagnoses were observed in 42 medical records analyzed, of which 19 with AML (45%), 6 with ALL (14%) and 3 with CLL (7%). Another 10 types of diagnoses were found in 14 (33%) records. Furthermore, it was observed that 62% of patients (26) underwent related allogeneic HSCT and 38% (16) unrelated.

In the 42 medical records, 98 medical consultations were evidenced, of which 86 (88%) consultations took place with the participation of the clinical pharmacist. In addition, three other indicators were measured: I. medication reconciliation and interaction was performed in 38 (90%) patients; II. the home medication chart was delivered to 36 (85%) patients; III. the corticosteroid weaning chart was provided to 17 (39%) patients.

GVHD was identified in 35 (83%) medical records, of which 13 (37%) developed acute GVHD and 22 (63%) chronic GVHD.

Considering the 35 patients with GVHD, 13 (37%) have cutaneous GVHD, 4 (11%) articular GVHD, 2 (6%) GVHD, 2 (6%) oral GVHD, 2 (6%) hepatic GVHD. The remaining 12 (34%) patients had at least two types of GVHD.

CONCLUSION

the role of the clinical pharmacist during the multidisciplinary consultation ensures greater security in the information provided about medications to the patient, contributes to the individualization of care and increases adherence to pharmacotherapy.

KEYWORDS - Pharmaceutical Assistance; Hematopoietic stem cell transplantation; Graft-versus-host disease

STRUCTURED PROCESS FOR VALIDATION OF PLANNED DEVIATIONS FOR CONDITIONING PROTOCOLS IN HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

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INTRODUCTION

Conditioning protocols for HSCT follow references consolidated by studies with conclusive results. However, when evaluating the conditioning regimen, it is necessary to consider the need for therapeutic adjustment, for various reasons: availability of the referenced drug, patient intolerance to medications included in institutionalized protocols, best practices recognized with superior results in new studies. In these cases, it is necessary to validate new practices, endorsed by publications with a high level of evidence, that are not institutionally referenced at the time of HSCT programming. Goal: structure the process of validating adjustments in conditioning protocols, providing a reference base for review and continuous updating of care protocols.

METHOD

The study consists of an experience report carried out in a private general hospital in the state of São Paulo, which began in January 2023. To this end, a tool was developed (checklist of conditioning protocols), with items to be analyzed and completed by members of the HSCT interdisciplinary team to approve the practice (planned deviation) to be applied. This instrument is completed by the HSCT attending physician with the presentation of the new reference. The document is evaluated by the specialist nurse and the clinical pharmacist responsible for the HSCT care line. Sequentially, the checklist is analyzed by the pharmacist responsible for the input handling process. Finally, this document is evaluated and approved by the director of the transplant center. After this process, the document, endorsed by the professionals' signature, is linked to the medical record of the patient candidate for the planned deviation and the reference is registered in the electronic system to prescribe the defined conditioning regimen. The registration of new regimes according to the planned deviation is periodically discussed in a multi-professional critical analysis meeting of the HSCT, to update institutional protocols.

RESULTS

In 2023 there were 13 requests for planned deviation from protocols and registration of conditioning protocols. This incidence highlighted the need to review and update multidisciplinary institutional protocols in HSCT, an action carried out in August of the same year. After the review, there was no need to register new protocols.

CONCLUSION

The application of an instrument for evaluating and validating conditioning protocols for HSCT through the analysis of planned deviations highlights opportunities for continuous improvement in institutional protocols, in order to guarantee the best therapeutic planning and interdisciplinary follow-up for the patient, contributing to favorable outcomes in the process .

MULTIDISCIPLINARY - **PHYSICAL THERAPY**

ASSESSMENT OF CARDIORESPIRATORY CAPACITY IN PATIENTS WITH PULMONARY GRAFT-VERSUS-HOST DISEASE

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Assessing cardiorespiratory capacity is fundamental to understanding the impact of Graft versus Host Disease and bone marrow transplantation on patients' lives. Physical fitness tests not only provide information on the functional capacity of individuals, but can also indicate the effects of the disease and treatment on patients' physical health. Regular physical activity is associated with improved cardiorespiratory fitness, the prevention of sedentary behavior, as well as reducing the risk of developing chronic diseases and improving patients' general well-being.

OBJECTIVE

To assess the cardiorespiratory condition of a patient with pulmonary graft-versus-host disease. Method: This is a case study of a 20-year-old male patient who underwent an allogeneic bone marrow transplant in July 2023 due to a diagnosis of T-cell lymphoblastic lymphoma (T CLL). She came to the respiratory physiotherapy clinic at the physiotherapy school following a medical referral. The physiotherapeutic assessment was carried out in April 2024, during which, according to the patient, he had no major complaints. A cardiorespiratory assessment was carried out using the 6-minute walk test (6MWT).

RESULTS

Before the test began, data was recorded on the patient at rest such as blood pressure (BP) of 120/70mmHg, heart rate (HR) of 107bpm, oxygen saturation (SatO2) of 98% and respiratory rate (RR) of 17rpm. After this, the patient was instructed to walk as far as possible in a 30-meter corridor for 6 minutes. With the assistance of a supervisor, parameters such as HR, SatO2 and the subjective perception of effort using the modified Borg scale were recorded every 2 minutes during the walk. Throughout the test, in the first 2 minutes, HR was recorded at 60bpm, while SatO2 decreased to 87% and the patient reported level 2 on the Borg scale. After 4 minutes, HR increased to 89bpm, SatO2 to 97% and perceived exertion remained at level 2. In the last 2 minutes, HR reached 130bpm, while SatO2 and perceived exertion remained constant. At the end of the 6MWT, after 2 minutes, BP was recorded at 110/70, SatO2 at 97%, HR at 110bpm and RR at 23rpm. The total distance covered by the patient was 480m, while the predicted value was 737.54m. This indicates a moderate deficit in his cardiopulmonary capacity. The result indicates the need for interventions using aerobic exercises to improve his cardiorespiratory capacity.

CONCLUSION

GVHD can have a significant impact on the physical fitness of patients undergoing hematopoietic stem cell transplants, highlighting the importance of regular physical fitness assessments and the promotion of an active lifestyle to improve post-transplant quality of life.

KEYWORDS

cardiorespiratory fitness; physical fitness; pulmonary GVHD

ASSESSMENT OF FUNCTIONAL CAPACITY IN PATIENTS WITH CEREBRAL GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

Cerebral graft-versus-host disease is a severe manifestation of the disease, characterized by brain tissue damage due to the deregulated immune response of donor cells against the recipient's central nervous system. This condition can lead to neurological complications and significantly compromise patients' prognosis and functional capacity. Functional kinetic assessment is essential in order to consider determining factors that may influence patients' functionality.

OBJECTIVE

To identify changes in functionality in a patient with cerebral graft-versus-host disease. Method: The study consists of a case report of a 60-year-old male patient, married, living in Fortaleza, Ceará, with the main complaint of "weakness in the arms and stiff legs." He had been diagnosed with Hodgkin's lymphoma in 2014 and had undergone two bone marrow transplants, one autologous in 2016 and the other allogeneic in 2022. She says that in January she began to have difficulty performing some movements and slowed down her gait. During the assessment, three functional scales were used: the Berg balance scale, the Timed Up and Go test and the Sit and Stand test 5 times.

RESULTS

The evaluation was carried out on March 26, 2024. The patient was in fair general condition, had lost weight, had a slightly unbalanced gait, preserved tone, slightly reduced motor function in the lower limbs, normal motor coordination and a negative Romberg test. He scored 32 points on the Berg Balance Scale. The overall score is 56 possible points, with a score between 21 and 40 meaning acceptable balance. The average time taken for the gait test was 19 seconds. The test is a predictor of falls and the result determines a medium to high risk of falls. The sit and stand test is used to measure lower limb strength, balance control, fall risk and ability to perform exercises and the final score was 17 seconds and the expected time is 10 seconds.

CONCLUSION

It can be inferred from the kinetic-functional parameters that the patient assessed has repercussions on functionality and a medium to high risk of falls. Early assessment of the patient is essential in order to develop strategies aimed at preventing falls and managing the pathology.

KEYWORDS - Cerebral GVHD; functional capacity; risk of falls

CORRELATION BETWEEN LOWER LIMB MUSCLE STRENGTH AND FUNCTIONAL PERFORMANCE IN THE 6-MINUTE WALKING TEST IN PATIENTS WITH MULTIPLE MYELOMA UNDERGOING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) is a treatment to restore hematopoiesis and immune function in patients with diseased bone marrow. In the autologous HSCT modality, the recipient is infused with hematopoietic stem cells collected from himself. This method is not used in all bone marrow disorders, however, multiple myeloma is a robust indication. Objectives: To analyze the correlation between lower limb muscle strength (LL) and the level of functional performance in the 6-minute walking test (6MWT) in patients with multiple myeloma undergoing autologous HSCT.

METHODS

Observational and quantitative cross-sectional study, developed in a hospital in southern Brazil. Patients diagnosed with multiple myeloma of both sexes admitted to undergo autologous HSCT were included in the sample. Lower limb muscle strength was assessed using the 30-second sit-to-stand test (30sSTST), considering the number of repetitions in 30 seconds and taking 13.5 ± 3.5 repetitions as a reference value (Riki & Jones, 1999). Functional performance was quantified by the distance covered in the 6MWT and compared with the predicted distance (calculated according to age and height), both tests were performed at the time of hospital admission. Data were presented as means ± standard deviation and correlations between variables analyzed using Pearson's correlation coefficient. The correlation strength was classified according to the criteria of SCHOBER et al., 2018, where |0.10 – 0.39| represents weak correlation; |0.40 – 0.69| moderate correlation; |0.70 – 0.89| strong correlation; |0.90 – 0.99| very strong correlation and 1.00 perfect correlation. The sample normality test was calculated using the Shapiro-Wilk test. Outliers were identified and removed using the Rout method (with Q set at 1%) and the significance level adopted was $P<0.05$.

RESULTS

The sample consisted of 42 patients, 60% (n=25) male and 40% (n=17) female, with a mean age of 57.9 ± 10.3 years. Reduction in lower limb muscle strength was found in 45.2% of patients, being slightly accentuated in females (23%). The distance covered in the 6MWT was below the predicted distance in 69% of volunteers, being more evident in males (38%). Lower limb muscle strength and performance in the 6MWT showed a moderate correlation Pearson r |0.45| (figure 1) and statistically significant difference (p=0.005).

CONCLUSION

The reduction in lower limb muscle strength and poor performance in the 6MWT were accentuated in a large part of the sample, however, patients who covered greater distances in the 6MWT had little reduction in lower leg muscle strength, indicating a correlation between these variables, that is, these results suggest that the greater the lower limb muscle strength, the greater the functional performance in the 6MWT. However, additional studies are needed to understand this correlation in greater depth.

KEYWORDS

Hematopoietic Stem Cell Transplantation. Walk Test. Multiple myeloma.

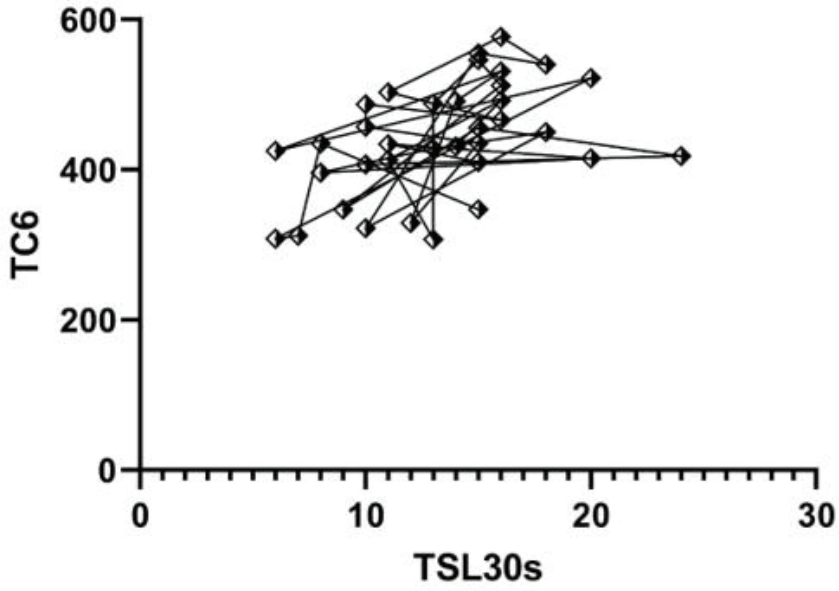

Figure 1: Pearson correlation coefficient between functional performance in the 6MWT (6-minute walking test) and the number of repetitions in the 30sSTST (30-second sit-to-stand test); Pearson r |0.45| demonstrating a moderate correlation.

EFFECTS OF EXERCISE IN BONE MARROW TRANSPLANT PATIENTS AFTER INTENSIVE CARE ADMISSION

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INTRODUCTION

In bone marrow transplantation, high doses of chemotherapy are often indicated followed by rescue with hematopoietic stem cells. These treatments have side effects that can impact physically, psychologically and on the quality of life of these patients, as well as prolonging the length of hospital stay.

OBJCTIVES

To observe the effect of a controlled exercise program on the recovery of patients undergoing bone marrow transplantation after admission to intensive care.

METHODS

Cross-sectional study with analysis of quantitative data from 50 patients undergoing bone marrow transplantation who participated in a program of strength, coordination and resistance exercises daily from admission to discharge, according to indication and clinical stability. Biceps strength was measured by the number of repetitions performed in 30 seconds with a 2kg dumbbell and constant walking by the number of flexions of the right knee for 2 minutes. The student's t-test was performed for comparative analysis using Statistica, significance level adopted was $p < 0.05$.

RESULTS

Participants (n=50, men n= 27). Mean age 47.9 ± 11.1 years. Aplasia time = 12.2 ± 4.2 days. EORTC QLQ-C30 (Functional Scale) at admission: 79.1 ± 17.6 and at discharge = 73.2 ± 17.3 with $p = 0.09$. Biceps strength at admission: 21.8 ± 5.5 and at discharge = 22.4 ± 5.39 repetitions / 30 seconds with $p = 0.59$. Stable gait at admission = 75.2 ± 18.5 and at discharge = 75.2 ± 18.3 right knee flexions / 2 minutes with $p = 0.99$.

CONCLUSION

The student's t-test was performed for comparative analysis using Statistica, significance level adopted was $p < 0.05$.

EVALUATION OF LUNG CAPACITY IN A PATIENT WITH PULMONARY GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

Graft-versus-host disease is a serious complication that can occur after allogeneic hematopoietic stem cell transplantation. The disease arises when the donor's immunocompetent cells attack the recipient's tissues, leading to an inflammatory response that can affect several organs. Graft-versus-host disease, both in the acute and chronic phases, can affect lung function, which can have a significant impact on patients' respiratory capacity.

OBJECTIVE

To identify respiratory muscle strength in a patient with pulmonary graft-versus-host disease.

METHOD

This is a case study of a 20-year-old male patient, with no comorbidities, diagnosed with lymphoma in September 2021, with an indication to undergo 8 cycles of chemotherapy, which ended in March 2023. He subsequently underwent a bone marrow transplant in July 2023, after which, due to a number of hospitalizations, he was referred to physiotherapy. The patient's lung capacity was assessed using a manovacuometer, a device that measures the strength of the inspiratory and expiratory muscles. Information about the case was collected from the patient's medical records.

RESULTS

The value of maximum inspiration (MIP) obtained from the patient's assessment was -100 cmH2O, while the predicted value is -139.3 cmH20, indicating that there is a deficiency of 28,21%. The value for maximum expiration (MEP) obtained was +105 cmH2O, while the predicted value was +149.1 cmH2O, showing a deficiency of 29,58%. These values indicate moderate respiratory muscle weakness. With this data, the patient is recommended to perform exercises to strengthen the respiratory muscles in order to improve lung capacity and prevent the progression of pulmonary deficiency and the onset of symptoms. Conclusion: We conclude that it is important to assess the lung capacity of patients with graft-versus-host disease, since even in the absence of symptoms, they may have deficiencies in lung function that require therapeutic interventions.

KEYWORDS - respiratory muscle strength; lung capacity; chronic GVHD

EVALUATION OF MAXIMUM INSPIRATORY PRESSURE BEFORE AND AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION IN A REFERENCE INSTITUTION IN THE INTERIOR OF SÃO PAULO STATE

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INTRODUCTION

HSCT is a treatment modality for benign and malignant hematological diseases. Aggressive treatments associated with the underlying disease result in reduced functional capacity, lung function and early mortality.

METHOD

This is an observational, cross-sectional study, approved by the Barretos Cancer Hospital IRB, CAAE 69571123.3.0000.5437, data collection took place from January to August 2023, samples were by convenience. The maximum inspiratory pressure (MIP) of the patients was assessed at two moments: admission and discharge.

RESULTS

The mean MIP before and after HCT varied between -92.5 cmH2O and -89.1 cmH2O, statistically lower than the expected value (p=0.022 and p=0.013, respectively), indicating the presence of inspiratory muscle weakness. However, the MIP values found did not differ between the pre- and post-HCT periods (p=0.981), indicating maintenance of previous inspiratory muscle strength after treatment.

CONCLUSION

Patients undergoing HSCT have a reduction in previous MIP due to low physical capacity and inspiratory muscle weakness, which may be related to previous cancer treatment and life habits, and vulnerability of the immune system.

KEYWORDS

Oncology, Hematopoietic Cell Transplantation, Maximum Inspiratory Pressure.

EVALUATION OF THE PHYSICAL AND FUNCTIONAL CAPACITY OF HEMATOPOIETIC CELL TRANSPLANTATION RECIPIENTS

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INTRODUCTION

The hematopoietic cell transplantation (HCT) is a treatment used for several benign and malignant diseases, which aims to reconstruct the recipient's hematopoietic system. Several functions can be compromised by the underlying disease and pre- and post-transplant treatment, especially cardiopulmonary and motor functions, resulting in decreased physical capacity and reduced exercise tolerance.

OBJECTIVE

To evaluate the aerobic and functional capacity and muscular strength of HCT recipients pre- and post-HCT.

METHODS

It is an observational and cross-sectional study, approved by the Barretos Cancer Hospital IRB, CAAE 69571123.3.0000.5437, data collection occurred from January to August 2023, the samples were by convenience. Patients were evaluated upon admission and discharge by the subjective perception of exertion assessment scales (BORG modified); Johns Hopkins highest level of mobility scale (JH-HLM); performance on the 6-minute step test (6MST); and maximum inspiratory pressure (PImax).

RESULTS

PImax mean before and after HCT ranged from -92.5 cmH2O and -89.1 cmH2O, statistically lower related to the expected value (p=0.022 and p=0.013, respectively), indicating the presence of inspiratory muscle weakness. However, the found PImax values did not differ between pre- and post-HCT periods (p=0.981), indicating maintenance of previous inspiratory muscle strength after treatment. The number of steps recorded in 6MST in the pre-HCT assessment, presented an average of 122.2 steps against the predicted average of 161.5. In the post-HCT assessment, the average achieved was 107.0 against the predicted average of 162.7 steps. Both moments showed a statistically significant difference when compared to the predicted value (p=<0.001). The number of steps achieved significantly reduced between pre- and post-HCT assessments, demonstrating that patients already had physical capacity below expectations, with a decline after treatment (p=0.025). The modified BORG scale analysis results indicated that the post-HCT assessment final score compared to the pre-HCT was significantly higher (p=0.007), suggesting a perception of more intense effort and tiredness after transplantation. The other compared analyzes between pre- and post-HCT periods (PImax and JH-HLM), as well as all analyzes between the types of transplant: autologous and allogeneic, did not present statistically significant differences.

CONCLUSION

HCT recipients presented low physical capacity and inspiratory muscle weakness, possibly related to pre-transplant treatment. Furthermore, there was a significant reduction in physical capacity during the HCT hospitalization.

KEYWORDS

Oncology, Hematopoietic Cell transplantation, Exercise Tolerance, Stress Test, Maximum Respiratory Pressures, Muscle Strength.

LOW BACK PAIN AND LASER-ACUPUNCTURE IN PATIENTS UNDERGOING BONE MORROW TRANSPLANTATION ADMITTED TO NA INTENSIVE CARE

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INTRODUCTION

Low back pain is a limiting factor in the functional activies of patients undergoing bone marrow transplantation. The lase-acupuncture technique is a non-invasive method that has similar effectsto traditional acupuncture ans seems to provide pain desensitization.

OBJECTIVE

To describe a laser-acupuncture approach in patients with low back pain after hematopoietic stem cell infusion who require intensive care due to clinical changes.

METHODS

This is a cross-sectional study analyzing quantitative data from 12 patients who underwent laser acupuncture after bone morrow transplantation. The patients were assessed using the Karnofsky Performance Scale, Quality of Life Questionnaire (EORTC QLQ-C30) and Visual Analog Scale (VAS) before and after bone marrow transplantation. Laser-acupuncture was applied from the moment the patients had severe low back pain (VAS < 8) with regular use of analgesics until the patient had no low back pain or VAS > 3 with a Karnofsky performance scale between 80% - 90%. Distal points (upper and lower limbs) were used for application based on the diagnostic standart of the eight principles of Chinese Medicine and pointes in the lower lumbar region with 03 joules for 30 seconds at each point. For comparative analysis the Mann-Whitney test was used with statistics and the significance level adopted was $p < 0.05$.

RESULTS

Participants (n = 12 men n = 8) transplanted (autologous n = 8 / allogeinec n= 4) men age 53.9 +/- 13.2 years. Aplasia time 11.7 +/- 2.9 days. Karnofsky score at admission = 97 +/- 4.5% and at the hospital discharge = 83.3 +/- 12.6% and p = 0.16. EORTC QLQ-C30(Functional Scale) on admission = 81.4 +/- 15 and and on discharge = 72.2 +/- 16 and p = 0.75. Symptom Scale: On admission = 14.3 and on discharge 28.2 +/- 14.4 and p = 0.14. Initial VAS = 8.0 +/= 0.8 and last VAS = 0.8 and 0.5 and p = 0.001.

CONCLUSION

Due to the patient's clinical conditions, conventional treatment with needles may not be the most appropriate. The use of laser acunpucture is effective and safe in controlling low back pain in patients undergoing bone morrow transplantation, maintainning their functional performance and quality of life.

PHYSIOTHERAPEUTIC GOALS IN POST BONE MARROW TRANSPLANT PATIENTS: A LITERATURE REVIEW

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INTRODUCTION

The quality of life of patients after bone marrow transplantation can be negatively impacted by complications resulting from the treatment, such as graft-versus-host disease. In this way, physiotherapy becomes essential in recovery, seeking to improve factors that can influence the patient's functionality, such as muscle strength, mobility and independence in daily activities. Objective: To identify the main physiotherapy objectives for patients after bone marrow transplantation.

METHODO

This is a literature review carried out in the following databases: PEDro, PubMed and Scielo, from January to February 2024. For the search, we used the intersection of the following descriptors: "bone marrow transplant" AND "physiotherapy" "rehabilitation". Clinical trials and integrative and systematic reviews between 2015 and 2023 in Portuguese and English were included. Studies that did not fit these criteria or were not relevant to the topic in question were excluded.

RESULTS

A total of 183 articles were identified and after the inclusion criteria, 10 remained for analysis. Many articles addressed the improvement of lung capacity in patients after bone marrow transplantation as the outcome of physiotherapy. Several papers emphasized the importance of using aerobic exercises to improve function and reduce respiratory complications. In addition, restoring muscle strength has also been shown to be a crucial objective in the recovery process. Studies have shown the relevance of muscle strengthening training through isometric exercises in recovering motor function, reducing disuse atrophy. Some articles include peripheral neuropathy as a common complication for patients and the physiotherapy approach to improving peripheral sensitization, with the use of proprioceptive exercises and the indication of orthoses.

CONCLUSION

The review highlights the importance of establishing physiotherapy goals as part of the rehabilitation process for patients after bone marrow transplantation. During this period, physiotherapy aims to improve cardiopulmonary conditioning, restore muscle strength and reduce the functional impact on patients' lives. It is therefore essential to adopt a personalized approach with structured goals to meet the specific needs of each patient.

KEYWORDS

Physiotherapy, Rehabilitation, Bone marrow transplantation

THE PATH OF A PATIENT WITH AML FROM THE SINGLE HEALTH SYSTEM IN A LARGE PRIVATE HOSPITAL: PHYSIOTHERAPEUTIC APPROACHES

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INTRODUCTION

Acute myeloid leukemia (AML) is an aggressive form of cancer that requires complex and multifaceted treatment. Patients with AML often face physical complications from the disease and treatments, including muscle weakness, fatigue, pain, and impaired lung function. Given this scenario, physiotherapy becomes essential for monitoring and the rehabilitation process to contribute to improving the patient's mobility, functionality, and quality of life.

OBJECTIVE

The objective of this work is to report the role of physiotherapy in the journey of a SUS patient admitted to a private hospital.

CASUISTRY

A patient diagnosed with AML admitted to the Hospital Israelita Albert Einstein in the period from December 20, 2023 to January 29, 2024 was included in this study.

METHOD

Daily physiotherapy sessions were carried out, according to the patient's clinical conditions. The therapeutic resources used were breathing exercises with positive pressure, respiratory kinesiotherapy, motor exercises with dumbbells and ankle bracelets, laser therapy to treat chemotherapy-induced neuropathy, TENS at specific points to control nausea.

RESULTS

The physical therapy team played a crucial role in the patient's management, using a variety of approaches to optimize her physical function and quality of life. This included interventions to preserve muscle strength, improve joint mobility, reduce fatigue, and improve respiratory capacity. Furthermore, physiotherapy played an important role in educating the patient about prevention of musculoskeletal complications, adherence to treatment and energy conservation techniques.

Despite the challenges faced, the patient demonstrated significant benefits from the support of the physiotherapy team. Through an integrated, patient-centered approach, it was possible to minimize the adverse effects of AML treatment and, during the hospitalization period, promote a better patient experience.

CONCLUSIONS

Given these results, we can conclude that physiotherapeutic approaches seem to have a positive impact on the journey of patients with AML treated in the SUS in a large private hospital. These results point to the importance of physiotherapy as an integral part of the multidisciplinary care of patients with AML and highlight the need for greater integration and availability of these services in health systems.

MULTIDISCIPLINARY - NUTRITION

ASSESSING BODY COMPOSITION IN CHRONIC SKIN GRAFT-VERSUS-HOST DISEASE USING SEGMENTAL ELECTRICAL IMPEDANCE TECHNIQUE: A CASE REPORT

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INTRODUCTION

Graft-versus-host disease (GVHD) is a condition that arises during allogeneic hematopoietic progenitor cell transplantation (TACPH) when immune cells from the transplanted tissue attack the recipient's body[1 2]. Various tissue changes have been documented, including injuries, lymphedema, and alterations in hydration. However, there is a scarcity of studies that examine the impact of TACPH on bioelectrical impedance parameters, making their assessment challenging. This highlights the need for more specialized methods, such as segmental bioimpedance (BIA-sec), which can be used to evaluate less-affected regions of the body.

OBJECTIVE

To elucidate the BIA-seg methodology in the context of late TACPH and a patient with chronic graft-versus-host disease (GVHD) of severe skin scleroderma accompanied by significant joint limitations.

This case report was conducted retrospectively and utilized data derived from the electronic medical records.

RESULTS

A 36-year-old female patient who underwent unrelated blood or marrow transplantation for Chronic Myeloid Leukemia (CML) subsequently developed severe chronic graft-versus-host disease (GVHD) affecting her mouth, skin, subcutaneous tissue, fascia, muscle, and lung. For nutritional assessment, bioelectrical impedance analysis (BIA) was performed on the leg, as it is the least affected region due to the extensive skin GVHD present in the upper limbs[3 4]. The tests were performed using a tetrapolar electrical bioimpedance device with a single frequency, and two electrodes were placed on the anterior midline of the proximal thigh and at the joint line of the ankle and base of the second toe. Moreover, whole-body bioimpedance measurements were taken, with two electrodes positioned at the joint line of the wrist and base of the middle finger and another pair at the joint line of the ankle and base of the second toe.The BIA-seg method demonstrates improved accuracy in assessing adipose tissue, exhibiting a stronger correlation with the patient's nutritional status (grade II malnutrition) that falls within the ninetieth percentile range in the whole-body technique (indicative of obesity). The table 1 illustrates the findings:

CONCLUSION

Electrical bioimpedance analysis was performed to assess body composition; however, in cases of scleroderma, a medical condition characterized by thickening and hardening of the skin, the presence of fibrous tissue can impact the resistance measurement, leading to increased values. As the amount of fat mass is directly proportional to resistance, measurements obtained from conventional models may result in an inaccurate interpretation of body composition. In such cases, the BIA-seg presents a more dependable option as it conducts specific measurements for each segment, allowing for a more precise and corrected analysis of body composition distortions caused by scleroderma.

KEYWORDS - scleroderma, segmental electrical bioimpedance, graft-versus-host disease

Table 1. Comparison of bioelectric parameters between BIA-seg and the whole body.

Parameters	BIA-seg	Suitability	Whole body BIA	Suitability
Resistance (ohms)	376.2		1103.9	
Reactance(ohms)	39.1		81.3	
Phase Angle (°)	5.95		4.2	
Fat Free Mass(kg)	30.26		18.5	
Fat Mass (kg)	8.69		20.4	
Fat Free Mass Index(kg/m²)	12.59	Below P5	7.70	Below P5
Fat Mass Index (kg/m²)	3.61	P 10-25	8.49	P90-95
BMI (kg/m²)	16.2	Grade II malnutrition	-	

BMI= body mass index

REFERENCES

1. Justiz Vaillant AA, Modi P, Mohammadi O. Graft-Versus-Host Disease. 2022 Oct 10. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan–. PMID: 30855823.
2. Moreno DF, Cid J. Graft-versus-host disease. Med Clin (Barc). 2019 Jan 4;152(1):22-28. English, Spanish. doi: 10.1016/j.medcli.2018.07.012. Epub 2018 Oct 9. PMID: 30309668.
3. BÉRGAMO SILVA, Lara et al. Avaliação do Estado Nutricional por Impedância Elétrica. In: MARIA LIMA RIBEIRO, Sandra; MARIA DE MELO, Camila; TIRAPEGUI, Julio. Avaliação Nutricional: teoria & prática. 2. ed. [S. l.]: Guanabara Koogan, 2018. cap. 8, p. 53-57.
4. Eickemberg M, Oliveira CC de, Anna Karla Carneiro R, Sampaio LR. Bioimpedância elétrica e sua aplicação em avaliação nutricional. Rev Nutr [Internet]. 2011Nov;24(6):883–93. Available from: https://doi.org/10.1590/S1415-52732011000600009

COMPARISON BETWEEN NUTRISCORE AND NUTRITIONAL RISK INDEX AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR ONCO-HEMATOLOGICAL DISEASES: ONCO-HEMATOLOGICAL PATIENTS POST-HSCT: A PRELIMINARY STUDY

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INTRODUCTION

The treatment of hematological malignancies with allogeneic hematopoietic stem cell Transplantation (HSCT) typically entails the administration of chemotherapy, immunosuppression the infusion of hematopoietic stem cells, and can cause impact in patient's nutritional status. It is crucial to monitor the nutritional risk of individuals undergoing allogeneic HSCT; however, no specific nutritional screening tools are currently available. Given this context, there is a recommendation to utilize instruments that assess weight loss and biochemical parameters, such as the Nutriscore and nutritional risk index (NRI), which are widely used in this patient population. However, further studies are necessary to evaluate the accuracy of these instruments in HSCT patients.

OBJECTIVE

Compare the dietary risks of individuals with onco-hematological disorders using Nutriscore and Nutritional Risk Index (NRI) tools.

CASUISTRY

This study examined 16 individuals who were treated at a daily hospital's HSCT outpatient clinic.

METHODS

This study involved a retrospective examination of nutritional risk assessments carried out between February 22 and March 28, 2024, in patients at a day hospital in the HSCT outpatient clinic. The selection criteria included having a hematological malignancy as the underlying disease while excluding those who underwent pre-HSCT evaluation. Nutritional risk was assessed using the Nutriscore and NRI instruments, with values ≥ 5 in the Nutriscore or ≤ 100 in the NRI considered as indicators of risk. To further supplement the analyses, albumin values were verified in patients deemed to be at risk according to the NRI, and the percentage of weight loss during the screening period was also calculated. Statistical analysis was performed using the chi-square test and Student's t-test.

RESULTS

The findings of this study involved 16 treated patients, and 46 screenings during the analysis period. Of these screenings, 54.3% were conducted in patients with acute leukemia, 13.0% in those with chronic leukemia, and 32.6% in those with other onco-hematological diseases. Among the screenings, 25 demonstrated an average weight loss of 6.4% (±5.5), whereas 21 showed an average weight

gain of 2.9% (±2.2). With regard to nutritional risk, 7 screenings had a Nutriscore score of ≥ 5, and 12 screenings had an NRI value of ≤ 100 (see Table 1). Lastly, there was a statistically significant difference between the serum albumin levels of patients who were at nutritional risk according to the NRI (3.7 g/dl ±0.3) and those who were not at risk (4.4 g/dl ±0.3).

CONCLUSION

In light of these preliminary results, it appears that the NRI possesses greater precision than the Nutriscore in detecting nutritional risks in patients with onco-hematological disorders underwent allogeneic HSCT. Consequently, NRI may serve as a valuable and cost-effective screening tool for patients in this particular setting. More research should be conducted to validate these initial findings.

KEYWORDS - screening tools, nutritional risk, onco-hematological diseases

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Table 1. Comparison between nutritional risk as assessed by Nutriscore and NRI

	Nutriscore		NRI		p value
Risk	Total	Mean ± SD	Total	Mean ± SD	
With	7	5,1 ± 0,4	12	94,2 ± 4,4	0,025
Without	39	2,5 ± 1,1	34	109,1 ± 5,4	

SD - Standard Deviation

REFERENCES:

Zahedi H, Parkhideh S, Sadeghi O, Mehdizadeh M, et al. Association between nutritional status and biochemical markers among hematopoietic stem cell transplant candidates: a cross-sectional study. BMC Nutrition. 2023; 9:148. doi: 10.1186/s40795-023-00809-7

Thieme RD, Cutchma G, Chieferdecker MEM, Campos ACL. Nutritional risk index is predictor of postoperative complications in operations of digestive system or abdominal wall? ABCD Arq Bras Cir Dig. 2013;26(4):286-292. doi: 10.1590/s0102-67202013000400007.

Arribas L, Hurtós L, Sendrós MJ, Peiró I, et al. NUTRISCORE: A new nutritional screening tool for oncological outpatients.Nutrition. 2017:33:297-303. doi: 10.1016/j.nut.2016.07.015.

The jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org.

R Core Team (2021). R: A Language and environment for statistical computing. (Version 4.1) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

ENHANCING HEALTH LITERACY THROUGH NUTRITIONAL EDUCATION: A BOARD GAME APPROACH FOR POST-HSCT PATIENTS

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Hematopoietic stem cell transplantation (HSCT) is a curative option for various onco-haematological conditions. However, it is accompanied by symptoms resulting from the toxicity of conditioning regimens and a lengthy period of immunosuppression, necessitating strict caution regarding food consumption. To meet the specific nutritional and hygienic-sanitary needs of post-HSCT patients, the nutrition team at the hospital, in collaboration with the university's nutrition course, has developed a Nutritional Guidelines manual for patients undergoing bone marrow transplant treatment[1].

AIMS

The objectives of this project are to engage in a lively and enjoyable manner with the recommendations of the "Dietary Guidelines for the Patient during Bone Marrow Transplantation" manual, along with the individuals (patients and companions who are experiencing social vulnerability) who are being supported by an institutional care team. This project will involve a total of eight individuals, including both patients and companions, who will be residing in a support house for a period of eight weeks, starting from September and ending in October 2023.

METHODOLOGY

Initially, a diagnostic intervention was implemented to comprehend the eating context of patients and their companions staying at the support house. To ensure compliance with nutritional guidelines, a game was designed as a food and nutritional education intervention, along with utilizing strategies such as technical and emotional inquiries about food in the context, which catered to all age groups. Results: A board game was created based on the patients' demands and taken to a meeting to diagnose their actions. Three meetings were held to implement the strategy, which was prepared based on the guidance manual. Participants were able to clarify important issues in relation to dietary changes established for treatment, question nutritional myths, and were also able to strengthen the bond between the group itself, sharing experiences, and experiences with food during treatment[2].

CONCLUSION

Strategies formulated in this manner have the potential to enhance the manner in which significant content, such as post-TCTPH nutritional care, is addressed, resulting in more compassionate actions in the realms of healthcare and student education.

REFERENCES

1. Sicchieri J, Guirao T, Schiavoni I, Alves N, Costa T, Lunardi T, et al. Segurança do paciente no pós transplante de células tronco progenitoras hematopoiéticas: elaboração de material para cuidados nutricionais para alta hospitalar. Revista Qualidade HC. 2022;60–70.

2. Andrade Silva IR, Senedese MEA, Carreiro P de M, Cavali RL, Merlin ST, Bertagnolli CL dos S, et al. Educação alimentar e nutricional no pós-transplante de células tronco hematopoiéticas: ludicidade e humanização na intervenção. Revista Qualidade HC. 2024 Jan;1–10.

EVALUATION OF THE MENU OFFERED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION PATIENTS: ADHERENCE TO THE DIETARY RECOMMENDATIONS OF THE WORLD CANCER RESEARCH FUND/ AMERICAN INSTITUTE FOR CANCER RESEARCH AND QUALITATIVE EVALUATION OF MENU PREPARATIONS

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INTRODUCTION

Diet has a close relationship with the prevention and recurrence of cancer. Therefore, after diagnosis, taking care of your diet becomes crucial for preventing chronic non-communicable diseases, recurrence or emergence of other cancers. Furthermore, food in adequate quantity and quality is capable of providing nutrients to prevent the decline in nutritional status and reduce toxicity to antineoplastic therapy.

OBJECTIVE

To verify the compliance of the menu intended for patients undergoing hematopoietic stem cell transplantation, considering dietary recommendations to prevent cancer relapse, and qualitatively evaluate the menu from a hospital food and nutrition service in Fortaleza, Ceara, Brazil.

METHOD

This is a descriptive cross-sectional study, of a qualitative and quantitative nature, analyzing the general consistency menu offered to patients for 14 consecutive days in October 2023. The evaluation was carried out using two different methods. In the first, adherence to the menu was verified considering the dietary recommendations of the World Cancer Research Fund/American Institute for Cancer Research (WCRF/AICR), in which the per capita values of the preparations adopted as standard by the nutrition and dietetics service of the hospital and used the Brazilian Food Composition Table (TACO) to calculate nutritional composition. In the second, the Qualitative Evaluation of Menu Preparations (AQPC) instrument was applied to evaluate the nutritional quality of the preparations.

RESULTS

Regarding adherence to the WCRF/AICR dietary recommendations, there is a high prevalence of fruits and vegetables on the menu (100%), the days analyzed are in accordance with consumption recommendations (≥400g/day) and a low occurrence of ultra-processed foods, however, there was a high supply of red meat (100%) and sweetened drinks (100%), both exceeding the recommended consumption of >500g/week and >250g/day, respectively. Using the AQPC method, in terms of occurrence on the menu (n=14), there were 92.8% of the same colors at lunch and dinner (terrible), 0% of leafy vegetables (terrible), 35.7% (bad) of fruits at lunch and 14.3% (poor) at dinner, high prevalence of sweets at lunch (64.3%; poor) and dinner (85.7%; poor), preparations rich in sulfur were present in

28.6% at lunch (regular) and 21.4% at dinner (good). There were no occurrences of fatty meats and fried foods, in addition to the non-concomitance of fried foods and sweets on the menu, therefore, the three items were classified as "excellent".

CONCLUSION

Based on the findings described, the presence of some inadequacies raises the need for adjustments to menus, to increase adherence to recommendations for preventing cancer recurrence. Additionally, efforts must be made to improve the presentation and nutritional composition of preparations, contributing to clinical improvement, and reducing hospitalization time, malnutrition, and disease recurrence rates.

KEYWORDS

Hematopoietic Stem Cell Transplantation; Qualitative Evaluation of Menu Preparations; Recommended Dietary Allowances.

IMPORTANCE OF OUTPATIENT NUTRITIONAL FOLLOW-UP IN PATIENTS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is the therapeutic modality used in the treatment of numerous malignant and non-malignant hematological diseases, which during treatment can cause changes in nutritional status, causing the risk of malnutrition resulting from the toxicity of the conditioning process and a long period of immunosuppression. After the transplant there is still a recovery period and nutritional care extends into the period after hospital discharge.

OBJECTIVE

To report the experience of nutritionists in outpatient care after discharge of patients undergoing HSCT at a University Hospital in Rio Grande do Sul.

METHOD

This is an experience report by a resident nutritionist and assistant nutritionist at the Hematology service.

RESULTS

Hematopoietic Stem Cell Transplantation (HSCT) is a highly complex treatment indicated for different types of hematological neoplasms and other autoimmune hematological diseases and immunodeficiencies. During treatment, the conditioning process is carried out where the patient is subjected to a high-dose chemotherapy regimen with the aim of destroying the patient's own bone marrow and reducing immunity so that rejection of the new marrow is avoided. The conditioning regime produces effects and changes in the gastrointestinal system and immune system, causing metabolic and nutritional changes that can lead to weight loss and muscle mass depletion. In clinical practice, it is observed that even after HSCT and hospital discharge, patients return for post-HSCT outpatient follow-up with various nutritional demands such as the persistence of gastrointestinal symptoms, with the presence of inappetence, dysgeusia, nausea, diarrhea and consequently the difficulty of nutritional recovery. From this follow-up, it is possible to observe nutritional difficulties and doubts that remain after discharge, in this way, nutritional behaviors can be adopted as strategies for managing symptoms, including changes in food supply, management of temperature and consistency of the diet, introduction of enzymes , use of hypercaloric and hyperprotein supplements to aid in weight recovery and muscle recovery, including discussing with the medical team the indication of inserting a tube if necessary.

CONCLUSION

Outpatient nutritional monitoring after discharge of patients undergoing HSCT is essential for continuity of treatment as nutritional therapy is essential to minimize losses and complications, normalize the immunological response and reduce the risk of infections.

KEYWORDS

Nutritional monitoring, Hematopoietic Stem Cell transplant, nutrition.

NUTRITIONAL PROFILE OF PATIENTS UNDERGOING AUTOLOGOUS AND ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is a therapeutic method used in malignant and benign hematological diseases for curative purposes or disease control. HSCT is classified as autologous (the patient's own stem cells) and allogeneic (different donor). During conditioning and transplantation, inadequate nutritional status is a risk factor that can influence tolerance to therapy and the patient's quality of life.

OBJECTIVE

To evaluate the nutritional profile of patients undergoing autologous or allogeneic HSCT.

SAMPLE

HSCT patients admitted at a University Hospital in Fortaleza, Ceara, Brazil between January 2019 and August 2023. Both sexes were included, aged between 18 and 59 years old, who had hematological diseases requiring HSCT.

METHOD

In our cross-sectional and descriptive study, the nutritional status of patients was assessed using anthropometric data. The cutoff points of body mass index (BMI) were: <18.5 (underweight); ≥18.5 to ≤24.9 (normal weight); ≥25 to ≤29.9 (overweight); ≥30 (obese). Calf circumference (CP) ≤33cm (women) or ≤34 (men) indicated decreased muscle mass. Data were collected from the Research Electronic Data Capture (REDCAP) platform and separated into two groups: anthropometric markers from autologous HSCT and anthropometric markers from allogeneic HSCT. Carrying out descriptive analysis of the data in order to characterize the sample collected in the research. The variables were presented using simple and average frequencies.

RESULTS

The sample consists of 230 individuals who underwent HSCT, the majority of whom were male (50.4%; n=116) with an average age of 42 years. Autologous HSCT had a higher prevalence (56.5%; n=130) compared to allogeneic (43.5%; n=100). Regarding the anthropometric profile in the autologous group, the majority was diagnosed as overweight (47.7%; n=62) and 52.3% (n=68) had decreased muscle mass. Among the allogeneic group, the majority was diagnosed as normal weight (42.0%; n=42) and 68.0% (n=68) had decreased muscle mass.

CONCLUSIONS

Overweight presented a higher prevalence, especially in autologous group. However, muscle mass depletion predominated in both HSCTs, thus verifying the profound nutritional impact on patients undergoing this therapy. Therefore, it is necessary to use different anthropometric and nutritional parameters for better accuracy of the nutritional profile and possible dietary management during treatment.

KEYWORD

Nutritional Status; Hematopoietic Stem Cell Transplantation; Nutrition Therapy

Table 1 – Nutritional profile according to BMI and CC in autologous HSCT, Fortaleza, Ceará, Brazil.		
BMI	Underweight	2.3% (n= 3)
	Normal weight	20.0% (n= 26)
	Overweight	47.7% (n= 62)
	Obese	30.0% (n= 39)
	Total	100.0% (n = 130)
CC	Decreased muscle mass	52,3% (n= 68)
	No decreased muscle mass	47.7% (n= 62)
	Total	100.0% (n = 130)

Table 2 – Nutritional profile according to BMI and CC in allogeneic HSCT, Fortaleza, Ceará, Brazil.		
BMI	Underweight	5.0% (n= 5)
	Normal weight	42.0% (n= 42)
	Overweight	37.0% (n= 37)
	Obese	16.0% (n= 16)
	Total	100.0% (n = 100)
CC	Decreased muscle mass	68.0% (n= 68)
	No decreased muscle mass	32.0% (n= 32)
	Total	100.0% (n = 100)

NUTRITIONAL STRATEGIES TO CONTROL SIDE EFFECTS DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Bone marrow transplantation is a complex and high-risk treatment used to treat various hematological and immune system diseases. Several side effects on the gastrointestinal system can occur during treatment due to high doses of chemotherapy, at this time nutritional strategies are essential to alleviate them and prevent weight loss and loss of muscle mass.

Objective: To report the experience of nutritionists in providing care during hospitalization for patients undergoing hematopoietic stem cell transplantation in a reference hospital in the southern region of the country.

METHOD

This is an experience report from a resident nutritionist and assistant nutritionist from the Hematology service.

RESULTS

During hematopoietic stem cell transplantation, gastrointestinal side effects are common due to high doses of chemotherapy. The symptoms most observed in clinical practice during hospitalization are nausea, vomiting, diarrhea, aversion to the smell of food especially during main meals, mucositis, odynophagia, among others. During this period, managing symptoms with nutritional strategies becomes extremely necessary. It is observed in practice that some behaviors show positive results in the symptoms of these patients, such as: changing meals for snacks to reduce nausea and vomiting due to the smell of meals, changing the consistency of food to liquids/pasties when there is difficulty in swallowing and the presence of odynophagia, include cold foods to help alleviate mucositis, include laxative cocktails and diets rich in fiber to improve bowel habits. In relation to loss of appetite, other nutritional strategies demonstrate a positive effect, such as the option of including palatable foods that visually awaken the desire to eat. Weight loss is also very common in this patient profile, in these cases the use of high-calorie supplements and protein modules becomes extremely important.

CONCLUSION

In view of the various side effects arising from bone marrow transplantation, it is noted that nutritional strategies adapted to the individual needs of each patient are extremely important so that they maintain an adequate nutritional status during treatment, thus avoiding the loss of weight and loss of lean mass.

KEYWORDS - Nutritional strategies, side effects, bone marrow transplant

OXIDATIVE STRESS AND NUTRITIONAL STATUS IN PRE-BONE MARROW TRANSPLANTATION

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INTRODUCTION

Bone marrow transplantation is a therapeutic modality performed to treat hematological diseases related to the bone marrow and some neoplasms. Prognosis and transplant success are associated with both nutritional status and oxidative stress. Eutrophic patients appear to have a good prognosis in relation to the risk of graft-versus-host disease (GVHD) and high oxidative stress appears to be related to longer time for marrow engraftment. Objective: The objective was to evaluate oxidative stress and nutritional status in patients undergoing bone marrow transplantation.

SAMPLE

The study included patients who were followed up at the nutrition outpatient clinic between August and November 2018 and who signed the free and informed consent form. Both sexes were included, aged over 18 years, who had hematological diseases requiring bone marrow transplantation and who ate orally.

METHOD

This is a cross-sectional and descriptive study. The research included demographic data (sex and age), clinical data (initial diagnosis, type of bone marrow transplant), biochemical data (oxidative stress). Nutritional status was diagnosed according to body mass index, subjective global assessment produced by the patient himself and presence of sarcopenia. Body mass index was classified according to the patients' age. Oxidative stress was analyzed using substances reactive to thiobarbituric acid using a standard curve made with malondialdehyde. Those with malondialdehyde >4.27µM/L were considered to have high oxidative stress. For statistical analysis, the Kolmogorov-Smirnov test was used and, for homogeneity, the Levene test was performed. To verify the association between categorical variables, Pearson's $\chi 2$ test was used. When the categories obtained values <0.05.

RESULTS

The population of the present study consisted of 72 patients with an indication for bone marrow transplantation; 41 (56.9%) were male, with a mean age of 48.93 (± 14.5) years. The most prevalent pathology in these individuals was multiple myeloma (51.4%). There was a prevalence of overweight (40; 55.6%). According to the subjective global assessment produced by the patient himself, 48.6% of the individuals were classified as well nourished. However, 62.5% of patients were diagnosed with sarcopenia. In the evaluation of oxidative stress, 24 (33.3%) of those evaluated presented high oxidative stress. However, there was no significant association between oxidative stress and the other variables studied.

CONCLUSIONS

It was concluded that in the studied population there was a prevalence of excess weight, low oxidative stress and the minority were sarcopenic.

KEY WORDS

Bone Marrow Transplantation; Nutritional Status; Oxidative Stress.

PREVALENCE OF CARDIOVASCULAR RISK AND EXCESSIVE WEIGHT IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Individuals who survive hematopoietic stem cell transplantation (HSCT) are at increased risk for metabolic syndrome and death from cardiovascular diseases compared to healthy individuals. Waist circumference (WC) is a measure widely used in the general population, simple, effective, and described in the literature, as a good indicator of cardiovascular risk, and is considered a predictive risk factor in HSCT survivors. Therefore, it is important to verify the prevalence of cardiovascular risk in these individuals to determine early nutritional interventions from hospital admission to post-HSCT follow-up.

OBJECTIVE

To evaluate the prevalence of cardiovascular risk and excess weight in individuals undergoing hematopoietic stem cell transplantation at a hospital in Fortaleza, Ceara, Brazil.

METHOD:

The sample consisted of 230 patients of both sexes who underwent HSCT from January 2019 to August 2023, aged between 18 and 60 years. To assess cardiovascular risk, anthropometric data (body weight, height and WC) were collected at the time of hospital admission. WC ≥80cm for women or ≥ 94cm for men was considered increased cardiovascular risk. BMI ≥ 25kg/m^2 was considered overweight and BMI ≥ 30kg/m^2 was considered obesity, according to the World Health Organization (WHO). Clinical data were tabulated on the REDCap® platform. Statistical analyses were performed using Statistical Package for Social Science Software (SPSS®).

RESULTS

The average age of the patients was 42 years (Dp ± 12,65) and 50.4% (116) were male. Of the total sample, 25.2% (58) were diagnosed with multiple myeloma, 17.4% (40) acute lymphoblastic leukemia, 12.6% (29) Hodgkin's lymphoma, 10.9% (25) acute myeloid leukemia, 10.4% (24) non-Hodgkin lymphoma and 23.5% (54) other types. In total, 72,6% of patients (167), 43.9% (101) women and 28.7% (66) men, presented high cardiovascular risk according to the WC classification. Regarding BMI, 43% (99) of patients, 50 women and 49 men, were overweight (BMI mean= 27.25kg/m^2) and 23.9% (55) of patients, 30 men and 25 women were obese. In total, 66.9% (154) of patients were overweight or obese.

CONCLUSIONS

A higher prevalence of cardiovascular risk based on WC and overweight/obesity according to BMI was observed. It is observed that these two indicators can be used combined to identify patients at high risk. Therefore, early detect these patients is essential for adequate nutritional management during hospitalization. It is possible to reduce metabolic complications, maintain or improve nutritional status and ensure the necessary supply of nutrients and calories.

KEYWORDS

Hematopoietic stem cell transplantation; Cardiovascular diseases; Anthropometry.

PREVALENCE OF METABOLIC SYNDROME IN PATIENTS UNDERGOING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION AND IMPACT ON CLINICAL OUTCOMES

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INTRODUCTION

Among the possible complications in patients undergoing hematopoietic stem cell transplantation (HSCT) are the metabolic disorders, with the association between metabolic syndrome (MetS), obesity and the worst prognosis. Objective

The aim of this study was to verify the prevalence of MetS, as well as its components among patients admitted for HSCT, and its possible impacts on the length of hospital stay and clinical evolution. Method

The study is a quantitative research, with a longitudinal design. Adults and older individuals of both genders, undergoing autologous HSCT for the first time, between January 2019 and July 2023 were included. Individuals under the age of 18, who were undergoing transplantation for the second time, who had physical limitations to perform anthropometric measurements, or those who were infected by COVID-19 during the hospitalization period, were excluded from the study. Information was collected on clinical and demographic data, laboratory tests, anthropometric data, complications (infection), length of hospital stay, and clinical outcomes (mortality). MetS was identified according to National Cholesterol Education Program (NCEP- ATP III). Statistical analyses were performed using the statistical program R. A significance level of 5% was adopted.

RESULTS

The total sample consisted of 173 patients, with the majority being female (53.2%; n=92) and diagnosed with multiple myeloma (MM) (54.9%; n=95). MetS was diagnosed in 53.4% (n=79) of patients. Regarding its components, the following prevalences were found: high waist circumference (WC) in 65.7% (n=113), hyperglycemia in 12.4% (n=19), high systolic blood pressure in 49.7% (n=86), high diastolic blood pressure in 38.7 % (n=67), hypertriglyceridemia in 50.3% (n=75), low HDL-c in 49% (n=72). The presence of abdominal obesity was associated with the female gender ($p< 0.001$). Additionally, significantly higher mean age was found in the group of patients diagnosed with MetS, abdominal obesity, high systolic blood pressure, and hypertriglyceridemia ($p< 0.05$). In the analysis of the existence of interaction between MetS and its components, with infection, mortality, and length of hospital stay, the presence of infection during hospitalization was significantly associated with high diastolic blood pressure ($p= 0.022$).

CONCLUSION

No association was found between MetS and length of hospital stay and other clinical outcomes. However, this study revealed a high prevalence of MetS and its components in patients undergoing autologous HSCT. These results demonstrate the importance of a nutritional evaluation in autologous HSCT patients, in order to identify and early control negative non-disease-related factors.

KEYWORDS

Metabolic Syndrome; Hematopoietic Stem Cell Transplantation; Autologous Transplant; Cardiometabolic Risk Factors.

SERUM ADIPONECTIN LEVELS AND INFLAMMATORY RESPONSE IN PATIENTS UNDERGOING ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (ALLO-HSCT)

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INTRODUCTION

Adiponectin is the most abundant cytokine in human adipose tissue and is involved in the inflammatory response and regulation of energy balance, playing anorectic and anti-inflammatory roles in various clinical contexts. In allogeneic hematopoietic stem cell transplantation (allo-HSCT) the behavior of adiponectin is still unknown, but due to its characteristics, it may be used as a biomarker of metabolic changes in patients undergoing allo-HSCT.

OBJECTIVE

Characterize serum levels of adiponectin in patients undergoing allo-HSCT and relating biochemical markers of inflammatory response, such as acute phase response proteins.

CASUISTRY

Patients of both sexes undergoing the first allo-HSCT, aged ≥ 20 years.

METHODOLOGY

This retrospective cross-sectional study was approved by the research ethics committee (CAAE 77750723.5.0000.5440). Data on serum albumin, weight, and height at the beginning of conditioning (T1) were collected from electronic medical records. Adiponectin levels were measured using an immunoassay technique and multiplex kit. Statistical analysis was conducted using the t-test and Spearman's correlation coefficient for adiponectin and albumin, with a significance level of $p \leq 0.05$.

RESULTS

The study included 20 patients who underwent allo-HSCT, with five females and 15 males, and a mean age of 38.5 years (±13.4 years). In this sample, 65% of the patients had a malignant underlying disease, the most prevalent being Acute Myeloid Leukemia, and 35% had a non-malignant underlying disease. The mean pre-HSCT weight was 72.4±16.1 kg; according to the body mass index (BMI) classification, at T1, 12 (60%) patients were eutrophic, 4 (20%) were overweight, 2 (10%) were obese and 2 (10%) were malnourished. The average adiponectin value was 88.7608 ± 117.94823 and the average albumin value was 4.0805 ± 0.39619. Serum levels of adiponectin and albumin showed a significant negative correlation ($r = -0.44$, $p = 0.05$*), signaling protective mechanisms against inflammation when there is mobilization of acute-phase response proteins.

CONCLUSION

Adiponectin appears to be a promising biomarker for evaluating inflammatory response, and further investigation is necessary to fully understand its role in modulating inflammation in the context of nutritional factors and energy balance. Future research should aim to replicate these findings using larger sample sizes and incorporating additional centers and metabolic markers.

KEYWORDS

hematopoietic stem cell transplantation, adiponectin, biomarker.

THE ASSOCIATION BETWEEN NUTRITIONAL STATUS BY THE GLIM CRITERIA AND CLINICAL OUTCOMES IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Early diagnosis of malnutrition in patients with hematologic cancer and candidates for hematopoietic stem cell transplantation (HSCT) can improve prognosis and prevent complications. There are different protocols for nutritional assessment, which interferes with malnutrition definition. Therefore, a Global Consensus for Nutritional Diagnosis has been proposed, such as The Criteria of The Global Leadership Initiative on Malnutrition (GLIM). Objective: To apply the GLIM criteria in patients undergoing HSCT and to verify its association with clinical outcome.

SAMPLE

The study included patients with hematologic cancer undergoing autologous and allogeneic HSCT, aged over 18 years.

METHOD

Cross-sectional study conducted with 278 HSCT candidates at a University Hospital, Fortaleza, Ceara, Brazil. Demographic, clinical, dietary, and anthropometric data were collected through chart analysis between 2019 and 2022. The prevalence of malnutrition was determined based on GLIM criteria. Pearson's chi-square test and Fisher's exact test were used to investigate associations between categorical variables. Mean comparisons were made using the Mann-Whitney test or Student's t-test. Subsequently, the data were subjected to regression analysis. Regression models were adjusted for age, Karnofsky Performance Scale (KPS), and infection during hospitalization. P< 5% was considered as significant.

RESULTS

The majority of the sample was female (51.4%, n=143), the most prevalent treatment was autologous HSCT (63%, n=174). According to GLIM criteria, 21% (n=36) and 32% (n=33) were diagnosed with malnutrition in autologous and allogeneic HSCT groups, respectively. Regarding clinical outcomes, a significant univariate association between malnutrition and death was observed in the autologous HSCT group (p=0.027). However, after linear regression analysis adjusted for age, infection, conditioning type, and KPS, no significant associations were found between malnutrition and death, and other clinical outcomes (length of hospital stay and infection) in both groups. Conclusion: This study showed that malnutrition, according to GLIM criteria, was not associated with clinical outcomes in patients undergoing HSCT. On the oher hand, it is highlighted that malnutrition was higher in allogeneic group. Additionally, future large studies should investigate the most sensitive method to diagnose malnutrition in HSCT.

KEYWORDS

Malnutrition; Nutritional assessment; Nutritional risk screening

THE ASSOCIATION BETWEEN SARCOPENIA AND FOOD CONSUMPTION IN PRE-BONE MARROW TRANSPLANTATION

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INTRODUCTION

Bone marrow transplantation is a treatment method for some diseases that affect blood cells, such as lymphoma, myelodysplasia and leukemia. Adequate food consumption could reduce oxidative stress and maintain or improve nutritional status, favoring the prognosis after transplantation.

OBJECTIVE

To evaluate the association between sarcopenia and food consumption in pre-bone marrow transplant patients.

SAMPLE

The study included female and male patients aged 18 years and over, who were receiving oral nutrition. All patients were followed up at the nutrition outpatient clinic of a reference hospital between August and November 2018 and kept their registration form free and clear.

METHODOLOGY

This is a cross-sectional and descriptive study, carried out with patients with an indication for autologous or allogeneic bone marrow transplantation at the Hematology Outpatient Clinic of Fortaleza, Ceara, Brazil. Sarcopenia was evaluated considering sex, BMI and dynanometry. To assess food consumption, two 24-hour dietary recalls were carried out, one on the weekend. To analyze the nutritional adequacy of energy, macronutrients, micronutrients and fiber, were considered the Dietary Reference Intake/ Institute of Medicine. The average protein consumption and total energy intake were evaluated considering 1.5g/kg/day for protein and 30 to 35Kcal/kg/day as adequate, respectively. For statistical analysis, data were expressed as frequencies, percentages and means. To verify the association between categorical variables, Pearson's $\chi 2$ test was used. $P<0.05$ was considered statistically significant.

RESULTS

Sixty-three patients were included. Sarcopenia was present in 62.5% of the patients. Regarding the intake of antioxidant micronutrients, all those assessed (100%) had inadequate consumption of vitamin E, 95.2% of vitamin A and 52.4% of selenium. Vitamin C consumption was adequate in 55.6% of the studied population. More than half of those assessed had adequate dietary intake of carbohydrates (84.1%), protein (96.8%) and lipids (69.8%). However, 71.4% had inadequate consumption of fiber and 87.3% of calories. It was also observed a higher prevalence of individuals with sarcopenia with inadequate intake of vitamin B6 (57.1%, p=0.022) and low intake of manganese (34.9%; p=0.026).

CONCLUSION

The prevalence of sarcopenia and inadequate antioxidant nutrients intake among the cases was higher. A significant association between low consumption of vitamin B6 and manganese and sarcopenia was found.

KEYWORDS

Muscle mass; Sarcopenia; Dietary intake.

MULTIDISCIPLINARY - **ODONTOLOGY**

ATYPICAL ORAL MANIFESTATION IN A PATIENT AFTER HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR ACUTE LYMPHOBLASTIC LEUKEMIA T - CASE REPORT

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) is the treatment for hematological diseases such as leukemia, lymphoma and multiple myeloma, as well as certain genetic diseases and immunodeficiencies. Patients undergoing allogeneic HSCT are at increased risk of fungal, viral and bacterial infections in the oral cavity due to immunosuppression and damage to the oral mucosa caused by oral mucositis or graft-versus-host disease (GVHD).

AIM

to present the case of a post-bone marrow transplant patient with a submucosal nodular lesion on the tongue and the diagnostic propaedeutics.

METHOD

A 23-year-old male patient underwent haploidentical HSCT to treat T acute lymphoid leukemia with a mediastinal bulky mass. In the post-transplant period, he developed chronic GVHD with bilateral lichenoid lesions on the jugal mucosae, which was treated with topical clobetasol propionate 0.05%. Around D+265, he presented with a submucosal nodular lesion with an erythematous surface, of a hardened consistency in the posterior third of the left side of the dorsum of the tongue, without crossing the midline, with no painful symptoms, measuring approximately 2 cm. At this point, the use of clobetasol propionate 0.05%, which had already been discontinued due to controlled oral GVHD, was suspended, an incisional biopsy of the new lesion was carried out and the material sent for histopathological analysis, with the diagnostic hypothesis of HPV lesion, syphilis, erythroplasia or squamous cell carcinoma. The histopathology report revealed a fragment of oral mucosa with a moderate lymphoplasmocytic inflammatory infiltrate with a lichenoid pattern in dense connective tissue. The test for fungi using the Grocott method was negative and the test for spirochete bacteria using the Warthin-Starry method was negative. Immunohistochemistry with anti-treponema antibody showed a focal positive result for Treponema Pallidum. Serum and cerebrospinal fluid VDRL were requested and both results were negative.

RESULTS

Through the various means of research used, as well as multi-professional discussion, the final diagnostic hypothesis of a cGVHD lesion was raised, and clobetasol proprionate 0.05%, which is an efficient drug in providing regression of symptoms and healing of lesions, was prescribed again, and the patient was followed up for 14 days after the prescription, showing partial regression of the lesion.

CONCLUSIONS

Post-HSCT patients need regular dental follow-up and lesions in the mouth require a quick and effective diagnosis, with a full assessment through complementary tests and multi-professional discussion. In this case, the hypothesis of cross-infection was also raised, as the anti-treponella antibody can cross-react by marking other spirochetes, including Borrelia burgdorferi.

KEYWORDS

Hematopoietic Stem Cell Transplantation; Graft vs Host Disease; Dentistry.

COMPLICATION OF APLASTIC ANEMIA ASSOCIATED WITH PERICORONARITIS: CASE REPORT

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INTRODUCTION

Aplastic anemia is a hematological disease resulting from hematopoietic insufficiency of the bone marrow. This condition can promote suppression of the immune system, therefore infectious and inflammatory processes can worsen the patient's clinical condition. In this context, pericoronitis is an infectious process related to partially erupted and/or impacted third molars that can contribute to an unsatisfactory outcome.

OBJECTIVE

Report a case of a patient diagnosed with very severe aplastic anemia and untreated pericoronitis.

CASE REPORT

Patient I.R.N.R, 21 years old, male, with aplastic anemia, undergoing unrelated allogeneic transplantation and lacking other amenities. He was urgently admitted to reference hospital (Fortaleza-CE), due to acute renal failure, secondary graft failure and an infectious condition to be clarified. After anamnesis, physical examination and complementary exams, the hypothesis of urinary and pulmonary infections was ruled out, however, he reported pain in the posterior region of the jaw, and a dental evaluation was requested. After intraoral examination, edema of the pericoronal cap extending to the occlusal surface of the lower 2nd molars, in addition an erythema, was identified in the region of the lower 3rd molars. On radiographic examination, partial eruption of these teeth was observed and the diagnosis of acute Pericoronitis was attributed. The patient was already using Meropenem, and local interventions were carried out with antimicrobial photodynamic therapy (aPDT) and making a composite resin block, to reduce the infection at its origin and minimize local trauma, respectively. However, due to the non-responsive clinical picture, it was decided to replace the antibiotic with amoxicillin with clavulonic acid. However, these interventions were unable to contain systemic complications and the patient died.

CONSIDERATIONS

Given the context, the need to understand and thoroughly investigate the complications that can affect patients in hospital environments, pre- or post-procedures, is evident, since oral diseases can aggravate the systemic condition. Oral adequacy prior to the treatment of serious hematological conditions is emphasized, as well as the presence of a dentist in multidisciplinary teams.

KEYWORDS

Anemia aplastic; Mouth; Pericoronitis

FACTORS ASSOCIATED WITH ORAL MUCOSITIS OCCURRENCE IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Antineoplastics used in hematopoietic stem cell transplantation (HSCT) do not distinguish between cancerous and healthy cells, leading to adverse effects. The oral mucosa, characterized by its rapid cellular renewal, is one of the most affected areas, resulting in oral mucositis (OM). OM usually presents variable pain, erythema and/or ulcerations in the oral cavity and often require opioid analgesia, and in more advanced stages, difficulty swallowing/feeding that may require a reduction in chemotherapy/radiotherapy and even interruption of treatment. This directly influences therapeutic outcomes.

OBJECTIVE

This study aims to analyze factors within antineoplastic treatment of HSCT patients that may influence the duration and severity of OM.

METHODS

The study collected information from 86 patients undergoing HSCT for conditions including myeloid and lymphoid neoplasms, lymphomas, Fanconi anemia, severe aplastic anemia and multiple myeloma, all of whom experienced OM. This retrospective observational cross-sectional study was conducted through documentary research from March 2022 to March 2024. Data collected included sex, age, patient's disease, type of transplant, donor compatibility, conditioning, immunoprophylaxis and information about OM. Statistical tests of numerical variables were performed (Kruskal Wallis) to investigate the correlation with OM onset and severity.

RESULTS

The diagnosis and the type of HSCT, as well as donor compatibility, correlate significantly with the timing of OM onset ($p=0.018$ and <0.01, respectively). However, these factors do not correlate with the severity of OM.

Conclusion: The findings can help to identify patients with higher risk of severe OM and help to establish a personalized care protocol considering specific underlying disease, the type of transplant, and donor aiming for prevention and better outcome.

KEYWORDS

oral mucositis, hematopoietic stem cell transplantation, oral medicine.

Figure 1: Correlation of diagnosis with duration of OM

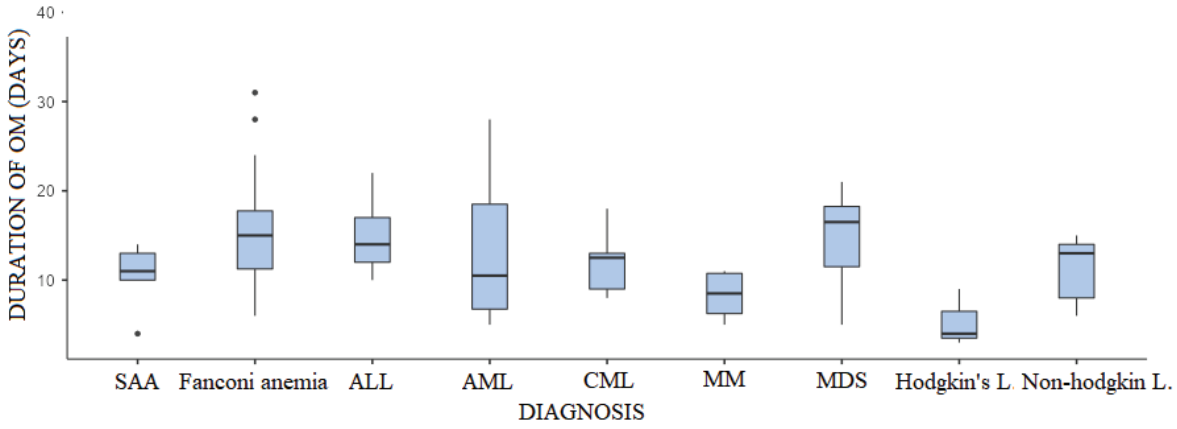


Figure 2: Correlation of type of HSCT with duration of OM

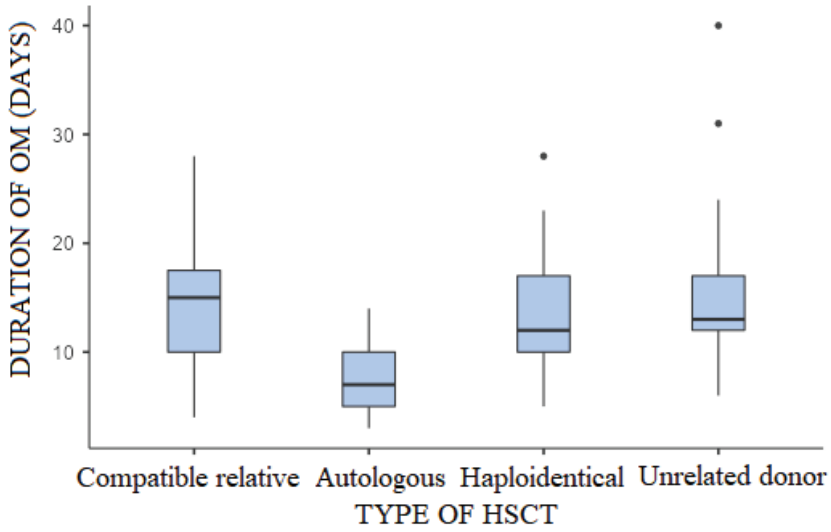
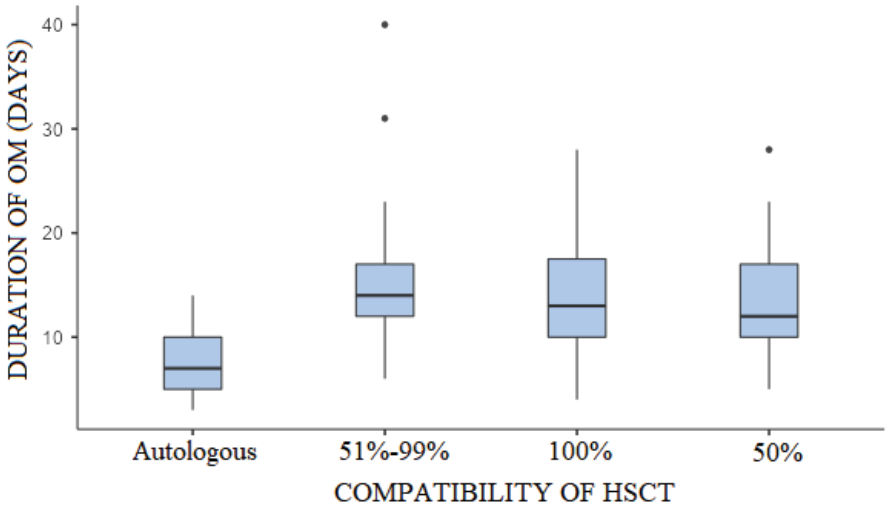


Figure 3: Correlation of compatibility of HSCT and duration of OM



ORAL CARCINOMAS IN LATE FOLLOW-UP POST HSCT: SINGLE CENTER EXPERIENCE

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The higher risk of developing secondary malignancies after haemotopoietic stem cell transplantantion (HSCT) is well known and the oral cavity is usually the most affected site (potentially ≥10-fold). Patients usually present a clinical history of persisting chronic graft versus host disease (cGVHD) and the risk increases with time post-transplantation. The aim of this study is to provide data on the high malignant transformation risk on a multi professional follow up in the post-late period in a public hospital. Results: 279 patients who attended routine consultations between 2017 and 2023 were evaluated. Oral exam was performed by a Stomatologist as part of the clinical examination. Criteria used for clinical diagnosis were based on the NIH diagnostic criteria for cGVHD. 50% of all patients showed clinical signs of cGVHD in different stages of severity and in different periods after HSCT. Oral biopsies were performed in 37 patients with the main purpose to confirm an usual clinical feature of oral GVHD or to exclude malignancy. 6 patients had histopathological confirmation of oral squamous cell carcinoma (OSCC). Tongue was the most frequent oral site followed by the buccal mucosa and lips. One patient presented with 2 secondaries OSCC in different sites of the tongue. One patient presented with 2 different sites of oral cavity in a 2 year period (superior lip followed by buccal mucosa). Of the 6 patients with a OSCC confirmation, only one had Fanconi Anemia as primary disease. Symptomatology of neoplastic lesions in the oral cavity is very similar to the chronic form of oral GVHD and we found no difference in this study showing lichenoid changes, atrophy of mucosa, ulcerations, and dysplastic changes like erythema with mild or no symptoms at all. All patients after OSCC diagnosis were referred to the head and neck service to begin specific treatment. 1 patient died during the 2 year follow up due to complications of another secondary malignancy. Follow up after OSCC diagnosis ranged from 10 months to 11 years. There is no consensus regarding the rate of secondary neoplasms considering mainly the lack of prolonged follow-up. Therefore, continuous monitoring of these patients by a trained specialist must be of the utmost importance since survival and quality of life of these patients are directly related to the early diagnosis. High risk of developing oral cancer post HSCT patients who have developed cGVHD should prompt an awareness of specialized oral examination on a regular basis follow up (6 months) and oral biopsy should be performed whenever there is a change in the pattern of the lesion presented.

ORAL HEALTH PROFILE OF PATIENTS UNDERGONE TO ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION WITH ORAL CHRONIC GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION

Oral chronic graft-versus-host disease (oral cGVHD) is a relatively common complication of allogeneic hematopoietic stem cell transplantation (allo-HSCT). It has been observed that some individuals with oral cGVHD develop severe carious lesions, even while maintaining satisfactory oral hygiene.

OBJECTIVE

To characterize and profile the oral health of patients pre- and post-allo-HSCT with oral cGVHD.

CASUISTRY

The sample consisted of 34 patients who undergone to allo-HSCT between 2010 to 2022 and developed oral cGVHD.

METHODS

A cross-sectional observational study with the collection of medical and dental information from medical records, including: clinical evaluation of the oral cavity (DMFT index), evaluation of oral cGVHD, unstimulated sialometry test, and oral hygiene classification. Patients were divided into two groups: with and without active cGVHD.

RESULTS

Out of the 34 patients with cGVHD evaluated, 3 were excluded and 10 presented with active cGVHD. The average age was 42 years, with a majority being men (61%), caucasian (58%), single/divorced (52%), with education beyond 8 years (63%), and diagnosed with CML (35%) (Table 1). There was a statistically significant difference pre-HSCT and post-HSCT regarding DMFT ($p<0.01$), and when comparing patients with and without active cGVHD, in the D (decayed) index of DMFT ($p<0.01$) (Table 2 and 3;). Regarding the result of unstimulated sialometry, there was no correlation between the amount of saliva and the DMFT of patients with and without active cGVHD (Image 1). The correlations between DMFT before and after HSCT within the combined pre- and post-hygiene groups were: strong association for the good and good groups (0.95); poor and good (0.79); and poor and poor (0.86); in contrast to the moderate correlation of the good and poor group (0.48) (Image 2).

CONCLUSION

Patients with cGVHD are prone to develop more dental caries. In this study, hyposalivation and hygiene did not influence the increase in DMFT post-HSCT.

KEYWORDS - Graft-versus-Host Disease; Bone Marrow Transplantation; Dental Caries.

Table 1: Sociodemographic characterization of patients undergone to allogeneic hematopoietic stem cell transplantation with oral graft-versus-host disease chronic

Characteristic	n = 31[1]
Age	22 - 42 (14) - 69
Marital status	
Divorced/Single	16 (52%)
Married	15 (48%)
Ethnicity	
White	18 (58%)
No white	13 (42%)
Education	
<8 years of schooling	11 (37%)
≥8 years of schooling	19 (63%)
Unknown	1
Sex	
Female	12 (39%)
Male	19 (61%)
Diagnosis	
AML	8 (26%)
CML	11 (35%)
ALL	6 (19%)
Myelodysplastic syndromes	1 (3.2%)
Anemia	1 (3.2%)
Hodking's Lymphoma	2 (6.5%)
Non-Hodking's Lymphoma	1 (3.2%)
Myelofibrosis	1 (3.2%)

[1]Minimum - Mean (SD) - Maximum; n (%)

Table 2: DMFT index before and after HSCT

Characteristic	DMFT pre-HSCT, n = 31[1]	DMFT post-HSCT, n = 31[1]	p-value[2]
DMFT	0.12 - 0.63 (0.61) - 2.88	0.20 - 0.92 (0.87) - 4.66	0.005

[1]Minimum - Mean (SD) - Maximum

[2]Wilcoxon rank sum test

Table 3: Decayed teeth of patients with active and non-active oral cGVHD

Characteristic	Non-oral GVHDc active, n = 21[1]	Oral GVHDc active, n = 10[1]	p-value[2]
Decayed (DMFT)	0.00 - 2.67 (2.78) - 10.00	0.00 - 6.10 (2.69) - 10.00	0.005

[1]Minimum - Mean (SD) - Maximum

[2]Wilcoxon rank sum test

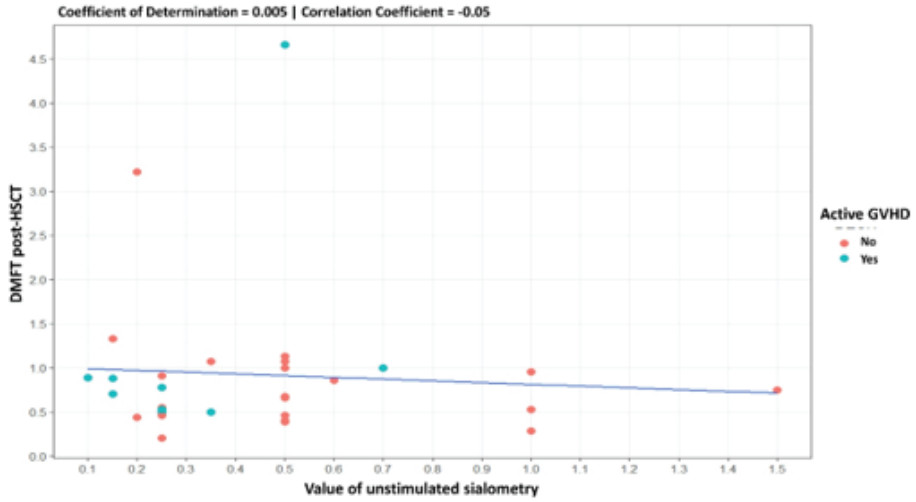

Image 1: Correlation between unstimulated sialometry volume and DMFT post HSCT

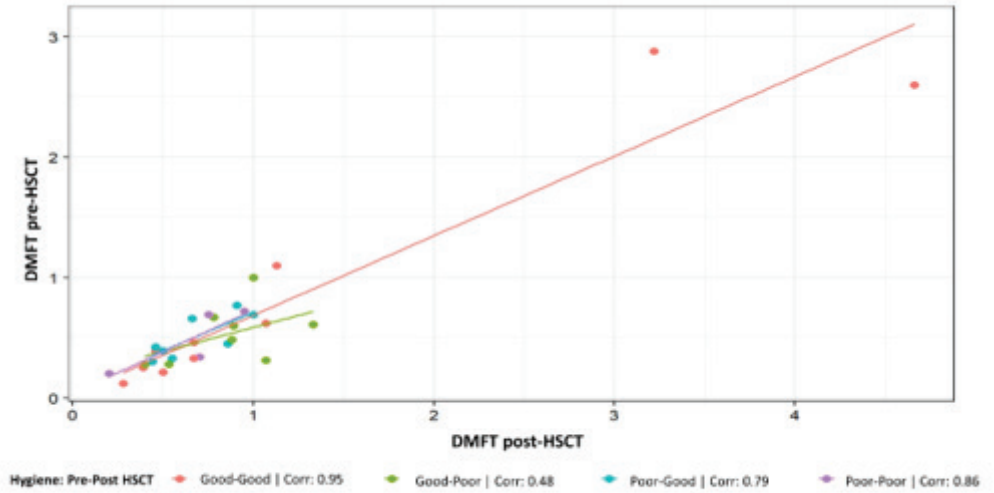

Image 2: Correlation between DMFT pre and post HSCT and Hygiene pre and post HSCT

PHOTOBIOMODULATION AS AN ALTERNATIVE TREATMENT FOR ORAL GRAFT-VERSUS-HOST DISEASE: CASE REPORT

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Graft versus Host Disease (GVHD) is considered to be one of the main complications associated with Bone Marrow Transplantation (BMT). This condition can manifest itself acutely or chronically through erythema, lichenoids or ulcers. These manifestations cause painful sensitivity in patients, resulting in a modification of their diets and favoring the emergence of opportunistic infections, causing a direct impact on patients' quality of life. The objective of this study was to describe two cases where Photobiomodulation (PMB) was used to treat oral GVHD lesions. Two patients, one female and one male, aged 57 and 21 years respectively, diagnosed with Acute Myeloid Leukemia, underwent BMT and were subsequently referred to the dentist by the hematologist after the diagnosis of oral GVHD. Both patients had erythematous and ulcerated lesions that caused considerable pain, disrupting their diet and quality of life. The PMB protocol was implemented using a red laser with a power of 100mW, a wavelength of 660nm, a tip diameter of 0.028cm2 and an energy level that varied between 0.5J and 2J, applied uniformly to all lesions. In cases of erythematous or lichenoid lesions, an energy level of 0.5-1J was applied, and in ulcerated lesions, an energy level of 2J was required, using an infra-red laser. After the 6th session, the female patient, presented regression of the lesions on the buccal mucosa and palate. After the 8th session, the patient reported an improvement in symptoms in general. The male patient, still undergoing treatment, had deeper ulcerated lesions, causing pain which prevented him from eating. Regression of the lesions and a reduction in pain levels were observed after the first session and, after four PBM sessions, the patient showed a significant improvement. In conclusion, photobiomodulation represents an additional treatment modality for oral GVHD when protocols are performed correctly.

SALIVARY PROTEOMICS AND ORAL MUCOSITIS IN PATIENTS UNDERGOING ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

The profile of proteins present in tissues and body fluids has been studied as risk, therapeutic and prognostic biomarkers for different pathological conditions. Oral mucositis (OM) is a serious inflammatory condition caused by the aggression of chemotherapy and/or radiotherapy and one of the main complications of allogeneic hematopoietic cell transplantation (allo-HCT). Despite this, there is an important limitation in understanding its pathophysiology and risk factors; there are no studies evaluating proteomics and mucositis in allo-HCT. Saliva is fluid rich in proteins that play an important role in protecting the oral cavity.

OBJECTIVE

To evaluate salivary proteomics in patients undergoing allo-HCT between patients who developed and did not develop OM.

METHOD

Saliva samples were collected from patients undergoing allo-HCT immediately before conditioning and at the time of the worst degree of oral mucositis. To assess OM, the WHO classification was used. For proteomic analysis, patients were divided into two groups: 1. No oral mucositis (grade 0 mucositis); 2. Patients who developed severe OM (grades 3 and 4). The samples were subjected to proteomic analysis by Mass Spectrometry.

RESULTS

20 patients were included (10 from each group), 13 males, median age 26.5 years (15-49 years). The most common underlying diseases were Acute Lymphoblastic Leukemia (n=6), Sickle Cell Anemia (n=4) and Aplastic Amenia (n=4). The majority of donors were related (n=17) and HLA identical (n=15). The prevalent conditioning was reduced intensity (n=13). 321 proteins were identified, 24 of which were exclusive to the group with OM and 19 proteins were exclusive to the group without OM. Statistical analysis identified a predominance of immunoglobulins in the group without OM, when compared to the group with OM. In the group with OM, a greater abundance of proteins related to antimicrobial activity, cell proliferation and responsible for modulating the local inflammatory response was observed, when compared to patients without OM.

CONCLUSION

Saliva proved to be a promising fluid in the identification of proteins and this unprecedented study in allo-HCT identified a greater abundance of proteins related to the immune response in patients who did not develop OM and of proteins associated with antimicrobial activity and modulation of the inflammatory response in the group with OM. These findings suggest potential targets for molecular risk assessment and/or therapeutic strategies for OM in the allo-HCT setting.

KEYWORDS - allogeneic hematopoietic cell transplantation; oral mucositis; proteomic analysis

THE RELATIONSHIPS BETWEEN DIFFERENT ONCO-HEMATOLOGICAL CHEMOTHERAPY PROTOCOLS AND ORAL MUCOSITIS IN A REFERENCE HOSPITAL.

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Oral mucositis (OM) is one of the main adverse effects for patients undergoing chemotherapy treatment for hematological malignancies and ablation for Bone Marrow Transplantation (BMT). Acute inflammation of the mucous membranes, characterized by irritation/pain and erythema, as well as ulcerative lesions, occurs in severe cases, compromising basic oral functions, such as speech and swallowing. Photobiomodulation (FBM) has been used in the prevention and treatment of OM, repairing tissue in a non-invasive way. The objective of this study is to describe the chemotherapy protocols of patients who undergo treatment for hematological neoplasms and those who undergo BMT, relating them to the incidence and duration of OM treatment. The period from January 2021 to December 2023 was analyzed and data was collected through medical records. A sample of 375 patients was obtained, 218 from BMT and 157 from Hematology, in which 45% evolved grade I or II OM. The MEL (melphalan 200 mg/m2), R-EPOCH (etoposide phosphate, prednisone, vincristine sulfate, cyclophosphamide, doxorubicin and rituximab) and ATG-BuCy (anti–thymocyte globulin and busulfan-cyclophosphamide) protocols were most associated with the occurrence of OM. In the BMT group, 47% developed OM, especially the MEL 200 protocol. The patients were discharged after an average of 7.8 sessions of laser therapy, using 2J of red light and 2J, 3J, 4J or 6J of infrared light, depending on the intensity of OM, in a region with erythematous/ulcerated lesions. In the Hematology group, 32% developed OM, the highlighted protocol was R-EPOCH and discharge occurred after an average of 9.5 sessions, using a 2J red light and a 2J or 4J infrared light. The chemotherapeutic protocol most harmful to oral tissues was MEL 200 in BMT and R-EPOCH in Hematology, and FBM was resolved in less than 10 days in both groups. It's important to emphasize that oral laser therapy acted positively, accelerating the healing of OM.

KEYWORDS - Bone Marrow Transplantation; Stomatitis; Laser Therapy.

MULTIDISCIPLINARY - **PSICOLOGY**

CONTRIBUTIONS OF PSYCHOLOGY IN A BONE MARROW TRANSPLANT SERVICE: EXPERIENCE REPORT

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INTRODUCTION

Hematopoietic stem cell transplantation is a procedure used to replace the bone marrow of the patient who is not functioning properly. This procedure allows increased survival or even cure of some malignant hematological diseases, benign and also non-hematological neoplasms and autoimmune diseases. The results of this treatment are directly associated with the commitment of a multidisciplinary team composed of physicians, nurses, nutritionists, physiotherapists, occupational therapists, pharmacists, psychologists, social workers, among others. Given this scenario, it is understood that there are psychological impacts that can directly interfere with the necessary care and the possible prognosis of this patient.

OBJECTIVE

To describe the experiences of psychology professionals in a university hospital, linked to the multidisciplinary residency program. This process will provide subsidies for the construction of a more integral practice that contemplates the multiplicity in hematology.

METHODOLOGICAL PROCEDURES

Report of experience based on the practices of the psychology team of a Multidisciplinary Integrated Residency Program in Hospital Care. The public attended consists of adult and elderly patients. The activities narrated took place from March 2023 to April 2024. Among the actions involved are the psychological evaluation pre-transplantation, follow-up in hospitalization and outpatient follow-up of those patients who had difficulties to adapt to the reality that involves post-transplant care.

RESULTS

It is noticed that hematological disease allows the opportunity to develop activities related to the patient-family-team triad. It mobilizes emotional issues associated with the losses that illness causes to patients, crossing issues of self-image, independence and threat of continuity of life. Thus, the role of Psychology is important in every process, seeking to welcome and facilitate the flow of emotions, use psychoeducation to encourage adherence to treatment and self-care. Perform interventions aimed at improving the quality of life, in addition to identifying and strengthening coping resources.

CONCLUSION

Therefore, the role of psychology is guided by the understanding of the context of the patient and his subjectivity, as well as the care of the relatives involved, to promote adequate care. Thus, qualified listening and Psychology interventions mentioned above are relevant to manage the psychological aspects involved and facilitate communication with the health team. Because it is through the proper functioning of the multidisciplinary team in Hematology-Oncology, that the practice in hospital care can constitute a health based on integrality.

KEYWORDS

Integrality in Health, Hematopoietic Stem Cell Transplantation, Psychology

EXCHANGE OF LETTERS BETWEEN CHILDREN AND ADOLESCENTS IN ISOLATION PRECAUTION: EMOTIONAL IMPACT DURING BONE MARROW TRANSPLANTATION (BMT)

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INTRODUCTION

The exchange of letters between children and adolescents hospitalized for BMT offers a vital opportunity for social interaction in an environment that values isolation. This restriction, linked to the physical symptoms expected by the treatment, favors discouragement, apathy, and emotional dullness. This way of communication can play a fundamental role in the emotional well-being of these patients, providing them a safe and meaningful way to express feelings, share experiences, and maintain connections. This study evaluates the benefits of this practice on the emotional state and perception of social support during the BMT inpatient period.

OBJECTIVE

Is to analyze the impact of exchanging letters among children and adolescents undergoing BMT, considering their benefits during hospitalization.

METHOD

This was an experience report, performed in a private hospital in São Paulo, during the period from January 2021 to January 2024. This study analyzed the first 28 exchanges of letters between children and adolescents 4-17 years of age, hospitalized for autologous and allogeneic BMT. Hospital psychology was responsible for facilitating this communication, analyzing case by case, and selecting patients with common characteristics, such as: age, diagnoses, family support network, and treatment timing. The letters were laminated and sanitized to ensure safety. The content of the letters was categorized and qualitatively analyzed to identify recurring themes, emotional expressions and forms of support expressed.

RESULTS

this exchange of letters promoted a significant increase in the perception of social support and emotional decompression during hospitalization. The letters were perceived by the team as a source of emotional comfort, encouragement, and human connection, helping to mitigate the negative effects of hospital isolation. Common themes included expressions of love, hope, and gratitude, as well as shared experiences, and plans related to the future. Procedures inherent to hospitalization, such as dressing changes and nasoenteral tube placement, were motivated by other children, increasing adherence and effectiveness. Hospital psychology was able to provide guidance and emotional support to children and their families during the process of writing and receiving letters.

CONCLUSION

The exchange of letters between children hospitalized for BMT and their families represents an effective psychosocial intervention to promote well-being during hospitalization. This study highlights the importance of simple strategies, such as written communication, in promoting mental and emotional health in adverse health contexts. The integration of hospital psychology in this process is crucial to ensure that the emotional needs of patients and their families are adequately met. Future research may further explore the therapeutic potential of this intervention and its applicability in other clinical contexts.

MULTIDISCIPLINARY HOST GROUP FOR PATIENTS AFTER HEMATOPOIETIC CELL TRANSPLANTATION AT A SÃO PAULO COUNTRYSIDE TRANSPLANT CENTER

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INTRODUCTION

Hematopoietic cell transplantation (HCT) is a complex treatment and can bring changes and limitations to the patient's lifestyle, altering their coping and impairing the performance of significant daily living activities. Bearing in mind these changes, is important to accept the particularities highlighted, offering space for communication and identify with other individuals who have undergone or are undergoing the same treatment. Understanding the importance and benefit of a support network, multidisciplinary groups are alternatives to provide care to the requests explored by patients during the post-HSCT period, favouring health education practices, reception and exchange of experiences between participants and mediators.

OBJECTIVE

To describe the institutional protocol of a multidisciplinary group carried out with post-HCT patients at a São Paulo countryside transplant center.

METHODS

Bibliographic review and description of institutional multidisciplinary group protocol for post-HCT patients.

RESULTS

The multidisciplinary group takes place in person with fortnightly meetings aimed at caring for post-HCT patients (Day Hospital), with an open invitation to patients who feel comfortable to participate. Group duration is estimated to be one hour, counting with psychology and occupational therapy professionals. There may be invitations to other professionals from the multidisciplinary team, depending on the need that arose during the discussions. During the meetings, several topics related to post-HCT are explored, such as routine changes, main difficulties after transplantation, social roles reorganization, sexuality, experiences and fears related to graft-versus-host disease (GVHD), future expectations after returning home, among other topics that may be raised by patients during meetings. After the group, the patients' attendance is recorded in the institutional records, and they are asked to answer the satisfaction questionnaire. With the implementation of the multidisciplinary psycho-educational group, it is expected that health education actions can facilitate adherence to self-care and post-transplant guidance, also helping to manage extra-illness demands that were impacted by the treatment.

CONCLUSION

Through the multidisciplinary host group, it is possible to identify psycho-emotional demands that may interfere with treatment, in addition to support rehabilitation and social reintegration in a safe and independent way. The exchange of experiences among patients through reports and health education enables positive coping with the redefinition of experiences and the strengthening of a support network beyond family caregivers.

KEYWORDS

Hematopoietic cell transplantation; Multidisciplinary; Therapeutic Groups; Psychology; Occupational therapy.

THE IMPORTANCE OF PSYCHOLOGICAL CARE OF ONCOLOGICAL PATIENTS WHO NEED TO SUBMIT THEMSELVES TO BONE MARROW TRANSPLANTATION

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When it is considered the development of serious diseases treatment, such as cancer, bone marrow transplantation has been seen as a promising cure possibility. Associated with it, there is also psychological care. The objective of this study is to describe the importance of psychological care combined with oncological treatment and psychotherapeutic interventions. According to historical perspective, it is important to highlight that since antiquity, cancer has been associated with emotional state, whereas the body is affected by emotions and affections that were not elaborated. Although the combination of physical and psychological treatment is recent, this technique has been relevant nowadays. Therefore, it is essential to think about the fact that patients might deal with adversities and anxiety during the process of treatment. In addition, they have to recognize their feelings and adapt themselves to their disease reality. Thus, it is necessary to face their emotional weakness and the symptoms caused by the treatment. Based on it, the aim must be to build signification and tools to cope with this illness. It is also crucial to consider patients as integrated human beings, contemplating their surroundings. Psychoanalysis has resources that allow to help these patients, opening spaces to the subjectivity field. In this context, the patient talk is a privileged way to give support to this disease and to subjective process involved in it. Over psychoanalysis development, theoretical-clinical advances have enabled to foresee a clinic that transcends neurological pathologies borders. This listening expansion makes possible to consider other ways of psychic organization, considering corporal aspects apart from conversion symptoms. This study presents possibilities of intervention in psychotherapeutic treatment of oncological patients who were submitted to bone marrow transplantation; it also highlights the importance of psychic care of people that have to face serious diseases.

KEYWORDS - Cancer, transplantation, psychoanalysis.

THE IMPORTANCE OF PSYCHOLOGICAL INTERVENTIONS DURING CAR-T CELLS THERAPY

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INTRODUCTION

Hospitalization of children undergoing therapy with CAR-T cells can be a challenging time, both for the patient and their family given the emotional repercussions resulting from the long illness and hospitalizations that precede the therapy with the CAR-T cell. Psychological support plays a crucial role in this context, helping to cope with the disease, maintain mental health and support the losses experienced throughout the treatment process.

OBJECTIVE

Of this report is to highlight the benefits and the psychological interventions.

METHOD

This was an experience report, performed in a private hospital in São Paulo, during the period from July 2023 to August 2023. Were used open interviews with the family involved in the treatment and analysis of medical records. Our team used therapeutic games, exchange of letters between children, and assistance to family members, in psychological support during the hospital stay of a child undergoing CAR-T cell therapy. The psychological interventions were carried out on an individual basis, adapted to the specific needs of the child and their family. Projective techniques were applied to facilitate the child's emotional expression, therapeutic games to promote engagement and communication, exchange of letters with another child to stimulate social connection, and assistance to family members to offer emotional support and guidance throughout the process.

RESULTS

The results demonstrated that psychological interventions were perceived as fundamental for emotional decompression during the hospital stay of the child, who had fears related to the effectiveness of the treatment. Psychological care promoted the adequacy of expectations, favored the expression of feelings and adherence to treatment, demystified the treatment and strengthened coping resources. Projective play allowed children to express their feelings and concerns non-verbally, while therapeutic games promoted moments of relaxation and stress relief. Exchanging letters with another child provided a source of support and mutual understanding, reducing the feeling of isolation. Assistance to family members was essential to provide emotional support and practical guidance, helping them to deal with the emotional demands of the situation.

CONCLUSION

The psychological interventions applied, played a significant role in psychological support during the hospital stay of the child undergoing therapy with CAR-T cell. These results highlight the importance of integrated psychological approaches in the treatment of children with serious medical conditions, aiming not only at physical recovery, but also at the emotional well-being of the entire family.

MULTIDISCIPLINARY - SOCIAL SERVICE

OUT-OF-HOME TREATMENT AS A HEALTH RIGHT: REFLECTIONS ON ITS ACCESS AT THE MUNICIPAL LEVEL IN THE STATE OF CEARÁ

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The Out-of-Home Treatment Program (TFD) is regulated by Ordinance No. 55, of February 24, 1999, from the Health Care Secretariat of the Ministry of Health. The TFD is intended for users of the Unified Health System (SUS) whose specialized medical treatment is not available in the city of origin, with the mentioned treatment being available in a location more than 50 kilometers away and not located in the metropolitan region. On the other hand, this normative instrument deals with the financing of treatment for the population that needs to travel to another municipality to access necessary health treatment. Among the users of one of the high-complexity services that require TFD support are patients undergoing bone marrow transplantation (BMT). BMT is a high-complexity health treatment procedure in which bone marrow stem cells from a donor or the patient themselves are transplanted to the recipient for cellular regeneration purposes. In many situations, the patient needs to remain in the treatment city for a period. Therefore, a central contradiction is observed between the terms assured in the normative act and its implementation by federative entities, especially municipalities. Therefore, this work aims to reflect on the social rights of patients who need financial assistance through TFD. This research is based on the marxist epistemic paradigm, with the method being a consecutive construction for apprehending the research object. Based on secondary source documentation, an attempt was made to elucidate the contradictions present in the investigative process, seeking to approach the changing essence of the object. Thus, based on studies developed by Da Silva (2023); Forte (2022); and CAOSAÚDE (2023), the focus was directed towards the challenges and advances in accessing TFD in the state of Ceará, with a spatial focus on a bone marrow transplant hospital. By understanding health as a composite element of broad conditioning agents, this work has garnered, through studies produced up to that point, an important synthesis of patients' access to a central mechanism for implementing SUS, as a welfare-providing policy. Corroborating with the cited sources, the social service's role identifies, in the services provided, that municipalities usually do not meet what the legislation advocates, and also, the TFD-demanding population is unaware of their rights. Furthermore, it is observed that users only receive sanitary transportation from their municipalities of origin, and are therefore referred to the judicial system, such as the Public Prosecutor's Office and the Public Defender's Office, for the enforcement of rights guaranteed by Ordinance No. 55/99. Therefore, it can be stated that the realization of this social right is essential to guarantee the integrity of health treatment.

KEYWORDS

Out-of-Home Treatment-TFD; Health Policy; Bone Marrow Transplantation-BMT."

SOCIOEDUCATIONAL EVALUATION X PATIENT ADHESION TO FOLLOW-UP AT HOME TREATMENT AFTER BONE MARROW TRANSPLANT – PROADI-SUS

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Socio-education is defined as a set of actions and policies that aim to integrate social and educational aspects while addressing problems and challenges faced by society.

Some of the socioeducational issues are related to access to public health centers, such as those offered by the Single Health System (SUS). Because many citizens are uneducated on or unaware of their rights to access many of the health programs offered by the system, socioeducation plays an important role in clarifying those aspects and promoting better public health. Bone marrow transplants are performed at multiple hospitals and specialized health centers, both public and private, in Brazil. Those procedures are offered by SUS and are deemed as of "high complexity" by that system. PROADI-SUS (Institutional Development Supporting Program of the Single Health System) has an important role in supporting and developing the Bone Marrow Transplant programs.

OBJECTIVE

To analyze the socioeducational level of patients that underwent bone marrow transplant and how they followed-up with the necessary post-procedure treatment at home.

PATIENTS AND METHODS

This is cross-sectional study from January 2024 to March 2024 including patients of both genders between 3 and 64 years of age. The study is qualitative and quantitative; the qualitative evaluation was performed through direct questions, by nurses and social workers via telemedicine-appointments, to patients that underwent bone marrow transplants between July 2022 and September 2023. A Q-square test evaluated the association between variables; 28 of the 41 patients that underwent bone marrow transplant during the above mentioned period were included in the study; 46% of those patients were not eligible to social security benefits; only 8% of those that were eligible to social security benefits were employed, and the remaining were collecting social security insurance for disability. As for educational level, 39% of the patients were at below high school education level; 4% of the patients had an average income of a minimum wage salary (p=0.036). The patients remained unemployed an average of 6 months after the bone marrow transplant. The results suggest the importance of considering the socio-educational context in the management and adherence to treatment post bone marrow transplant. We have sufficient evidence to assume that patients with a lower level of education and of low income are more likely to face difficulties in accessing health services and employment after the procedure. This highlights the importance of health policies that address not only medical aspects, but also social and educational aspects to ensure a better quality of life and adhesion to the post-bone marrow transplant treatment at home. Furthermore, we emphasize the importance of PROADI-SUS in implementing socioeducational programs that improve the access to and quality of public health centers.

KEYWORDS

BMT, SUS, PROADI, Bone Marrow Transplant

THE SOCIAL WORKER'S PERFORMANCE IN THE BONE-MARROW TRANSPLANTATION SERVICE: AN EXPERIENCE REPORT

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The present study aims to depict the social worker's professional performance in the multidisciplinary team of the bone-marrow transplantation (BMT) at the Hospital Universitário Walter Cantídio (HUWC, Walter Cantídio University Hospital), emphasizing everyday aspects, from the experience as a resident in social services. The research methodological approach is the assessment of an experience report using bibliographical references. The HUWC is a hospital of high-complexity located in the state of Ceará, and a reference in bone-marrow transplantation, with a multidisciplinary team composed of doctors, nurses, nutritionists, physiotherapists, occupational therapists, pharmacists, psychologists and social workers. The BMT service has a main social worker and two resident social workers, who provide care to pre and post transplant patients, for both hospitalized patients and patients attended by the hematology ambulatory care service. The social worker's aim in the BMT service is to identify expressions of social issues, subject of this professional activity (NETTO, 2010), which impact on the health-disease process of the patient, such as: work precarity, unemployment, rights violation, poverty, social vulnerability, family ties and social support weaknesses, among others. The social workers use instruments to evaluate and modify the social contexts of the patients, such as: social interviews, to identify social determinants of health; specialized listening skills; orientation about social rights, for the patient to properly access law and healthcare systems; mediation in the relationship patient/family and healthcare team; issuance of social reports and professional opinion of the social service; social referral in the perspective of inserting the patient in healthcare services and social benefits; social monitoring; family attendance in case of death; articulation with other institutions; case discussion in multidisciplinary team meetings; referral of social report for insertion/maintenance in the program for treatment in distant cities (TFD - Tratamento Fora do Domicílio); articulations for the permanence of the patient in support institutions (philanthropic, contracted or supported by the city). In this perspective, the social worker's professional performance becomes essential to protect the social rights of the users of healthcare services. Thus, during the training period as a resident professional, some challenges were identified, such as: expanding the socio-occupational spaces of the category; promoting interdisciplinary work, encouraging permanent/continued education and participation in the improvement of healthcare educational processes. In conclusion, the experience in this space contributes to a critical and reflective professional training, established by the ethical-political, theoretical-methodological and technical-operative dimensions of the category.

KEYWORDS

Bone-Marrow Transplantation–BMT; Social Work; Hospital Residency.

VIRTUAL MULTIDISCIPLINARY CARE: A MEDICAL AND SOCIAL PROJECT OF A BRAZILIAN BONE MARROW AND CELL THERAPY UNIT

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INTRODUCTION

The 'Virtual Multidisciplinary Care' (VMC) program is an established form of care that was disseminated during the COVID-19 pandemic. VMC complies with the guidelines of the Brazilian Federal Council of Medicine, defined by resolution No. 2314 of April 20, 2022.

OBJECTIVE

VMC offers support and monitoring to patients who have undergone hematopoietic stem cell transplantation (HSCT), especially those who face difficulties visiting the medical center due to the distance from their homes.

METHOD

In order to clarify doubts and provide support, the program provides periodic virtual consultations with a multidisciplinary healthcare team that includes doctors, nurses, psychologists, nutritionists, pharmacists, physiotherapists and social assistants. This enables communication with and monitoring of patients who require hematopoietic stem cell transplantations (HSCT) or those who have already undergone transplantation. In cases where in-person consultations are necessary, the institution has agreements with an airline company and support center thereby guaranteeing travel and board for the the patient and one companion.

RESULTS

VMC began in June 2023 and by February 2024, 74 online consultations with 19 female and 11 male patients had taken place. The patients' mean age was 43 years old. Most had Crohn's Disease (80%); the others had non-Hodgkin's lymphoma (6.7%), systemic lupus erythematosus (3.3%), myelodysplastic syndrome (3.3%), multiple myeloma (3.3%) and Immune thrombocytopenic purpura (3.3%). Fifteen patients live in the state of São Paulo, but the service also provided care to patients from the states of Ceará (1), Goiás (1) Mato Grosso (1), Minas Gerais (5) Paraná (2) Paraíba (2), Piauí (1) and Rio de Janeiro (2). Four patients, together with their companions, received support with air tickets and accommodation in the support house for periods ranging from three to six days to carry out face-to-face assessments by the team.

CONCLUSION

VMC plays a crucial role for patients facing challenges to access medical care as the program offers at-distance support. It provides not only clinical benefits, but also economic benefits with a significant reduction in costs associated with travel and boarding, making treatment more accessible and sustainable in the long term, both for patients and for the healthcare system.

KEYWORDS

Virtual Multidisciplinary Care, Remote Support, Hematopoietic Stem Cell Transplant

MULTIDISCIPLINARY - OCCUPATIONAL THERAPY

OCCUPATIONAL THERAPY CONTRIBUTION TO FUNCTIONAL REHABILITATION POST-BONE MARROW TRANSPLANTATION FOR BLACKFAN DIAMOND SYNDROME: A CASE REPORT GUIDED BY THE FUNCTION-ENHANCING THERAPEUTIC PLAY APPROACH

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INTRODUCTION

Blackfan-Diamond syndrome is a rare hematologic disease primarily characterized by anemia. Hematopoietic stem cell transplantation (HSCT) has proven to be an effective treatment for this condition. However, patients become susceptible to various complications requiring continuous care from the multidisciplinary team. Prolonged hospitalization, mobility restrictions, and neurotoxicity may interfere with occupational performance. Proper management of systemic disease manifestations and treatment adverse effects allows patients to lead long and productive lives. Occupational therapists can utilize their expertise in play to assess skills and abilities, promote functional rehabilitation, maintain neuropsychomotor development, and enhance quality of life.

OBJECTIVE

To describe rehabilitation actions adopted by an occupational therapist in the hospital playroom using the function-enhancing therapeutic toy approach, aimed at resuming engagement in playful roles and maintaining neuropsychomotor development. Case study: A 3-year-old male child, diagnosed with Blackfan-Diamond syndrome, experienced graft failure after the first transplantation, requiring prolonged hospitalization for a second HSCT, with motor impairments due to treatment adverse effects. He presented with equinus foot, Achilles tendon stiffness, and inability to maintain an upright position as neurological sequelae.

METHOD

Experience report of rehabilitation practices using playful activities targeting performance components limited by HSCT adverse effects. Results: The structured environment facilitated engagement in play, using the function-enhancing therapeutic toy approach. During recreational play, the therapist guided motor skill performance, focusing on adaptation and rehabilitation processes. Intervention included optimizing patient positioning, active weight-bearing on the lower limb, and fabrication and maintenance of ankle-foot orthoses. In addition, assistive technology, environmental adaptations, and activity modifications were strategies used to enhance the child's performance. The child's interests were respected, allowing for autonomy and adherence to the rehabilitation proposal. On the Lansky scale, assessing daily performance and activity, the child initially scored 70 during periods of greater limitation, progressing to a score of 90 post-intervention, indicating normal activity with mild disease signs or symptoms.

CONCLUSIONS

Play-based rehabilitation facilitated the child's adherence to actions, resulting in improved motor abilities and favorable engagement in playful roles. By maintaining a play routine, occupational therapy humanized the hospitalization process and improved health-related quality of life.

KEYWORDS - Hematopoietic stem cell transplantation; Occupational therapy; Play and playthings.

REHABILITATION OF PEDIATRIC PATIENT WITH CHRONIC GRAFT-VERSUS-HOST DISEASE (CGVHD): CONTRIBUTIONS OF OCCUPATIONAL THERAPY

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INTRODUCTION

Graft-versus-host disease (GVHD) affects a significant portion of transplant patients. In the pediatric population, depending on the organ or body function affected by the disease, there may be impairments in aspects related to neuropsychomotor development and occupational performance in daily activities. Therefore, the development and implementation of a multiprofessional rehabilitation program aiming at the treatment and recovery of affected systems are of fundamental importance.

OBJECTIVE

To present the occupational therapy rehabilitation process with a pediatric patient with cGVHD. Case Study: A two-year-old child diagnosed with chronic graft-versus-host disease (cGVHD) affecting the mouth, eyes, liver, lungs, and skin (with impaired mobility in the shoulder, elbow, wrist, fingers, knee, and ankle joints) under outpatient care.

METHOD

Experience report. Results: According to evaluations by the medical and occupational therapy teams, it was observed through the NIH classification that the main demands were related to respiratory function and joint motor function, which interfered with neuropsychomotor development, occupational performance, and the child's quality of life. Through the Function-Enhancing Therapeutic Toy Approach, the occupational therapist proposed playful activities that stimulated passive and active movement of the affected joints and respiratory capacity, aiming to enhance occupational performance in play and daily activities, considering the child's age. Playful resources such as tricycles, stacking toys, playdough, drawing and painting, balloon activities, dancing, among others, were used. Through the implementation of the rehabilitation plan, totaling 27 sessions, and continuous evaluation by the professions, gains such as increased range of motion of the wrist and ankle joints and achievement of some neuropsychomotor development milestones, particularly ambulation, were observed.

CONCLUSIONS

Given the complexity of cGVHD, it is important for children to be followed by a multiprofessional team. Early implementation of a multiprofessional rehabilitation program facilitates prevention of complications, functional recovery, and contributes to quality of life.

KEYWORDS

Graft-versus-Host Disease (GVHD); Multiprofessional Team; Rehabilitation.

THE POTENTIAL OF PLAYFUL HEALTH EDUCATION WORKSHOPS FOR PEDIATRIC PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION: A CASE REPORT OF OCCUPATIONAL THERAPIST ENGAGEMENT IN THE HOSPITAL PLAYROOM

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is a treatment option for a wide range of life-threatening childhood diseases. During hospitalization, a child's development is influenced by various elements of hospital culture, through exploration and interaction with the space, objects, and actors in this territory. Considering the limitations imposed by this context, playrooms are a strategy for overcoming them as they seek to restore spontaneous play, an essential element for the child's integral development, creativity, learning, and socialization. Educational activities promote children's empowerment regarding the HSCT process. Anticipating and understanding the treatment stages brings predictability and reduces anxiety, as it increases the sense of control over future events. These can be combined with the instructional therapeutic play approach and used to prepare the child for hospitalization and therapeutic procedures.

OBJECTIVE

To report the practice of health education workshops by an occupational therapist in the hospital playroom. Method: Experience report. Results: The playful workshops, held weekly, aimed to empower children through rehearsal and exploration of the main procedures experienced during HSCT. The occupational therapist led the practice through ambience strategies and the application of instructional therapeutic play to stimulate curiosity and willingness to engage in play as a means activity. The ambience consisted of a mix of toys and hospital materials present in the care routine (syringes, venous collection tubes, catheters, probes, gloves, and others) to foster playful thinking and symbolic play performance. Workshops to instruct children about the technical process of blood tests and central venous catheter implantation, infection risks, and the need for dressing changes are examples of those conducted. As a result, improvement was noted in adherence to infection prevention measures such as hand washing and mask use. Moreover, children demonstrated mastery of context-specificities and generalization by replicating information to peers and caregivers.

CONCLUSIONS

Playful workshops for health education in HSCT present themselves as a favorable coping strategy for pediatric patients, enabling the minimization of resistance due to ignorance and reducing stress in the face of procedures. Furthermore, the occupational therapist proves to be a competent professional in using toys as a therapeutic resource in assisting the developing human being, respecting their capacities and inherent abilities at this stage of the life cycle.

KEYWORDS

Hematopoietic stem cell transplantation; Occupational therapy; Health education.

FIGURE 1 – Playful workshop: exploring the ambulatory

FIGURE 2 - Playful workshop: curative, the magic shield

VIRTUAL REALITY GLASSES: HOSPITAL MULTIDISCIPLINARY RESOURCE FOR HEMATOPOIETIC CELL TRANSPLANTATION RECIPIENTS IN A COUNTRYSIDE TRANSPLANT CENTER

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INTRODUCTION

Hematopoietic cell transplantation (HCT) is a complex treatment indicated for many potentially fatal diseases. During the transplant, it is necessary to isolate the patient due to the neutropenia and to avoid infectious complications. The multidisciplinary team plays a fundamental role minimizing the hospitalization impacts, as well as helping to cope with the disease and treatment. In order to stimulate patients during this period, the team has innovative practices and resources to motivate and improve adherence to the proposed activities. Virtual reality glasses allows contact with the simulated environment, aiming to allow interaction, involvement and immersion. That interaction can be used for motor, cognitive and psychological activities. Professionals can direct patients through videos to locations and/or images of interest. Furthermore, this technology allows patients to resume their occupational role even when in a restricted environment.

OBJECTIVE

To describe the virtual reality glasses use experience in patients undergoing HCT as a multidisciplinary strategy for therapeutic adherence during the hospitalization.

METHODS - Bibliographic review and a HCT center's experience description.

RESULTS

The services were carried out in a multidisciplinary and playful way with the occupational therapy, physiotherapy and psychology teams. During the appointments, general conditions and patients' adherence to the proposal activities were observed. There was an improvement in the space body perception, interaction with the characters and reactions related to obstacles and scenes. There was also an improvements in rehabilitation adherence, cognitive function, mood and adherence to care and psychological demands. The virtual reality glasses use contributed to the maintenance of patients' physical, cognitive and psycho-affective functions.

CONCLUSION

Through the virtual reality glasses use, it is possible to improve adherence to multidisciplinary practices, thus contributing to the maintenance of patients' physical and motor functions, as well as mental and psycho-emotional skills during the hospitalization.

KEYWORDS

Hematopoietic cell transplantation; Multidisciplinary Team; Occupational therapy; Physiotherapy, Psychology.

MULTIDISCIPLINARY - **OTHERS**

ALL TOGETHER AGAINST CANCER UNDER DEBATE: THE CHALLENGES OF BONE MARROW TRANSPLANTATION IN BRAZIL

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INTRODUCTION

Bone marrow transplantation (BMT) is a crucial modality for treating hematologic and oncologic diseases; however, in Brazil, it faces several challenges. Analyzing these difficulties is essential to identify necessary interventions to improve the system and ensure equity in access to BMT. The aim of this abstract is to highlight the main points discussed in a debate held at the 10th All Together Against Cancer congress, emphasizing the importance of more efficient public health policies for this therapeutic modality.

METHODOLOGY

A descriptive analysis was conducted on the content discussed in the panel discussion "BMT: Challenges in Brazil" composed of doctors from different healthcare institutions across the country, held at the 10th All Together Against Cancer congress in September 2023, regarding the challenges of implementing BMT in the country. The minutes of the panel discussion, produced by the Public Policy and Advocacy department of the Brazilian Association of Lymphoma and Leukemia (Abrale), were used as the basis for the analyses. From this, the points that appeared most frequently in the speeches among the participants were compiled and discussed.

RESULTS AND CONCLUSION

BMT in Brazil is subject to a series of distinct regional challenges that negatively affect access, efficiency, and treatment quality. Disparities in the distribution of specialized centers, scarcity of compatible donors, bureaucracy in the process of Transplantation Outside the Domicile (TFD), initially designed to reduce access difficulties, and lack of multiprofessional support are some of the barriers faced by patients. Despite advances in some states, the healthcare infrastructure still does not seem prepared to meet the demand for BMT. The lack of equitable access leaves patients from remote regions at a disadvantage, facing obstacles to reach specialized centers due to lack of transportation and long distances. The absence of social and psychological support, especially for low-income patients, further exacerbates the situation. The prolonged waiting list due to the scarcity of compatible donors is another critical challenge, negatively impacting patients' prognosis and quality of life. Additionally, TFD also brings greater complexity, requiring significant financial and logistical resources from patients and their families to stay in other states while the patient recovers from the transplant. In conclusion, to overcome these challenges, a comprehensive approach is crucial, involving improvement of healthcare infrastructure, enhancement of TFD logistics, increased access to multiprofessional support, awareness of bone marrow donation, as well as joint action of patient support sectors with the medical society. Only through coordinated efforts and adequate investments will it be possible to ensure that all patients have fair and effective access to BMT across Brazil.

KEYWORDS

All Together Against Cancer; Health Inequities; BMT challenges in Brazil.

CONSTRUCTION OF A MULTIDISCIPLINARY STUDY GROUP ON HEMATOPOIETIC STEM CELL TRANSPLANTATION INVOLVING SEVERAL CENTERS IN BRAZIL

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INTRODUCTION

Childhood cancer is the first cause of death from disease in children and the second cause of death in general. Children and adolescents have around an 80% chance of being cured with early diagnosis and treatment in specialized centers. In 2018, the World Health Organization, together with St. Jude's Hospital, launched the Global initiative for Childhood Cancer to support the construction and maintenance of childhood cancer programs, with the goal of achieving at least 60% global survival rate for children with cancer by 2030. In Brazil, supported by St Jude Global, there is an alliance (AMARTE) between several pediatric oncology centers with the aim of equalizing diagnoses, homogenizing treatment and promoting scientific development.

Hematopoietic Stem Cell Transplantation (HSCT) is one of the treatment modalities for childhood cancer, being a complex procedure that involves many professionals in all its stages. In September 2023, a HSCT study group linked to AMARTE alliance was started with the participation of several pediatric transplant centers in Brazil, with the aim of creating an interface between the centers, optimizing and improving the process of HSCT.

OBJECTIVE

Here we describe the process of construction and development of a multidisciplinary study group in HSCT.

RESULTS

We started by creating a group through WhatsApp, which is an instant messaging social network popular among Brazilians and can be used as a strong communication tool. We asked participants in the WhatsApp group to include members from the various multidisciplinary areas of their HSCT team who were interested in participating in the study group. We then carried out a survey to validate the best day and time to hold two monthly meetings via Zoom Meetings, which is a video conferencing platform.

The meetings were divided into two moments, the first focusing on discussions of cases with HSCT indications, open to pediatric oncologists, and the second meeting focused on projects involving mainly the multidisciplinary transplant team.

There has been significant participation from teams, including doctors, nurses, pharmacists, dentists, physiotherapists, psychologists, nutritionists and occupational therapist

CONCLUSION

The interface between the various professionals working in HSCT has demonstrated a broad panorama, with several possibilities for improving patient care, producing scientific work and acquiring knowledge, free of charge.

MANDACARU-T PROJECT: A JOURNEY IN IMPLEMENTING CAR-T THERAPY WITHIN A HEMOTHERAPY SERVICE IN BRAZIL

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INTRODUCTION

Chimeric antigen receptor (CAR) T-cell therapies targeting CD19 have shown promise in treating patients with relapsed/refractory diffuse large B-cell lymphoma (r/r DLBCL) and Acute Lymphocytic Leukemia (ALL). This innovative approach involves modifying a patient's own T-cells genetically to express a chimeric antigen receptor designed to recognize tumor antigens. Once reintroduced into the patient's body, these engineered CAR T-cells target and destroy cancer cells bearing the specific antigen. By 2020, regulatory bodies had approved two CAR T-cell therapies for select adult patients with r/r DLBCL. Axicabtagene ciloleucel (axi-cel) gained approval from the US Food and Drug Administration (FDA) in October 2017, followed by tisagenlecleucel (tisa-cel) in May 2018. Furthermore, ongoing research continues to advance in the development of new CAR-T cell treatments.

AIMS

This experience report aims to describe the main difficulties faced in the implementation of CAR-T therapy in a hemotherapy service in Brazil.

METHODS

This report provides an overview and analysis of presentations given during an internal meeting held at the Hematology and Hemotherapy of Ceará (Hemoce) in 2023, focusing on the integration of advanced therapies within the hemotherapy service.

RESULTS

The MandaCARu-T project was conceptualized in 2019, with plans for the clinical trial of CAR-T anti-CD19 therapy set to begin in 2025. The project has adhered to the requisite documentation processes outlined by Federal law and by the Brazilian Health Regulatory Agency (Anvisa). The existing regulatory framework for advanced cell therapy and gene therapy products is structured to navigate the complexities inherent in products involving multiple institutions. One of the challenges is that this framework entails multiple steps involving more than one institution, such as Anvisa, National Research Ethics Committee (Conep), and National Technical Biosafety Commission (CTNBio), each with its response deadlines and procedures, thereby extending the regulatory timeline. Also, the discrepancy between the regulatory framework, which is largely oriented towards commercialization, and the objectives of the MandaCARu-T project, which aims to provide CAR-T therapy through public healthcare services, poses a significant challenge. Typically, regulatory processes are adapted to assist commercial ventures, making navigating for initiatives focused on public service delivery challenging.

CONCLUSION

The complex network of institutions, combined with legal and constitutional factors, underscores Brazil's intricate nature of regulating advanced cell and gene therapies. Despite these complexities, ANVISA plays a crucial role and has made notable advancements in this domain. Over the past year, the MandaCARu-T project has also made substantial progress, with plans for the clinical trial slated to commence in 2025.

KEYWORDS

CAR-T; leukemia; lymphoma.

MULTIDISCIPLINARY APPROACH IN PRE-MARROW TRANSPLANT CONSULTATION

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INTRODUCTION

The patient suitable for transplantation must be prepared for the procedure in the most assertive and safe way possible. The multidisciplinary assessment provides quality care covering the different areas of needs of the patient who will go through the transplant process

OBJECTIVE

the objective of this study is to describe how the multidisciplinary team of a high-complexity hospital carries out pre-marrow transplant consultations. Method: This is a descriptive and exploratory study with a qualitative approach regarding the role that the multidisciplinary team plays in the pre marrow transplant consultation.

RESULTS

The nurse coordinates the patient's preparation for bone marrow transplantation, validates the patient's health history, checks comorbidities, correlating them with the conditioning regimen, performs socioeconomic survey, analyzes possible risks, evaluates the family nucleus and their caregivers, identifies vulnerabilities, requests the intervention of specific professionals and provides general guidance on the stages of transplantation. Nutritional assessment is carried out through a questionnaire with information on pathological history, allergies or food intolerances, aversions and preferences, intestinal functioning, daily water intake and dietary history. Usual weight, weight in the last 6 months are assessed and weight and the current height, defining the body mass index and % of weight loss or gain and applying the SARC-F, a tool used to identify the risk of sarcopenia.. In the physiotherapeutic assessment, a physical examination and functional tests are carried out, such as dynamometry, sit-and-stand test, time up and go, mobility scale, assessment of muscle strength using the Medical Research Counicil, Karnofsky evaluation system. Psychology assesses psychological risks that may be increased during hospitalization of the patient/donor and family members. In the first stage, reception is carried out, with the aim of seeking information about their completeness and individuality. It is assessed regarding your real or unrealistic expectations, support network, psychiatric diagnoses and/or cognitive limitations that generate greater emotional vulnerability. The social worker collects personal data, such as age, marital status, education, address, work, religion, school. Information is collected about the patient's support network, such as family and friends. Asked about the situation of basic sanitation, health and pets. It provides guidance on: sickness benefit, continued benefit and disability retirement, provides guidance in relation to the social rights of cancer patients.

CONCLUSIONS

We conclude that the pre-transplant consultation allows the multidisciplinary team to create an individualized care plan, clarify doubts, in addition to ensuring an interface with specialties and support areas.

MULTIDISCIPLINARY TRAINING: PREPARING A TEAM TO CARE FOR MYASTHENIA GRAVIS PATIENTS UNDERGOING AUTOLOGOUS HAEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Myasthenia gravis (MG) is a chronic autoimmune disorder of the postsynaptic membrane at the neuromuscular junction of skeletal muscle. It is an uncommon disease with a worldwide prevalence of 100 to 200 cases per million of the population. The disease is characterised mainly by proximal muscle weakness, diplopia, dysphagia, dyspnoea and other symptoms that are just as relevant. In addition, people with MG can suffer myasthenic crises, defined by a rapid deterioration in muscle strength, including the intercostal muscles and diaphragm. The disease is treated with immunosuppressants, immonoglubulin, plasmapheresis and thymectomy. In refractory cases, autologous haematopoietic stem cell transplantation (HSCT) may be indicated in order to block the symptoms of the disease. There are few cases of HSCT in MG in the literature. Therefore, the preparation and updating of the multi-professional team is extremely important in order to identify and mitigate risks and adequately plan care, in order to guarantee safe care and better outcomes

OBJECTIVES

To report on the experience of updating and preparing the multiprofessional team for HSCT in MG. METHOD: This is an experience report from a haematology and BMT inpatient unit of a large hospital in São Paulo.

RESULTS

Multidisciplinary meetings were held with a focus on care planning. As this is an uncommon disease in HSCT, training was given with conceptual data on the disease, signs and symptoms, main risks and signs of myasthenic crisis. In order to assess their understanding of the content, the professionals completed a pre- and immediate post-test. 36 professionals took part in the training, including nurses, nursing technicians, physiotherapists and pharmacists. After the meetings, it was possible to develop an individualised and coherent care plan, as well as prior interventions for possible adverse events, such as providing easy access to the aspiration kit and ambu, assessing swallowing, intensifying physiotherapy care, adapting the diet with thickened liquids, assessing possible crisis-triggering medications and intensifying the measurement of vital signs. In this way, the team was prepared in a conceptual, practical and safe way to care for patients with MG, which provided comprehensive and multidisciplinary care for successful HSCT.

CONCLUSION

The preparation of the multidisciplinary team to care for patients with MG is essential, guaranteeing integrated, safe and risk-mitigated care in the face of a specific and challenging diagnosis and treatment.

KEYWORDS

Learning; Myasthenia Gravis; Bone Marrow Transplantation

MULTIPROFESSIONAL EXPERIENCE IN CARING FOR PATIENTS USING CYCLOSPORINE

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INTRODUCTION

In patients undergoing hematopoietic stem cell transplantation (HSCT), graft-versus-host disease (GVHD) is a serious complication, and its prophylaxis and treatment involve the use of immunosuppressants. Cyclosporine (CsA) is a widely used calcineurin inhibitor in various immunoprophylaxis regimens and may be associated with other medications. However, its use requires attention due to its low therapeutic index, pharmacokinetics with significant individual variability, important interactions, and adverse effects, which demand high vigilance from the multidisciplinary team.

OBJECTIVE

To describe the activities of a multiprofessional team working in the HSCT service of a tertiary public hospital in standardizing care routines for patients using CsA and monitoring their clinical parameters. METHOD: Descriptive, prospective, and longitudinal study conducted between November 2023 and April 2024.

RESULTS

Initially, multiprofessional scientific meetings were held focusing on care for patients using CsA, allowing for discussion among participants. Care protocols were formalized, including strict control of blood pressure and volume status, recording of vital signs and diuresis, assessment of nephrotoxicity, and neurological symptom evaluation. Regarding care management, standard frequencies and times for blood collection for CsA level measurement were established. Dosing times were revised considering relevant drug interactions, as well as the routines of sectors involved in prescribing, preparing, and administering the medication. CsA dosages were individualized according to serum levels, and the procedure for checking hypertension prophylaxis prescriptions was standardized. Training on occupational exposure to the medication, interactions with supplies, and pharmacovigilance were conducted. After implementing this routine, medication dosages, serum concentrations, and any dose adjustments were monitored daily. In 146 days of analysis, 963 prescriptions for 40 patients were evaluated. In 9.03% (87) of the prescriptions, dose adjustments were made based on serum concentration, either by increasing (58.62%) or decreasing the daily dose (41.38%).

CONCLUSION

The formation of a multidisciplinary team proved effective in discussing and aligning practices related to patient care using CsA, promoting professional integration and scientific grounding. The actions taken helped formalize protocols, manage teams, and interdisciplinarily monitor therapeutic medications crucial in GVHD prophylaxis and transplant success.

KEY WORDS

1. Hematopoietic Stem Cell Transplantation 2. Cyclosporine 3. Patient Care Team.

MULTIPROFESSIONAL FOLLOW-UP IN THE POST-LATE PERIOD: HOW DO WE DO IT IN A PUBLIC HOSPITAL?

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INTRODUCTION

Multidisciplinary follow-up in the post-late period is essential for the prevention and early detection of complications and for maintaining patients' quality of life. Objectives: To describe the routine and assessment challenges of the multidisciplinary team in the late post-transplantation follow-up in a Public Hospital.

METHODS

This is an experience report.

RESULTS

267 patients are monitored on an outpatient basis, with an average of 10 patients per week, starting around one-year post-transplant. The Median age is 25 years (4 to 75) and after the procedure, it is 6 years (1 to 28). Assessments are carried out jointly by the doctor (resident and staff), nurse, and dentist during the consultation, thus optimizing the space used and promoting greater comprehensiveness in service. After the assessment, team members meet and discuss the case, each expressing their perceptions and developing specific interventions according to each case and referral to specialties, the most frequent of which are endocrinology, ophthalmology, and pulmonology. Some referrals are challenging as they involve the public health network. In addition to these professionals, there is support from the pharmacist and social worker for cases that require specific demands related to medications and for situations of vulnerability and difficulties in accessing health services.

CONCLUSIONS

Late follow-up of surviving patients is challenging and a multidisciplinary team is necessary so that they can have a quality of life and survival similar to those of the general population. Unfortunately, we still encounter many difficulties in referring these patients to the primary care network, especially with referrals related to mental health. Bringing the hospital team closer to the basic network can improve these patients' access to available services.

MULTIPROFESSIONAL SCIENTIFIC GROUP IN HEMATOPOIETIC STEM CELL TRANSPLANTATION AS A CONTINUING EDUCATION STRATEGY

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INTRODUCTION

Hematopoietic stem cell transplantation (HSCT) is a complex procedure that requires multiprofessional attention and continuous education of the professionals comprising the healthcare team. Active methods of teaching and learning involve problem-solving and stimulate the search for explanations or solutions, as well as the development of teamwork skills among the actors involved in this process.

OBJECTIVES

To report the experience of a multiprofessional scientific group within a Bone Marrow Transplantation Service. Method: Experience report. Results: The group was developed through biweekly meetings, conducted both in person and remotely. The group's objectives were to discuss, in the light of Evidence-Based Practice, problems and/or non-conformities encountered in multiprofessional practice; promote a space for discussion and improvement of topics related to multiprofessional practice; develop strategies to enhance assistance and technical-scientific improvement. Scientific articles relevant to the team's clinical practice were discussed and critically evaluated by peers. Team-Based Learning (TBL) was adopted as a strategy for solving the problems presented by the multiprofessional team. Topics addressed so far include Graft-versus-Host Disease (GVHD); pain management through pharmacological and non-pharmacological interventions; prescription and preparation of Cyclosporine; addressing mental health demands; norms and routines in HSCT; multidisciplinary management in acute GVHD; oral mucositis and management in HSCT; graft failure and its impact on health and quality of life. The average number of participants was 15, including both remote and in-person attendees, consisting of Oncology and Hematology residents and collaborators of the service in question. As a result of these discussions, there was the suggestion of a Clinical Protocol for Multiprofessional Pain Assessment; implementation of a new routine for prescription, preparation, administration, and serum monitoring of cyclosporine; and proposal for the training of the multiprofessional team to address mental health demands. Furthermore, the scientific meetings provided a space for residents to actively participate in solving challenges and decision-making in professional practice, as well as acquiring competencies for collaborative practice and knowledge about integrality, intersectoriality, and the importance of teamwork. Final considerations: The group was configured as an essential space for continued reflection on the praxis in HSCT and as a strategy to address challenges for the consolidation of multidisciplinary care. TBL empowers professionals to make decisions from an interdisciplinary perspective, fosters better communication within the team, adequate process management, as well as promoting training and learning. It is expected that the group's activities will contribute to comprehensive, integrated, and quality care for patients undergoing HSCT.

KEYWORDS - Multiprofessional

OUTPATIENT BONE MARROW TRANSPLANTATION: A FACTIBLE ALTERNATIVE IN A BRAZILIAN CENTER

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INTRODUCTION

Performing a Bone Marrow Transplant (BMT) requires a prolonged period of hospital stay; this period exposes the individual to infectious complications that can be fatal, but avoidable, sepsis being one of them. In Brazil, the lack of hospital beds available for transplants is still a reality, this is one of the causes of pent-up demand from patients waiting for this type of treatment. Considering these points and the urgency in finding an alternative solution to this problem, the outpatient transplant model presented itself as a feasible path.

OBJECTIVE

The objective of this work is to show the feasibility of outpatient BMT through its results.

METHOD

This is a descriptive and exploratory study based on the local database of the BMT unit. The number of transplants performed were used, and in cases of hospitalization, data were extracted about the cause of hospitalization as well as its duration. The inclusion criteria were transplants performed on an outpatient basis between january and december of 2023, they are autologous, related/haploidentical allogeneic and unrelated allogeneic, excluding the other periods.

RESULTS

In 2023, a total of 113 BMT were performed at this center, of which 64 were performed in the outpatient modality; this number corresponds to 57,5% of the total transplants. Among them, autologous transplantation was the majority, with around 64% of the total number of procedures, followed, respectively, by related/haploidentical allogeneic (33%) and unrelated allogeneic (3%).

Approximately 67.7% of our outpatient BMT patients required hospitalization due to post-BMT complications, with febrile neutropenia (69.8%) being the main cause of incidence, followed by other causes (23,3%) such as dehydration, social issues and some other reasons that are not so recurrent, and finally mucositis (7%), the average length of stay

QUALIFICATION OF MULTIDISCIPLINARY WORK: INTERFACES BETWEEN AREAS OF EDUCATION, NURSING AND SECIH AIMED AT CHILDREN/YOUNG PEOPLE UNDERGOING HSCT

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INTRODUCTION

From the project Multidisciplinary work, socio demographic, emotional profile and school performance: qualitative and quantitative assessment in an Onco-hematologic service, where the relevance of the work of multidisciplinary teams in highly complex treatments is highlighted, interfaces between the areas of education, nursing and professionals from the Hospital Epidemiology and Infection Control Service – SECIH.

OBJECTIVE

To qualify care for patients undergoing HSCT, through nursing guidance and SECIH to teachers working in the Hospital Schooling Program (SME - CURITIBA) and the Hospital Schooling Network Service (SAREH - SEED - PR) for adequate conduct during classes (hygiene/selection of materials, suitability and use in the environment). Casuistry: Patients from the onco-hematologic and Hematopoietic Stem Cell Transplantation (HSCT) sector at Pequeno Príncipe Hospital. Sampling: 46 student-patients. Median age: 6.5 years old (Elementary School – Preschool to 5th grade), 14 years old (2nd segment of Elementary School and High School). Main diagnoses: oncological diseases and rare diseases.

METHOD

Descriptive-explanatory qualitative-quantitative approach, with participant-type intervention-research design. Results: They indicate the importance of nursing teams and SECIH to guide active teachers, notably, when teachers start working in the hospital, given the specificity of care in highly complex sectors.

CONCLUSIONS

It is considered essential to have continuous dialogue, specific guidance and exchange of experiences between health and education professionals to qualify multidisciplinary practices with patients undergoing HSCT. It is understood that continuous training carried out in weekly meetings and experienced in daily interaction during the exercise of similar and articulated practices for the benefit of children/young people, will result in a better quality of life during treatment, with a lower risk of infection due to the different activities offered, including the right to education. We highlight the reports that SECIH periodically provides, with the published data being a point of reflection for the improvement of strategies, in a collective and collaborative way.

KEYWORDS

Multidisciplinary Work –Intervention Research – Humanization and Qualification of Services.

QUALIFICATION OF MULTIDISCIPLINARY WORK: INTERFACES OF PROFESSIONAL ACTIONS IN EDUCATION, SOCIAL WORK AND PHARMACY AIMED AT CHILDREN/YOUNG PEOPLE UNDERGOING HSCT

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INTRODUCTION

From the project Multidisciplinary work, sociodemographic, emotional profile and school performance: qualitative and quantitative evaluation in an Onco-hematologic service, which highlights the relevance of multidisciplinary teams in highly complex treatments, preliminary results of the study are presented in relation to the partner work developed by the pharmacist, social worker and teachers of the Hospital Schooling Program (SME - CURITIBA) and the Hospital Schooling Network Service (SAREH – SEED - PR).

OBJECTIVE

To qualify the multidisciplinary work specifically in post-discharge follow-up, with a view to creating strategies to overcome the problems detected in the use of medications. Casuistry: Patients from the onco-hematologic and Hematopoietic Stem Cell Transplantation (HSCT) sector at Pequeno Príncipe Hospital. Sampling: 46 student-patients. Median age: 6.5 years old (Elementary School – Preschool to 5th grade), 14 years old (2nd segment of Elementary School and High School). Main diagnoses: oncological diseases and rare diseases.

METHOD

Descriptive-explanatory qualitative-quantitative approach, with participant-type intervention-research design.

RESULTS

They reveal the importance of articulating education, social area and pharmacy services to contribute to the adequate attendance to the specific needs of the child/young person assisted in the post-discharge period in outpatient care, a phase of treatment that demands methodologies that promote health and safety of the patient. Among the most complex challenges are post-discharge guidance for families with Socio-Educational Limitations (LSE) and with a precarious support network, where multidisciplinary work intersects to ensure a methodology where the family becomes aware of the importance of medication and has access to ways didactics of administering them, according to the schedule and dosages previously oriented.

CONCLUSIONS

It is considered that the discharge orientation phase is fundamental for the success of the treatment. The multidisciplinary actions include information directed to patients and caregivers about the steps and strategies that promote health, in addition to assessing understanding and adherence after the guidance that each scenario requires, in a process of continuous monitoring of the specific contextual situation aimed at the patient's quality of life and the excellence of the services rendered to him.

KEYWORDS

MultidisciplinarWork – Interventional research – Humanization of Services.

SOCIODEMOGRAPHIC PROFILE AND RISK FACTORS FOR DEATH IN BONE MARROW TRANSPLANTATION HOSPITALIZATIONS

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INTRODUCTION

Bone Marrow Transplantation (BMT) is a treatment used for diseases affecting blood cells. It involves replacing diseased bone marrow with healthy cells, which can be either autologous, using cells from the patient themselves, or allogeneic, using cells from a donor. It is indicated for conditions such as severe aplastic anemia and various types of leukemia, serving as a complement to conventional treatments in some cases of multiple myeloma and lymphomas. In Brazil, approximately three thousand BMTs were performed in 2023. The aim of the abstract was to describe the sociodemographic profile for bone marrow transplant hospitalizations in Brazil and to evaluate possible risk factors for deaths in these admissions.

METHODOLOGY

A cross-sectional study was conducted using public data from the Hospitalization Information System of the Brazilian Unified Health System (SIH/DATASUS) for Autologous and Allogeneic BMT procedures in Brazil between 2019 and 2023. Descriptive analysis of selected variables was performed, along with bivariate analysis to identify associations. Additionally, Multivariate Logistic Regression was employed to evaluate the Odds Ratio of death according to the chosen variables.

RESULTS

Between 2019 and 2023, there were 12,809 hospitalizations for Bone Marrow Transplantation (BMT) in Brazil. Within this group, 3.1% of patients died (n=374). The majority of patients were of white race/ethnicity (57.8%), male (56.8%), and aged between 40 and 59 years (34.9%). Statistical analysis revealed that race/ethnicity ($p = 0.034$), age group ($p = 0.017$), type of procedure performed ($p < 0.001$), and length of hospital stay ($p < 0.001$) were significantly associated with the outcome of hospitalization. However, there was no statistical significance for the gender variable ($p = 0.632$). In multivariate logistic regression analyses, the results demonstrated that individuals aged 60 years or older had higher odds of death (OR 1.8; CI 1.25 – 2.60), as well as patients with hospital stays of less than 15 days (OR 3.15; CI 1.73 – 5.71). Furthermore, Allogeneic Related BMTs (OR 6.23; CI 4.59 – 8.46) and Unrelated BMTs (OR 8.34; CI 5.72 – 12.20) also showed higher odds of death from the intervention.

CONCLUSION

These results indicate that BMTs strongly impact the lives of patients undergoing this procedure, fortunately with low percentages of deaths. Additionally, it is important to note that a significant portion of hospitalizations had prolonged lengths of stay, with more than two weeks being predominantly observed in children up to nine years old, presenting additional challenges for hospital structures and institutions performing BMTs.

KEYWORDS

BMT hospitalizations; Health Inequities; Sociodemographic Profile for BMT.

SURVIVORS - A PODCAST THAT PORTRAYS LIFE AFTER CANCER

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INTRODUCTION

Cancer diagnoses are rising globally, with estimated 700,000 new cases annually in Brazil, according to INCA (Nacional Institute of Cancer). Advancements in technology and treatments have led to increased survival, now reaching 32 million people worldwide. Bone marrow transplants (HCT) have also seen improvements over the last two decades, with decreased transplant-related morbidity and mortality. At least two-thirds of cancer survivors have physical, psychological, supportive care and informational needs that are currently being neither recognized, nor well managed within current models of care. Most treatment centers are concentrated in larger urban centers, requiring patients to travel for care and often lacking in long-term follow-up support. Making the most out of the internet's reach, tools like podcasts offer accessible information to the population and can, therefore, address the need for long-term support that cancer survivors need. According to INEP, 11% of our population is functionally illiterate (INEP, 2021) making it difficult to spread written information, even more so when it comes to specific scientific data and studies. With that in mind, we set ourselves an unprecedented challenge: to find a tool that could make the information simple, easily understandable and with the largest possible dissemination potential. We found our answer on podcasts: a rapidly growing media format, that can reach our audience by audible, immersive, and detailed content.

OBJECTIVE

The objective of this project is to provide qualified information to people who have been treated for cancer and ultimately to improve their quality of life.

METHOD

The podcast has 10 episodes, each addressing a topic that impacts the lives of those who have undergone chemotherapy. Professionals specialized in the areas of interest and patients who have undergone treatment more than 5 years ago were invited to participate. The episodes were developed based on interviews with patients and healthcare professionals. The team is composed by a project manager, screenwriter, interviewer, narrator, audio studio, editor, sound, soundtrack and mixing, communication, execution, review and scientific supervision.

RESULTS

10 episodes lasting 25-35 minutes were produced, addressing diagnosis, sexuality and fertility, diet, physical exercise, childhood cancer, integrative medicine, skin and hair care, caregiver, infections, future perspectives. The professionals interviewed were psychologist, nutritionist, gynecologist, oncologist, acupuncturist, radiotherapist, pediatric oncologist, dermatologist, infectious disease specialist.

CONCLUSION

It is necessary to prepare ourselves to reach the population of cancer survivors. In our large country it will only be possible using tools that can be accessible to everyone and that reach any distance. This is an effective, safe and democratic way to disseminate information.

Thanks to the patients and professionals who generously shared their experiences with us and the public. Thanks to our sponsors: Astellas and Takeda

TRANSFORMING HEALTHCARE: HUMANIZING BONE MARROW TRANSPLANTATION

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INTRODUCTION

Bone Marrow Transplantation (BMT) is a procedure indicated in malignant or non-malignant pathologies, significantly altering the prognosis of patients with diseases that, until a few years ago, were fatal, such as leukemias, lymphomas, and some genetic disorders of the immune system. During the preparation and execution of this procedure, the patient is hospitalized, with an average length of stay of around one month. During hospitalization, patients face severe immunosuppression due to treatment with chemotherapy and/or radiotherapy, with risks of viral, bacterial, and fungal infections, requiring isolation during this period and after immediate hospital discharge. Consequently, the patient faces feelings of distress from isolation, the anguish of being away from their support network, as well as dealing with feelings of fear of death and uncertainties about the future. Therefore, these feelings directly impact the proposed treatment, and addressing the patient's psychoemotional needs and subjectivity is necessary in this context.

OBJECTIVE

To report the professional experiences lived in the implementation of a humanized institutional practice in a Bone Marrow Transplantation Unit in a 100% SUS Hospital in Minas Gerais.

METHOD

This is a descriptive study, reporting on a humanized institutional practice in a BMT Unit in a 100% SUS Hospital in Minas Gerais.

RESULTS

The implementation of this practice was named Humaniza BMT, in November 2023. During this period, actions such as: Family participation on BMT day, celebrations in external hospital environments, "bone marrow catch" parties with dietary adjustments according to patients' wishes, family visits, and joint sectoral activities for dispersion were carried out. All actions were in accordance with the needs presented by the patients. The actions were planned among the multidisciplinary team, with evaluations from all professionals involved, and such measures were always taken with a focus on patient safety.

CONCLUSION

The implementation of humanization in BMT Units is possible and of paramount importance for the process, even with the patient's clinical restrictions. The support of management, together with the collaborative practice of the multidisciplinary team, made it possible to carry out the project. It is hoped that initiatives like Humaniza BMT will continue to be implemented and improved, contributing to a more comprehensive and compassionate care for patients undergoing this challenging procedure.

KEYWORDS

Bone Marrow Transplantation; Humanization of Care; Multidisciplinary Approach to Care.

TREATMENT AND PROPHYLAXIS FOR ASPERGILLOSIS AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: JUDICIALIZATION TO ENSURE THE RIGHT TO HEALTH

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INTRODUCTION

The complexity of allogeneic hematopoietic stem cell transplantation (HSCT) is not simply related to the success of the procedure, overcoming the period of aplasia, graft take and the absence of graft-versus-host disease (GVHD). The risk of opportunistic infections is high at all times, with invasive fungal diseases being a significant risk. In the case of diagnosis of the presence of aspergillus fungus, the use of the medication voriconazole is recommended, which is expensive and long-lasting, as it requires prophylaxis during immunosuppression.

OBJECTIVE

To present the laws used in the legal basis to guarantee the supply of medicine indicated to combat aspergillosis. Case series: Patients undergoing allogeneic HSCT. Method: Experience report on legal solutions regarding high-cost drug treatments not provided by the Health Unic System (SUS).

RESULTS

Every patient undergoing an allogeneic HSCT will need to use immunosuppressive medications. These medications aim to prevent the occurrence of GVHD, but on the other hand, they allow the emergence of fungal diseases, such as aspergillosis. For hematological patients, several medications provided by the SUS are not effective for this fungus, with the medication voriconazole, scientifically recognized[1], being the therapeutic reference in these cases. However, the medicine is not on the SUS supply list, and judicialization is necessary for its indications. To this end, the following legal arguments are presented: Article (Art.) of the Federal Constitution 23 - It is the common competence of the Union, State and Municipalities: (...) II - taking care of health and public assistance, Art. 196 - Health is right of all and duty of the State (...) equal universal access to actions and services for their promotion, protection and recovery. Art. 198 - Health actions and services (...) in accordance with the following guidelines: (...) II - comprehensive care, with priority for preventive activities, without prejudice to assistance services. Furthermore, law 8.080/90, which regulates the SUS, determines in Article 2 - Health is a fundamental right of the human being, and the State must provide the conditions indispensable for its full exercise. §1 It is the State's duty to guarantee health (...) for its promotion, protection and recovery. The same law states in its Article 7, II - comprehensive care, understood as (...) preventive and curative actions and services, individual and collective, required for each case.

CONCLUSION

Even though it is based on several laws, the supply of essential medicine for these patients is denied, forcing judicialization, postponing the start of treatment in addition to overloading the already saturated Brazilian judiciary, making it necessary to construct methods that ensure these patients' rights, since the absence of this therapy will have fatal consequences.

KEYWORDS

Immunosuppression; Bone Marrow; Health's Judicialization

HICHERI, Y.; COOK, G.; CORDONNIER, C..Antifungal prophylaxis in haematology patients: the role of voriconazole. Clinical Microbiology and Infection. Volume 18, Suplement 2, April 2012.

QUALITY AND DATA MANAGER

ADHERENCE AMONG BRAZILIAN INSTITUTIONS TO THE HEMATOPOIETIC CELL TRANSPLANTATION RECIPIENT TRANSFER TOOL PROVIDED BY THE CENTER FOR INTERNATIONAL BLOOD AND MARROW TRANSPLANT RESEARCH

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INTRODUCTION

Since 2019, the Sociedade Brasileira de Terapia Celular e Transplante de Medula Óssea (SBTMO) contracted the use of the Center for International Blood and Marrow Transplant Research (CIBMTR) database infrastructure to assess the main hematopoietic cell transplantation (HCT) Brazilian outcomes. However, challenges arose due to the lack of post-HCT follow-up (FUP) updates. In response, strategies were developed: electronic forms, social media research, WhatsApp contact, and the use of the transfer tool available on the CIBMTR's Formsnet 3 platform. The use of this tool can reduce the number of un-updated FUP and facilitate transfers between centers. The tool is not available for non-affiliated centers.

OBJECTIVE

To evaluate adherence to the CIBMTR's HCT recipient transfer tool among Brazilian centers. Method: A questionnaire regarding the tool's usage was sent to Brazilian centers enrolled in the CIBMTR. The following inclusion criteria was used to select the centers: 1) CIBMTR active centers; 2) Reporting data to the CIBMTR for at least 1 year; 3) Fully questionnaire response. Regarding the forms sent to the centers,

information recorded in at least 1 of 5 years between 2018-2022 was considered.

RESULTS

Twenty-four Brazilian centers and one Uruguayan center answered the questionnaire, representing 54% of centers reporting data to the CIBMTR in this period. The most representative region was the southeast (17; 71%), followed by the south (4; 17%), northeast (2; 8%), and central west (1; 4%). Regarding the transfer to another center, 44% (11/25) of centers reported having sent, and 48% (12/25) having received some patient transfer. Of all centers that answered the forms, 25 patients were transferred, and 37 patients were received. Of the transfers sent, 63.6% were for allogeneic HCT and 50% were adults. These transfers occurred in 41.7% to private network, 25% to public, 8.3% mixed, and 25% equal proportions of public/private. Among the centers that sent or received patients, 5 (29.4%), figures 1 and 2, transferred more than received, 9 (52.9%) received more than transferred, and 3 (71.6%) had equivalent proportions. When there is an intention to transfer a patient, in cases where patients are transferred for medical FUP to a non-active CIBMTR center, 64% (16/25) actively contact the receiving center, while 36% (9/25) consider it a loss of FUP. The main difficulty was to contact the originating physician, 56% (9/16).

CONCLUSION

The transfer tool is only used for CIBMTR affiliated centers, making data updating challenging. This typically occurs because non-hematologist/other specialties doctors has no tool access, resulting in inconsistent updates to those centers. Strategies to update post-HCT FUP are essential to improve the Brazilian outcomes analysis. Despite the existence of the ordinances 2.6000/2009 for compliance with FUP updates, the diligence of this process still poses major challenges for the field.

KEYWORDS

hematopoietic cell transplantation, follow-up, data managers

FIGURE 1. Number of transfers performed per HCT center

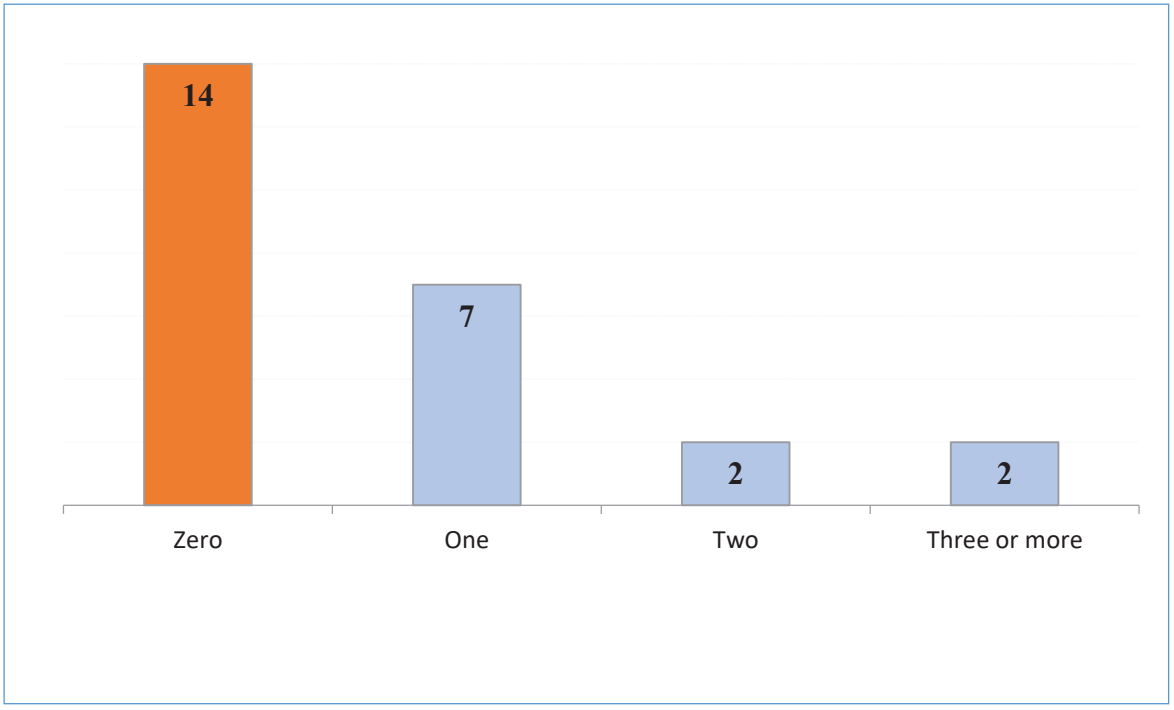
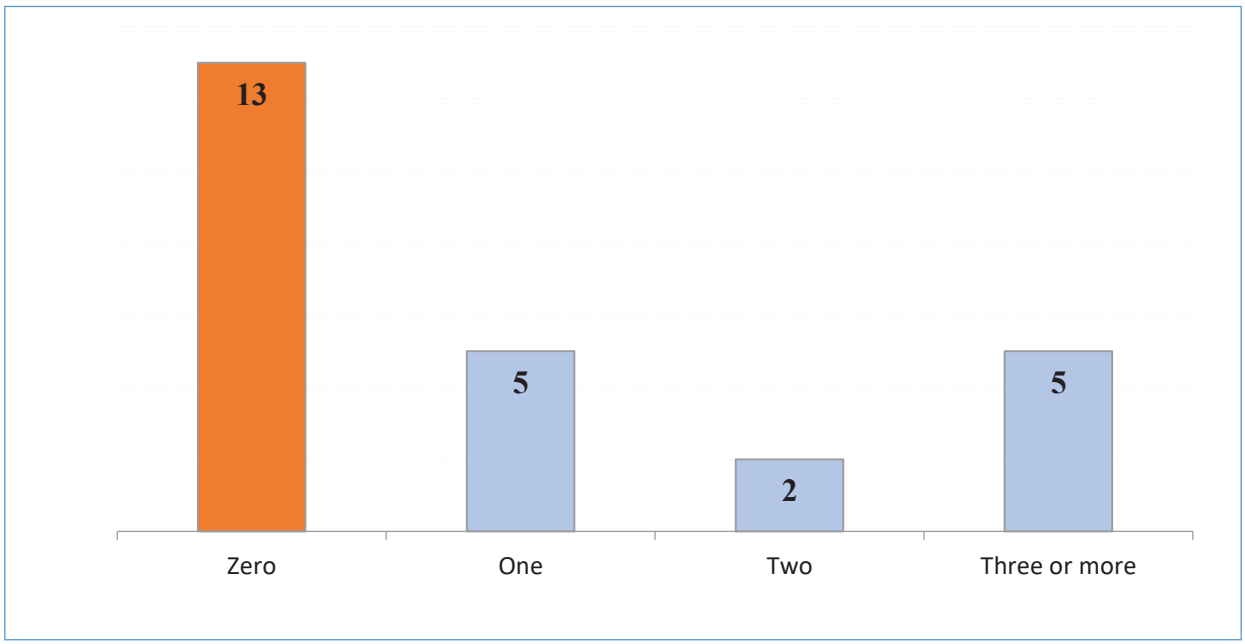


FIGURE 2. Number of transfers received per HCT center



ASSESSING STRESS LEVELS AMONG PHYSICIANS AND DATA MANAGERS IN HEMATOPOIETIC CELL TRANSPLANTATION AND ADVANCED CELLULAR THERAPY UNITS IN BRAZIL

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INTRODUCTION

Stress can have a significant impact on health, affecting both physical and mental well-being. Healthcare professionals may experience high levels of stress due to the demanding nature of their profession. They are responsible not only for the health and well-being of patients but also face challenges such as low compensation, long working hours, and constant pressure. Our research focuses on physicians and data managers in Hematopoietic Cell Transplantation (HCT) and Advanced Cellular Therapy (ACT) units, aiming to evaluate how they cope with stressful situations.

OBJECTIVE

Assess the stress levels among physicians and data managers in HCT and ACT units.

METHOD

A total of 34 physicians and 21 data managers (DMs) in HCT and ACT units completed the validated 10-item Perceived Stress Scale (PSS-10) from 04/04/2024 to 09/04/2024. Associations between groups and evaluated characteristics were assessed using chi-square tests or exact tests (Fisher's exact test or likelihood ratio test). The PSS-10 scores were compared among groups based on the characteristics of interest using unpaired t-tests or analysis of variance (ANOVA). Spearman correlations were calculated between the scale scores and years of experience and education.

RESULTS

Out of the 55 professionals who completed the PSS-10: 62% (34) were physicians, and 38% (21) were data managers (DMs). Among them, 74% (40) were female, and 66% (36) were aged between 30 and 44 years. Regarding DMs, 77% (20) worked part-time, with 18% (6) also holding positions as physicians in a cellular therapy unit. Most participants were from the southeast 67%, (37), with 40% (22) from public centers, table 1. Physicians had higher stress levels compared to DMs, with p=0.009, table 2. Female physicians showed higher stress levels, with p=0.014. The age group 30-44 among physicians showed significantly elevated stress levels, with p=0.017. However, factors such as work region and center profile (public, private, or mixed) did not show any statistical differences. When evaluating stress levels among DMs, no statistical differences were found based on criteria such as gender, age group, work region, center profile, and years of experience in data management. Indeed, an interesting finding emerged concerning the length of tenure in both data manager (DM) and physician roles, revealing an inverse relationship with stress levels. Specifically, correlations of -0.472 and -0.678 were identified for DMs and physicians, respectively. Notably, the correlation was statistically significant for the DM group (p=0.031), table 3.

CONCLUSIONS

The study suggest that physicians and DMs in HCT and ACT units experienced heightened stress levels. Likely due to the degree of responsibility, the medical team showed higher stress levels compared to DMs; however, years of experience and tenure in the role positively impacted lower stress levels.

KEYWORDS

stress, data managers, physicians

TABLE 1: Demographic data

	GROUP						
Variable	**Physician**		**Data manager**		**Total**		**p**
	N	%	n	%	N	%	
Gender							0,028
Male	12	36,4	2	9,5	14	25,9	
Female	21	63,6	19	90,5	40	74,1	
Age group							0,132£
18-29	0	0,0	2	9,5	2	3,6	
30-44	22	64,7	14	66,7	36	65,5	
45-54	8	23,5	5	23,8	13	23,6	
55+	4	11,8	0	0,0	4	7,3	
Your time commitment for this role is:							0,280*
Partial	6	100,0	14	70,0	20	76,9	
Full	0	0,0	6	30,0	6	23,1	
How long have you been a data manager?							0,835£
< 1 Year	0	0,0	2	9,5	2	7,4	
1 a 3 Years	3	50,0	4	19,0	7	25,9	
4 a 6 Years	1	16,7	6	28,6	7	25,9	
7 a 9 Years	0	0,0	4	19,0	4	14,8	
10 a 20 Years	1	16,7	4	19,0	5	18,5	
> Than 20 Years	1	16,7	1	4,8	2	7,4	
How long ago did you graduate?							0,428£
1 a 3 Years	1	3,0	1	4,8	2	3,7	
4 a 6 Years	1	3,0	2	9,5	3	5,6	
7 a 9 Years	1	3,0	2	9,5	3	5,6	
10 a 20 Years	20	60,6	10	47,6	30	55,6	
> do que 20 Years	10	30,3	6	28,6	16	29,6	
What is the region of your transplant center?							0,409#
Midwest	1	2,9	3	14,3	4	7,3	
North-East	4	11,8	1	4,8	5	9,1	
North	1	2,9	0	0,0	1	1,8	
Southeast	23	67,6	14	66,7	37	67,3	
South	5	14,7	3	14,3	8	14,5	
Its center is:							0,664#
Private	8	23,5	4	19,0	12	21,8	
Public	12	35,3	10	47,6	22	40,0	
Private and public	14	41,2	7	33,3	21	38,2	

Chi-square test; * Fisher's exact test; # Likelihood ratio test; £ Mann-Whitney test

TABLE 2: Physician x DM

Group	Mean	DP	N	P
Physician	24,91	5,43	34	0,009
DM	20,71	5,88	21	
Total	23,31	5,93	55	

Unpaired Student's t-test

TABLE 3: Length of service and degree

Correlations Escore EPS		Physician	DM
		Escore EPS	
How long have you been a data manager?	R	-0,678	-0,472
	P	0,139	0,031
	N	6	21
How long ago did you graduate? R		-0,213	-0,473
	P	0,234	0,030
	N	33	21
Spearman correlation			

ASSESSMENT OF SELF-CARE AMONG DATA MANAGERS IN CELLULAR THERAPY IN BRAZIL

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2 Bone Marrow Transplant and Cell Therapy Unit at Hospital Israelita Albert Einstein

3 Bone Marrow Transplant Unit at Hospital Amaral Carvalho

INTRODUCTION

Self-care plays a fundamental role in the well-being of professionals, including data managers (DMs). The level of stress experienced by these professionals can vary depending on their ability to cope with challenges, work environment, company culture, workload, project complexity, pressure for results, available resources, and work-life balance. Objective: To assess how data managers working with Hematopoietic Cell Transplantation (HCT) evaluate their self-care practices.

METHOD

DMs working with HCT who participated in a data management workshop in cellular therapy, including a self-care session during lunch break in 2023, were included. Using a self-care assessment tool from the University of Arizona, 29 DMs rated their self-care practices on a scale of 0 to 10 in the following domains: physical activity, nutrition, sleep, spirituality, relationships, nature contemplation, and stress management. The scale was included in RedCAP, with a QR Code generation to facilitate test administration. Responses were extracted from RedCAP and imported into Power BI for analysis and visualization. Each data manager completed the self-care test before a relaxation session. At the end of the workshop, the integrative medicine professional presented and commented on the results in a panel discussion.

RESULTS

The professionals indicated a need to improve and prioritize the following domains: relationships (17%), spirituality (28%), nutrition (45%), physical activity (45%), nature contemplation (45%), sleep quality (66%), and stress management (76%). The results indicate that various DMs in cellular therapy units face considerable levels of stress, especially those performing multiple roles, a common situation in Brazil. The lack of recognition and adequate compensation in this sector often leads some to seek additional jobs, harming their quality of life and sleep. This underscores the pressing need for more effective stress management, as evidenced by this study.

CONCLUSIONS

The domains of stress management and sleep quality assessed in these professionals showed a greater need for attention and the development of improvement strategies. It would be important for DMs working with HCT to incorporate relaxation, breathing exercises, or meditation practices into their daily self-care routines to improve stress management, benefit sleep quality, and overall well-being. Additionally, these practices could help them better cope with work challenges and maintain a healthy balance between professional and personal life.

KEYWORDS - self-care, stress, data managers

BIBLIOMETRIC STUDY ON SCIENTIFIC PRODUCTION IN THE FIELD OF DATA MANAGEMENT IN THE MAIN SCIENTIFIC EVENTS OF HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Data collection on treated patients and the outcomes of their treatments is of fundamental importance for research in various diseases. Therefore, in 2004, the Center for International Blood and Marrow Transplant Research (CIBMTR) developed a data management (DM) system that became essential for studies aimed at improving cure rates and quality of life for patients worldwide.

OBJECTIVE

To outline the profile of publications in the data management category at conferences in the field.

METHODOLOGY

A bibliometric study evaluated the abstracts from the last 3 conferences: I) Tandem 2024 published in Transplantation and Cellular Therapy; II) EBMT 2023 published in Bone Marrow Transplantation; and III) SBTMO 2023 published in the Journal of Bone Marrow Transplantation and Cellular Therapy. Only abstracts classified in the DM category of each event were selected. Subsequently, they were classified according to the country of origin of the first author, name of the first author, affiliation of the first author, event in which the abstract was presented/published, and finally, three keywords from each abstract. To select the keywords, artificial intelligence was used from the text body of each abstract. A word cloud was generated for keywords with at least 2 citations. For this, the "TagCrowd" homepage was used to create the layout of the cloud and indicate the frequency of each word.

RESULTS

39 abstracts were presented and published at the three largest hematopoietic stem cell transplantation events in the world, in the data management category. Of these, 42% occurred at EBMT, 35% at the SBTMO congress, and 23% at TANDEM (Figure 1). Regarding the country of origin of the first author, at the SBTMO congress, 100% originated from Brazil. At TANDEM, 37.5% were from Brazil and 62.5% from the USA. At the European congress, EBMT, Brazil ranked first with 23.6%, followed by France, Spain, and England, which together occupied the second place. Regarding the word cloud generated from the keywords of the abstracts, the terms "transplantation", "cell", "stem", and "hematopoietic" were the most cited, although in different proportions. In terms of data management, the most cited terms in the abstracts were "data", "management", "CIBMTR", "registries", and "reports" (Figure 2).

CONCLUSION

Despite the importance of data management in the context of HSCT, observing that this keyword is not always used in the abstracts published in specific congress proceedings in the field leads to an under-representation of the relevance of the work, since the search for information may be hindered by the infrequent use of this keyword. Brazil has a strong presence in global production. At EBMT, it led in submissions, and at TADEM, it was the only country presenting aside from the USA. Notably, in data management, Brazil actively contributes to international conferences. Only Brazilians submitted papers at the SBTMO event.

KEYWORD - data management; hematopoietic stem cell transplantation; key word.

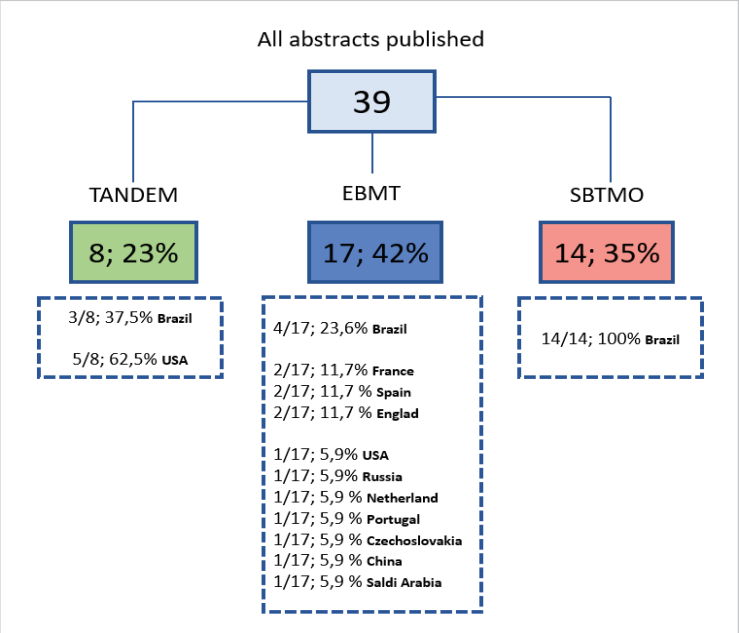

Figure 1 - Description of the number of abstracts published in Scientific event on Hematopoietic Cell Transplantation in the Data Manager category stratified by country.

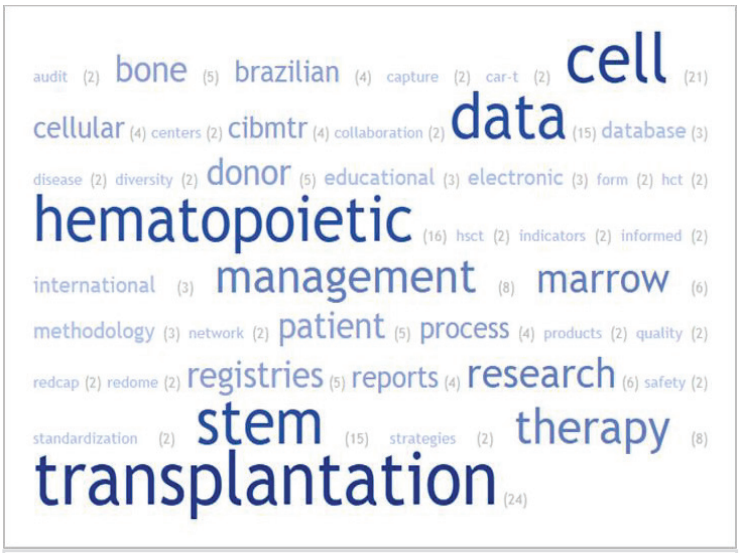

Figure 2 - Cloud of most cited words in abstracts in the

TABLE 1 - List of first authors and number of abstracts published in SBTMO, TANDEM and EBMT scientific events

First author	number of abstracts
SILVA, CMCR	5
SIMIONE, AJ	2
GERALDO, BLSS	2
OLIVEIRA, D	2
COSTA-JUNIOR, LC	2
CAVILHA, AM	1
LUCHININ, A	1
RIBEIRO, A	1
FERREIRA, AH	1
SINGH, A	1
DELAGE, A	1
BLUNK, B	1
ANGULO, BM	1
BRATRUDE, B	1
MORAES, BDGC	1
LARA, EC	1
ROBERT, E	1
FONSECA, G	1
SILVA, GJ	1
PACKARD, H	1
SANTOS, JG	1
TRNKOVA, M	1
WILSON, M	1
JÖRIS, M	1
OLIVEIRA, R	1
MENDES, RS	1
MCCORMICK, SM	1
HEWERDINE, S	1
JAFRI, S	1
FAN, Y	1
SHESTOVSKA, Y	1

COST ANALYSIS FROM THE PERSPECTIVE OF COST CENTERS AND THE EXPENSE NATURE OF UNRELATED DONOR HEMATOPOIETIC STEM CELL COLLECTION

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INTRODUCTION

Public health resources, such as people, time, facilities, equipment, inputs, and knowledge, are increasingly scarce; therefore, if well managed, they can provide the inclusion of more patients into the public health system, bringing more effective and efficient treatments to the patient's cure.

OBJECTIVE

To present the experience of calculating costs from the perspective of searching, selecting, and preparing unrelated donors for Hematopoietic Stem Cells (HSC) collection under cost centers and expense nature approaches.

METHODS

It was raised all direct and indirect costs of the project related to the Brazilian public health system, which manages financial resources for HSC transplantation, through a documentary analysis of management and financial controls for the year 2023, based on the number of transplants carried out with unrelated donors of national or international origin, using a mixed methodology, where bottom-up micro-costing was used for direct costs and top-down micro-costing to indirect costs.

RESULTS

The financial resources costs calculation spent in 2023, appropriated in their respective cost centers, demonstrated that the highest costs are concentrated in the international donor's search for Brazilian patients who do not have a Brazilian donor match - 70%. The costs of national donor search come in second place, representing 17%, whereas in the cost centers, Institutional development, Donor services, and Information technology, all indirect costs are concentrated, representing only 12% of the total cost. Regarding the expense nature, we can highlight the top three in the table, the largest cost is concentrated in collecting HSC from international donors – 51.1%. Following the ranking, we can find the blood samples transport services– 13.7%, including blood samples transported for HLA typings and HSC products transported from the collection center to the transplant center after donation. The service agreements – 10,9%, remained in third place, those agreements are related to services for the maintenance of the whole operation. To sum up, the micro-costing analysis approached that the operation of national and international donor search for patients who required HSC transplantation in 2023, cost this project financed with public resources, around R$ 43.2 million. Also, it was demonstrated that maintaining the search for international donors is extremely important for Brazilian patients who do not have national donors but represent R$ 32.2 million (75% of the total costs), which must be considered by managers and the network involved with this project, the prioritization of national donors, whenever possible and beneficial to the patient.

CONCLUSION

In conclusion, this study raises the importance of calculating costs and increasingly in-depth economic analyses in the health area, aiming at more efficient and effective decision-making in a scenario of increasing resource scarcity.

KEYWORDS

Cost calculation; Health economic assessments; HSC transplant

Cost type	Cost center	Total cost (R$)	Total cost (%)
Direct cost	International donor search	30.383.376	70%
	Braziliand donor search	7.517.393	17%
Indirect cost	Institutional Development	4.053.303	9%
	Donor services	1.124.633	3%
	Information technology	194.043	0%
	Custos totais	**43.272.748**	**100%**

Source: Cost calculation by cost center. Table created by the authors.

Expense nature cost (NC)	Brazilian donor (R$)	Brazilian donor (%)	International donor (R$)	International donor (%)	Total cost per NC (R$)	Total cost per NC (%)
HSC collection	158.590	1,4%	21.957.299	68,1%	22.115.890	51,1%
Blood samples and HCS transport	2.966.458	26,9%	2.953.188	9,2%	5.919.645	13,7%
Service agreements	3.053.881	27,7%	1.644.397	5,1%	4.698.278	10,9%
Donor logistics	4.347.887	39,5%	0	0,0%	4.347.887	10,0%
Exams	44.458	0,4%	3.857.514	12,0%	3.901.973	9,0%
Tax	95.053	0,9%	1.666.557	5,2%	1.761.610	4,1%
Business trip and training	315.538	2,9%	169.905	0,5%	485.443	1,1%
Administrative overhead	21.447	0,2%	11.548	0,0%	32.996	0,1%
Supplies	5.867	0,1%	3.159	0,0%	9.027	0,02%
Custos totais	**11.009.179**	**100%**	**32.263.569**	**100%**	**43.272.748**	**100%**

Source: Expense nature cost (NC) under brazillian and international unrelated donors. Table created by the authors.

Donor origin	Transplant number (n)	Custo total (R$)	Medium cost per transplant (R$)*	Transplant source (%)
Brazilian donor	240	11.009.179	45.872	65,0%
International donor	129	32.263.569	250.105	35,0%
Total cost	**369**	**43.272.748**	-	**100%**

* Excluding the expenses paid directly by the Unified brazilian public system to the related institutions

Source: Estimated cost by donor's origin. Table created by the authors.

DEVELOPMENT OF MULTI-PROFESSIONAL MEETING FOR CELL THERAPY DATA MANAGER

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INTRODUCTION

In 2016, the Brazilian Society for Bone Marrow Transplantation and Cell Therapy (SBTMO) began a movement to consolidate the national cell therapy registry through the Center for International Blood and Marrow Transplant Research (CIBMTR). With that, the need to train professionals whose job it is to manage data in cell therapy units has grown, leading to develop annual in-person and online courses to impact the procedure registry data quality. In 2023, the 1st meeting for cell therapy data managers was included into the XVII review course in Hematology and Hemotherapy.

OBJECTIVE

To describe the developing process of a course targeted at professionals acting on data management of cell therapy units.

METHOD

Historical survey of developing a course for data managers in cell therapy units. Results: The course organization set-off in March 2023 and the event took place at Faculdade Israelita de Ciências da Saúde Albert Einstein on 06/25/2023, counting with 5 external partners. A brainstorming, considering the main challenges faced in the BMT unit routine, set the event agenda. Its pillars were subjects such as research ethics, Car T-Cell clinical cases, filling in the CIBMTR platform, AI and accreditation. The promotion strategy was through publicity posting on the social media of the organizing hospital and SBTMO, as well as sharing in WhatsApp groups. To improve take-up of the course, complimentary registration was offered for all participants. Considering the event capacity of 60 people, 58 registered after intense publicity. To speed up flow event, activities, coffee-break, lunch and integrative medicine sessions with meditation and reflection occurred in the same room. When applying the event NPS form, 36 people responded, resulting on a score of 89%, with no detractors, and 83% evaluated the content very applicable to DM practice. The average satisfaction was 9.6 and when evaluating the transmission, lecturer and content, the averages were 8.9, 9.7 and 9.6 respectively. The challenge of training DMs with different backgrounds and infrastructures brings complexity to the educational construction process. However, with the coming together of various professionals across the country to consolidate the cell therapy registry in Brazil via the CIBMTR, it is easier to format this kind of courses to resolve recurring doubts and update practices such as AI and the use of tools like Power BI, as well as increasing engaging among these professionals.

CONCLUSION

The course had high attendance and evaluation, despite not all DMs took part. The coming together of several BMT professionals to update the content or to bring in new features increased the quality of the theme, making it possible to use the information in the DM's routine. Courses like this should continue to improve the recording of cell therapy data in Brazil and engage professionals.

KEYWORDS - Cell therapy, Data management, Education

ENHANCING LONG-TERM FOLLOW-UP ANALYSIS IN HEMATOPOIETIC CELL TRANSPLANT PATIENTS

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7 Associação Hospitalar Moinhos de Ventos, Porto Alegre, RS,
8 Hospital Samaritano Higienópolis - Américas, São Paulo, SP,
9 Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, SP,
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11 Instituto Nacional do Câncer (INCA), Rio de Janeiro, RJ,
12 Sociedade Brasileira de Terapia Celular e Transplante de Medula Óssea (SBTMO),
13 Real e Benemérita Sociedade de Beneficiência Portuguesa de São Paulo, SP,
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INTRODUCTION

The collaboration between the Sociedade Brasileira de Terapia Celular e Transplante de Medula Óssea (SBTMO) and the Center for International Bone Marrow Transplant Research has significantly increased the utilization of data from Data Back to Center in the Brazilian scientific research. However, ensuring the analysis and accuracy of presented results depends on the quality of information, including the Follow-Up (FU) updating of data by participating centers. Maintaining the collection and registration of data in hematopoietic cell transplantation (HCT) up-to-date poses a challenge for many Brazilian centers, especially for patients with long-term FU and residing far from the transplant facility. To address this challenge, methodologies for quantifying updated records are imperative.

OBJECTIVE

To present a methodology for analyzing the update status of FU data in patients undergoing HCT using a business intelligence (BI) tool.

METHODOLOGY

The SBTMO Data Managers Working Group has been developing solutions using Power BI (PBI). A new phase of the project was the incorporation of the Completeness Index (CI) function to assess the FU of transplants performed between 2008-2022. The CI is calculated by dividing observed FU (reported information) by potential FU (time elapsed since transplant until a "set date"). A "set date" is typically 6 months prior to the current date to account for the form submission cycle for the observed date. For those who died, FU is 100%, as we have information on them, and for those who did not complete any FU form, they were classified as "Pending for 100 days". For the calculation of the CI for 1 to 5 years of FU, the "set date" minus 6 months was used, and for FU periods exceeding 6 years, the "set date" minus 18 months was used, due to the form submission cycle for registry being every 2 years for this period. Cases achieving a CI of 100% were classified as "Updated", indicating timely and complete FU, while others are "Delayed".

RESULTS

A visual representation of the FU statuses of cases was provided through a pie graph, which offers a clear overview of the distribution of FU statuses. Also, an interactive table containing descriptive data for each case was presented, facilitating cross-referencing during further analysis or discussion. Together, these visual and tabular representations (Figure 1) enhance the clarity and accessibility of the FU data, providing valuable insights into the overall FU status and facilitating further examination of individual case details.

CONCLUSION

This methodology aims to enhance the accuracy and efficiency of data collection and analysis, thereby improving the quality of research outcomes and clinical decision-making in the field of HCT. By leveraging PBI, this approach seeks to streamline the process of data updating, facilitating comprehensive and real-time insights into the results and effectiveness of HCTs over extended FU periods.

KEYWORDS

Long-term follow-up in HCT; Data management; Business intelligence tool.

Figure 1. FU update analysis report.

HEMATOLOGY OUTPATIENT CLINIC AT A HEMOCENTER: SUPPORTING BONE MARROW TRANSPLANTATION

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INTRODUCTION

The hematology outpatient clinic consists of a multidisciplinary team that provides scheduled/regulated and on-demand care. This care is provided comprehensively and humanely. It is a reference center for the diagnosis and treatment of patients with hematological diseases. It provides care for patients with sickle cell disease and other hemoglobinopathies, patients with hereditary coagulopathies throughout the state, hematology patients: outpatient care for general hematology patients residing in the interior of the state of Ceará, and specialized diagnostic tests: performing laboratory tests for diagnosis in general hematology, blood coagulation, hemoglobinopathies, flow cytometry, and bone marrow pathology and cytology.

OBJECTIVE

To evaluate the importance of the general hematology outpatient clinic in the interior of the state of Ceará for the indication of bone marrow transplantation.

METHOD

This is an observational, descriptive, quantitative, and retrospective study of the services provided in the year 2023 according to the spreadsheet of the Ambulatory Production Bulletin (BPA) of the service, in a general hematology outpatient clinic in a Hemocenter in the interior of the state of Ceará.

RESULTS

The medical services during the mentioned period totaled 1,879 consultations, of which 947 were general hematology consultations, and as support for this service, 3,222 laboratory tests were performed, including 2,719 blood counts, 390 reticulocytes, 96 myelograms, and 17 immunophenotyping. Among the patients seen in the outpatient clinic in 2023, one was referred for a bone marrow transplant. It is worth noting that in previous years, the Hemocenter has a history of two more bone marrow transplants, also contributing to the health of the population it serves.

CONCLUSION

The Hemocenter outpatient clinics are involved in providing outpatient care to hematology patients through specialized medical consultations and multidisciplinary team care. All units also have specialized laboratories for the diagnosis of hematological diseases, coagulopathies, and hereditary hemoglobinopathies. This demonstrates that the Ceará Blood Network is structured and organized to serve the population of Ceará throughout the entire state, even contributing to highly specialized services such as bone marrow transplantation.

KEYWORDS

Hemocenter, Bone marrow transplantation, Diagnosis.

HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) CARE PATHWAY: USE OF ASSESMENT TOOL

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INTRODUCTION

The hematopoietic stem cell transplantation (HSCT) care pathway is a complex process that involves multiple infrastructures and multidisciplinary interfaces. The interaction between these components can expose patients to infectious risks, highlighting the need for a continuous evaluation process through a systematized tool to guarantee a minimum protective environment and mitigate risks.

OBJECTIVES

The primary objective of this study was to evaluate the HSCT care pathway through an assessment tool in transplant hospitals and hospitals implementing this care pathway. Methods: This was a descriptive study conducted in five private hospitals in Brazil, with two hospitals located in the Southeast region and three in the Northeast, from January to November 2023. The assessment instrument was developed by a HSCT and Infection Control team, referencing the recommendations of the Centers for Disease Control and Prevention (CDC). The instrument consisted of five assessment domains: (1) infrastructure, assessing the minimum environmental conditions for the unit and beds; (2) hygiene and maintenance, verifying whether implemented processes guarantee clean conditions and maintenance of the environment; (3) equipment, subdivided into two steps depending on the use of central or portable HEPA filters; (4) quality and safety, analyzing documents related to the care process; and (5) department interfaces, verifying unit interactions and service flows with other hospital sectors. The instrument consisted of 79 assessment items. A face-to-face visit was conducted to apply the instrument by a specialized nurse, accompanied by administrators and HSCT nurse navigators from each hospital. A report was generated at the end of the evaluation, providing general compliance rates and domain evaluations to support navigators and unit administrators in improvement actions. Results: Five evaluations were conducted, with two units evaluated to verify the necessary actions to implement the HSCT care pathway. In these units, at least 66 improvement actions were identified for patient safety. In the remaining units with active care pathways, the main domains requiring intervention were air filtration equipment and patient room infrastructure during aplasia.

CONCLUSION

The evaluation instrument was able to map the improvement needs of each unit, highlighting domains requiring attention and measuring the actions and investments necessary to implement the care pathway in new units. Through the evaluation, we verified that this process can support decision-making actions for new units and leveling between active units. Therefore, maintaining this process continuously is necessary to ensure the quality and safety of the HSCT care pathway.

KEYWORDS

hematopoietic stem cell transplantation, protective environment, quality

IMPLEMENTATION OF A CARE PATHWAY FOR HEMATOPOIETIC STEM CELL TRANSPLANTATION IN A PRIVATE HOSPITAL

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The decision to voluntarily invest in accreditation reflects the commitment of an institution to uphold the quality of its services and foster a culture of continuous improvement among its staff. In this context, the Qmentum accreditation model, grounded in patient-centered care, challenges healthcare institutions to shift their focus towards integrated team-based processes, data analysis, longitudinal monitoring, and tailored care delivery.

Embracing the premise of patient-centered care, the accreditation encourages healthcare institutions to adopt a value-based healthcare model, where outcomes for both patients and healthcare providers are prioritized. Aligned with these principles and aiming for accreditation, we developed a care pathway at Hospital Albert Sabin, focusing on delivering patient-centered care for individuals undergoing hematopoietic stem cell transplantation (HSCT) within a value-based healthcare framework. This pathway emphasizes individualized patient and family-centered care, multidisciplinary integration, systematic care coordination, and outcome-oriented quality indicators.

The care pathway begins with the initial medical consultation and involves assessment by a multidisciplinary team comprising nursing, pharmacy, psychology, dentistry, and nutrition. Through this process, we establish the patients' epidemiological profile, identify their primary care needs, anticipate potential procedural delays related to their health condition, assess team workflow inefficiencies, and evaluate the timeliness and quality of care provided by healthcare professionals throughout the patient's journey.

Throughout the transplantation process, whether allogeneic or autologous, patients receive a personalized treatment plan, educational support, and ongoing clinical monitoring as determined by the multidisciplinary team. Additionally, we establish timelines for each part of the process, from mobilization to hospitalization, and manage intra-hospital, outpatient, and post-graft complications.

Upon completion of the transplantation process, we measure and analyze various data points, including patient and caregiver satisfaction surveys regarding the healthcare team and the hospital, incidence of complications, associated costs, and duration of each stage of the patient journey. These metrics fulfill the development of a treatment success indicator based on clinical outcomes (health status + patient satisfaction) and the cost incurred throughout the patient journey. Through this comprehensive approach, we aim to continually enhance healthcare delivery within a value-based framework and ultimately achieve Qmentum accreditation.

IMPLEMENTATION OF A PROCESS TO INVESTIGATE POSSIBLE CAUSES OF PRIMARY AND SECONDARY GRAFT FAILURES AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT)

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INTRODUCTION

Graft failure is a rare and devastating complication of HCT. Therefore, a fundamental aspect in the patient's clinical outcome quality is having a process to investigate all possible causes and opportunities of improvement to avoid or reverse graft failure. According to the Center for International Blood and Marrow Transplant Research (CIBMTR), graft failure is not having an absolute neutrophil count (ANC) > 500mm3 until D+30 of marrow or peripheral blood transplantation or D+42 after umbilical cord blood graft or having a chimerism < 90% in patients with autologous reconstitution. Secondary graft failure is a drop in ANC after initial engraftment or increasing autologous chimerism.

OBJECTIVE

to implement a checklist with key questions that allows identifying and evaluating the possible causes related to graft failure and developing strategies to prevent primary or secondary graft failures in patients undergoing allogeneic HCT.

METHOD

This study reports an experience carried out in a private general hospital in São Paulo, started in January 2022 to January 2024 developing a checklist with key information that may point to causes that might have corroborated the occurrence of the event. The checklist includes investigation of the patientss clinical data pre-HSCT, the graft and the patients' clinical outcome post-HCT. This instrument was constructed with input from the primary physicians, cell collection, processing and infusion, infectious disease, nurse specialist and quality teams. The findings of this investigation were share with the multidisciplinary team in a critical analysis meeting, specific actions are planned and monitored.

RESULTS

At the beginning of the implementation of this process, three cases of secondary graft failure after haploidentical HCT were analyzed in our institution, two patients with sickle cell anemia and one with myelofibrosis. After the graft failure investigation, the process of donor selection and anti-HLA antibodies analyses is always performed in conjunction with the HLA-specialist team and the conditioning regimen for pediatric sickle cell anemia was intensified. No further graft failures were observed.

CONCLUSIONS

Although it is not possible to state that the reduction in graft failures observed in 2023 are related to the implementation of the investigation process developed in the previous year, we observed that the systematic monitoring of the HCT outcomes by the multidisciplinary team of all aspects that may affect the outcome clinical outcomes, what could be an important strategy for improving the quality of the outcomes in our institution.

IMPLEMENTATION OF AN AUDIT PROCESS OF HSCT DATA REPORTED TO THE CENTER FOR INTERNATIONAL BLOOD AND MARROW TRANSPLANTATION RESEARCH (CIBMTR)

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INTRODUCTION

Having a process to audit the clinical data reported the to the CIBMTR of all hematopoietic stem cell transplants (HCT) is a minimum requirement for the specific accreditation of the Foundation for the Accreditation of Cellular Therapy (FACT). It is a major challenge for a transplant service, as it involves the dedication of the HCT medical team, data manager and hospital quality, ensuring compliance with the requirements of the CIBMTR and the FACT.

OBJECTIVE

To implement an internal audit process that allows evaluation of the quality of the clinical data report to the CIBMTR, as an integral part of the HCT quality management program.

METHOD

An audit checklist was developed, containing the necessary critical fields as specified by the CIBMTR listed in the appendix M of the CIBMTR Manual. We established a database to compile and present audit results, following the CIBMTR data categories. We also implemented a routine for discussion and action planning in quarterly quality meetings involving the HCT multidisciplinary team. Audits are conducted monthly: the data manager was audited by a physician from the HCT team after reporting the previous month's data at the CIBMTR portal. During this audit, the consistency between the data reported in the CIBMTR portal and the patient's medical records was checked. Our initial goal was to audit a sampling of reported HCT and achieve the minimal required overall compliance rate of 98%. After implementing the audit process and analyzing the first results, we expanded the audit to 100% of the essential pre-transplant data, maintaining the target of maximal critical field error rate of 2%.

RESULTS

In November 2022 the audit checklist was developed. In the first audit, the overall compliance rate was 94% in a sample of 57% of records reported to the CBMTR and which included essential pre-HSCT data, essential post-transplant data and comprehensive data forms. This process allowed us to build specific action plans in areas where errors occur the most (form 2402 – specific disease data). After reviewing the weaknesses and educating/guiding the data manager in understanding and improving these results, the critical field error rate fell from 4% to 1.8% in 1107 fields audited in the 100% of transplants reported to CIBMTR in the year 2023, representing a 55% drop in the error rate.

CONCLUSIONS

The implementation of a systematized process of auditing clinical data reported to the CIBMTR improved the compliance results of these reported data. Analyzing errors, we were able to correct them accurately, which guaranteed greater reliability in the reporting data, a fundamental component of the processes related to the analysis of patients' clinical outcomes.

OPTIMIZING DATA MANAGEMENT IN HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

In the dynamic field of hematopoietic cell transplant (HCT), an efficient data management (DM) plays a pivotal role in ensuring the reliability of research outcomes. Our DM team consists of one data analyst, two data control assistant, a nurse and support from the medical team. Each participating center in the Center for International Blood and Marrow Transplant Research (CIBMTR) sends information about procedures performed at their institution. DM in HCT involves balancing the requirements established by CIBMTR with the internal activities of the service.

OBJECTIVE

This study presents our DM workflow, emphasizing its stages, tools, and impact on HCT clinical and research processes.

METHODS

The center began data registry with CIBMTR in 2009. The workflow for submitting data to CIBMTR starts with obtaining informed consent from the patient upon admission for transplant. After the infusion date, pre-transplant forms are completed, and the registry algorithm determines whether the patient is selected for research (CRF) or essential data (TED). For outcome updates, forms are submitted post 100 days, 6 months, and annually.

The center's productivity is assessed by CIBMTR through the Continuous Process Improvement (CPI) program, which monitors the center's ability to handle the volume of forms and meet CIBMTR deadlines. Centers that meet CPI metrics within the deadline are considered in 'Good Standing'.

To maintain updated follow-up, patients are divided into two groups: those who continue follow-up at our center and returns for follow-up at the origin service for follow-up. For the latter group, post-HCT follow-up flow was created (Figure 1), consisting of 8 steps to ensure patients follow-up is up to date.

RESULTS

Between 2009 and 2023, a total of 3,157 transplants were performed, all registered with CIBMTR. Of these, 496 (16%) were selected for CRF submission and 2,661 (84%) for TED. During this period, a total of 31,224 forms were submitted, averaging over 3,000 forms per year in the last 5 years (Figure 2).

For patient follow-up updates, the follow-up update workflow was utilized. Out of the 3,157 registered patients, 3,144 (99.6%) had complete forms submitted (ranging from 100 days to 14 years), while 13 (0.4%) patients were lost to follow-up.

Regarding CPI assessment, the center was classified as "Good Standing" in all evaluations conducted thus far.

CONCLUSION

The collaborative work between the data management team and the medical staff allows us to highlight not only the challenges faced but also the solutions found to ensure the accuracy and integrity of the data. The development of a post-HCT follow-up flow to accompany patients who returned to the service of origin enables us to keep the database updated, fill out the CIBMTR follow-up forms within the deadlines established by the registry, guaranteeing the reliability of the data and enabling post-HCT outcome analyses.

FIGURE 1. Post-HSCT follow-up flow

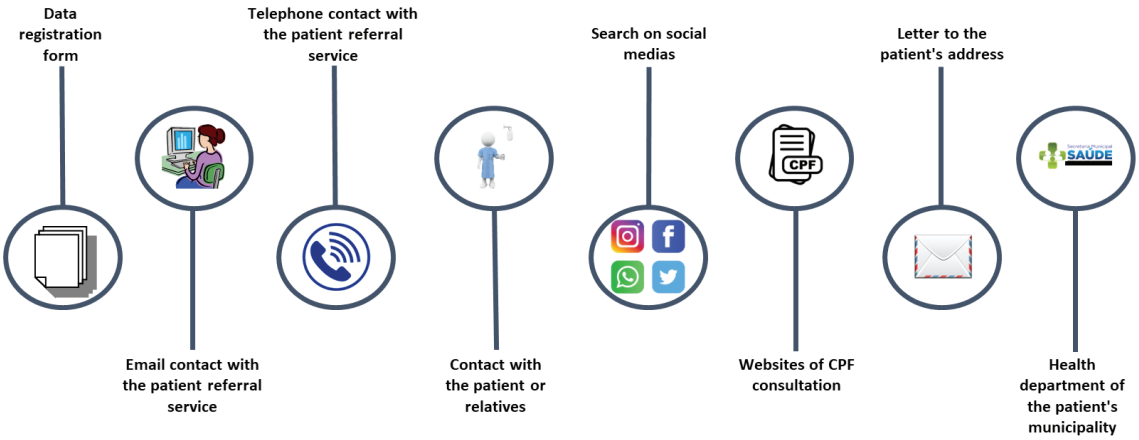
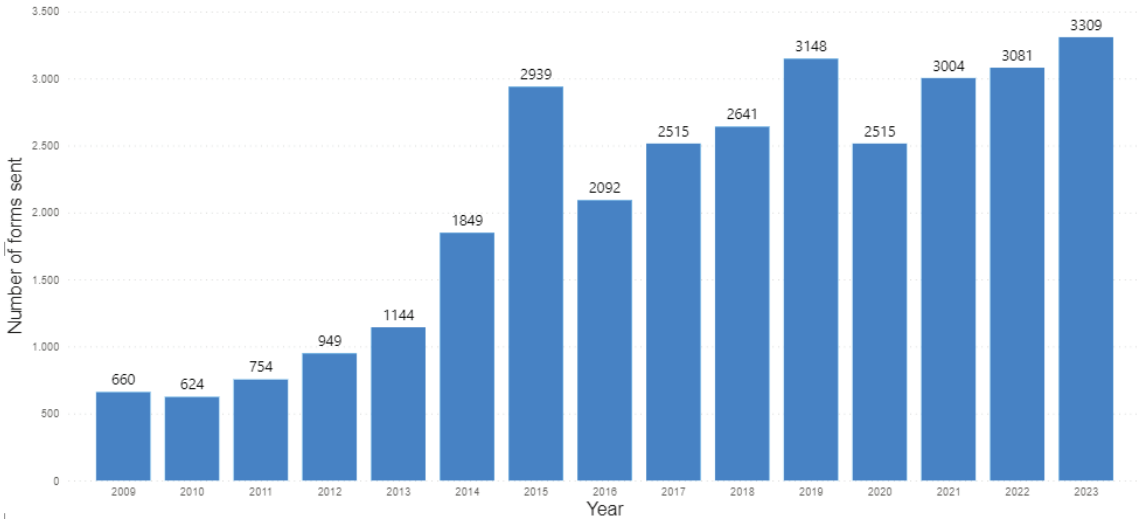


FIGURE 2. Number of forms sent per year



PERFORMANCE AND SURVIVAL OF PATIENTS UNDERGOING HAEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) IN 6 BRAZILIAN TRANSPLANT CENTERS: RESULT OF 4 YEARS OF MONITORING

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INTRODUCTION

Establishing a hematopoietic stem cell transplantation (HSCT) care pathway is a complex process that involves continuous interaction between patients, families, interdisciplinary teams, clinical processes, and structures. To ensure the quality and efficiency of care, it is essential to monitor key performance indicators (KPIs), such as productivity and survival.

OBJECTIVES

The primary objective of this study was to describe the results of performance indicators and overall survival rates for patients undergoing HSCT at six Brazilian transplant centers.

METHODS

This was a descriptive study conducted at six private hospitals in Brazil, with three hospitals located in the Southeast region and three in the Northeast region, between May 2019 and December 2023. The hospitals and medical staff were accredited by the National Transplant System to perform HSCT procedures. The hospitals had a specific structure and nurse navigators for managing the HSCT care pathway. Transplant centers recorded monthly and annually monitored all HSCT cases in relation to patients' clinical status using an Excel database. Nurse navigators monitored patients' clinical status through electronic medical records or telephone calls. The analysis of performance indicators was conducted using simple statistics and presented in absolute numbers and percentages. The Kaplan-Meier method was used to estimate survival probabilities, and these analyses were performed using STATA statistical software. Survival was estimated from the date of transplantation.

RESULTS

A total of 459 transplants were performed, with 383 (83.5%) in the Southeast region and 76 (16.5%) in the Northeast region. The majority of patients (70%) were adults, while 30% were pediatric patients. The average age of adult patients was 50.8 years, with 60% of patients over 50 years of age. In pediatric patients, the mean age was 6.8 years. The majority of transplants were autologous (238, 52%), followed by allogeneic (221, 48%). The predominant donor type was related (191, 86%), followed by unrelated (30, 14%). The 1-year overall survival rates were 90% for autologous, 65% for related allogeneic, and 65% for unrelated allogeneic transplantation.

CONCLUSION

The survival rates found in this study are consistent with those reported by the Brazilian Association of Organ Transplantation (2016-2023), which reported 86% for autologous HSCT, 64% for related allogeneic, and 61% for unrelated allogeneic transplantation. Monitoring performance and survival rates enables comparison with other national and international transplant centers, promoting and encouraging efficiency actions and quality improvements.

KEYWORDS - Hematopoietic stem cell transplant, Key performance indicators, Survival

RESULTS OF DISTANCE CONTINUING EDUCATION FOR DATA MANAGERS: A PROJECT INVOLVING MANY HANDS

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INTRODUCTION

Actions to consolidate the Brazilian Registry of Hematopoietic Cell Transplantation (BRHCT), using the infrastructure of the Center for International Blood and Marrow Transplant Research (CIBMTR) were executed by the Brazilian Society of Cell Therapy and Bone Marrow Transplantation (SBTMO), the CIBMTR and the Data Managers Working Group (DMWG). From 2012 to 2022, there was a 209% increase in the number of active centers (11 to 34) and 181% of transplants performed in Brazil and registered at the CIBMTR (593 to 1668), reinforcing the need to train new data managers (DM) to ensure accuracy of the data sent to the CIBMTR. In 2017, the 1st national, free distance learning (DL) tutorial was developed. To maintain the continuing education of DM, the 2nd version of the course was released in December/2021.

OBJECTIVE

To evaluate the outcomes of the educational track for data managers and the content engagement among participants

METHOD

The access report was extracted on April 16, 2024, from the digital platform where the course was hosted. The final analysis evaluated four metrics of the continuing DL tutorial: participants per module, participants per video lesson, engagement percentage and consumption time.

RESULTS

There were 42 volunteer professionals from 16 institutions (13 national and 3 international) selected to teach in the DL course, 41% (16) of them specialists from several areas. The course was structured in 7 modules, containing 60 video lectures, 13 testimonials and 9 areas of knowledge. When comparing the 1st and 2nd versions, both were distance-learning but there was a 740% (5 to 42) increase in the number of instructors. The first was a tutorial, with two 45 minute-modules of video lessons, and the second has a total duration of 19 hours. There was a 250% (2 to 7) increase in the number of modules and 2,420% increase in learning time (45 minutes to 19 hours). A total of 775 DL participants concluded the 1st, and, , in the 2nd version, there were 1,927 participants to date , varying from 141 in the 1st module to 1,349 in the 7th module. Modules with the highest completion rate were on "Cell Therapy Basics and Accreditation" and "Brazilian Registry of HCT". The percentage of consumption of each video of the same track object and divided by the number of consumers was over 60% (Table 1). This indicates that engagement of the content was higher than expected, since the metric for good adherence is at least 60% (Figure 1).

CONCLUSION

The DL method helped the development of the educational content, allowing easy identification of the main issues and timely adjustments made to improve DM education initiative. Adherence to the course was as expected, with percentages at or above 60%. There has been a national and international effort to maintain strategies to provide continuing education for DM and improve the accuracy of data in the RBHCT. The course serves as an important continued education tool for data managers working with HCT data, as seen by the large number of enrolled participants.

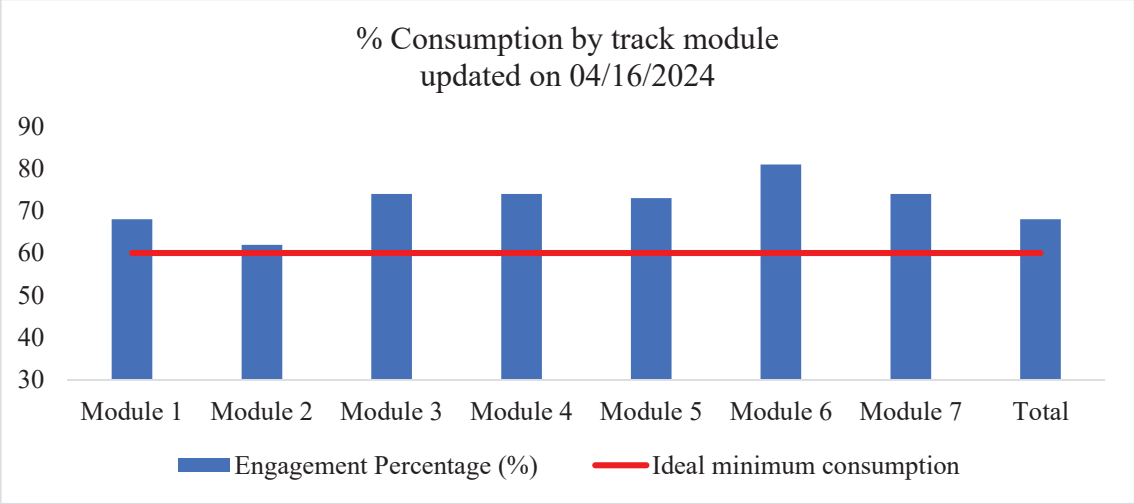
KEYWORDS

Hematopoietic Cell Transplantation. Education. Data Management

TABLE 1. Results and adherence to DM training course

Module	Track Module	Participants per module	Participants per video lesson	Engagement Percentage (%)
Module 1	Brazilian Registry of HSCT of the Brazilian Society of Cell Therapy and Bone Marrow Transplantation (SBTMO)	417	993	68
Module 2	Cell Therapy Basics and Accreditation	1349	5766	62
Module 3	Center For International Blood and Marrow Transplant Research (CIBMTR) Basics	253	945	74
Module 4	Basics of CIBMTR Data Filling - Autologous Bone Marrow Transplant - Multiple Myeloma	255	1236	74
Module 5	Filling in CIBMTR Data with a Clinical Case of Myelodysplastic Syndrome	141	319	73
Module 6	CIBMTR Data Filling - Post-transplant Complications	219	1129	81
Module 7	Basic, Intermediate and Advanced Statistics for Cell Therapy	257	1375	74
	General total	1927	11763	68
Understanding the indicator		Consider the number of of Unique Participants who consumed the Track module	Consider the number of of Participants who consumed each video of the Track module (The same is counted more than once because of the number of videos per Module)	Percentage of General Engagement of Participants per Track module (The percentage of engagement of each video of the same Track module and divided by the number of consumers)

FIGURE 1. % Consumption per track module



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RISK ASSESSMENT ASSOCIATE WITH CELLULAR THERAPYIN BLOOD BANK ACTIVITIES

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Cellular therapy is advancing worldwide, and with this, risk management becomes necessary for controlling the entire process, which is currently being redesigned with the introduction of CARs in oncological treatments. In this scenario, the Blood Bank plays a prominent role, as it is an important figure in the collection, cryopreservation, and infusion process. Therefore, quality is essential in the assessment, implementation, and monitoring of risks associated with conventional and advanced cellular therapy. In determining the appropriate measures to address the identified risks, priority should be given to patient safety and product quality. Based on this our study provides a description of the risk protocol for cell therapy within blood bank activities. The modified FMEA (Failure Modes and Effects Analysis) tool was used. Initially, we identified the main process and its subprocess, as well as the FACT description for risks followed by the identification of the potential risk and its location in the process of collection, processing and infusion. After this step, we measured the risks in three distinct parts: Severity (S), Probability (P), and Risk Criticality (RC), where RC = S x P. The RC is applied to a priority table, and measures to be adopted are determined. We then conducted the study of the identified risk and the actions to be taken, followed by the reference document that needs improvement. The processes analyzed to assess risks included collection, infusion, and processing of cells for both conventional and advanced therapy, as well as documents were adapted to address the identified barriers. Six risks were identified in the processes of conventional therapy, and three risks in the processes of advanced and conventional therapy in collection and infusion. Eight documents were modified. In the risk identification during processing, seven risks were identified in the processes of conventional therapy and five risks in the processes of advanced and conventional therapy. Additionally, the risk operational procedure and adaptation of the quality manual were created. Growing evidence shows that the systematic and comprehensive evaluation of risks impacting on safety and efficacy of cell therapy contributes to proper management of risk affecting donors and patient, by implementing this tool, we aim to achieve the goals of our institution, by monitoring the process with tools as Non-Conformance Reports and Quality Indicators.

SEVEN YEARS OF SCIENTIFIC PRODUCTION BY CELLULAR THERAPY DATA MANAGERS IN BRAZIL

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INTRODUCTION

Since the establishment of the Data Managers Working Group (in Portuguese: Grupo de Trabalho de Gerente de Dados-GTGD) for Cellular Therapy of the Brazilian Society of Bone Marrow Transplantation (Sociedade Brasileira de Transplante de Medula Óssea-SBTMO) in 2019, data culture has been significantly strengthened, motivating planning for the creation of the SBTMO registry. The efforts were further intensified with the partnership established between the SBTMO and the Center for International Blood and Marrow Transplant Research (CIBMTR) in 2019. One of the strategies used to disseminate the GTGD was scientific publications through abstracts and articles, demonstrating the actions and results of the strategies adopted by the group. Objective: To describe the scientific production of the GTGD over the last seven years, as well as to provide an overview of data managers' (DM) publications in Brazil through a survey.

METHOD

Systematic searches of abstracts and articles published in online journals and scientific meetings by the GTGD from 01/2017 to 05/2024 were conducted (Figure 1). Abstracts and articles that included members of the GTGD were included. To understand the scientific production of Brazilian DM, a survey was developed in REDCap and sent to the communication group of DM in Brazil.

RESULTS

In total, six original articles were published in the Journal of Bone Marrow Transplantation and Cellular Therapy (JBMTCT), three of which were results for summary slides, one addressed the Brazilian registry, one discussed strategies and barriers in the routine of DM in Brazil, and the last one reported clinical outcomes of transplants in Brazil using CIBMTR data. Eight abstracts were presented at the American Tandem Meetings Congress and published in Transplantation and Cellular Therapy (TCT), in addition to seven abstracts presented at the SBTMO Meetings and published in JBMTCT. The survey of scientific production of Brazilian DM (Table 1) included eight responses, half of whom had already published abstracts and articles. They were asked to identify the main barriers faced when publishing data. The results revealed that the main obstacles were lack of time (50%), followed by lack of incentive (12.5%), lack of knowledge (12.5%), difficulties with the language used for publications of articles and abstracts (12.5%), among others.

CONCLUSION

In summary, the analysis of GTGD's scientific production reveals a scenario of significant contribution to scientific production, evidenced by the publication of articles and abstracts in journals and international conferences. However, the identified obstacles, such as lack of time and lack of incentive, highlight the need for additional support to promote research and publication among Brazilian DM. Overcoming such challenges can further strengthen the role of these groups in generating and disseminating scientific knowledge in our country.

KEYWORDS

Data Manager; Data Management Challenges; Scientific Production.

FIGURE 1. Search flow diagram

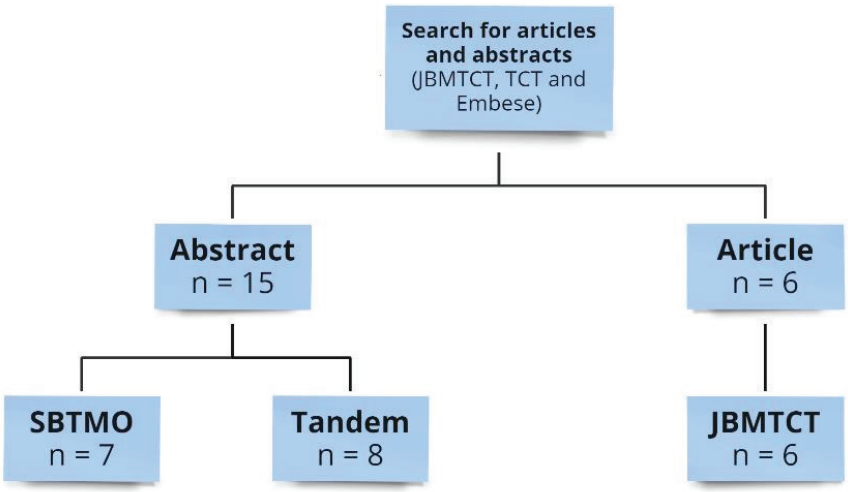

TABLE 1. Survey description.

Characteristic	N = 81
Undergraduate course	
Bachelor of Pharmacy	1 (13%)
Information Systems	1 (13%)
Biomedicine	2 (25%)
Nursing	4 (50%)
Post-graduate	
Doctor's degree	1 (13%)
Master's degree + other	1 (13%)
Master's degree	2 (25%)
MBA	1 (13%)
Other	3 (38%)
Other functions than DM	
Yes	8 (100%)
No	0 (0%)
Time as a Data manager (in months)	
Median (25%; 75%)	54 (24; 96)
Published articles	
Yes	1 (13%)
No	7 (88%)
Published abstracts	
Yes	4 (50%)
No	4 (50%)
Barriers faced when publishing data	
Lack of time + followed by lack of incentive	1 (13%)
Lack of time	3 (38%)
Lack of knowledge	1 (13%)
Difficulties with the language	1 (13%)
Others	2 (25%)
Interest in the scientific writing course	
Yes	7 (88%)
No	1 (13%)
1n (%)	

STRENGTHENING PATIENT SAFETY CULTURE EVALUATED BY INCIDENTS REPORTED DURING THE FACT ACCREDITATION PROCESS IN THE BONE MARROW TRANSPLANT UNIT AT CHN - COMPLEXO HOSPITALAR DE NITERÓI

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INTRODUCTION

CHN is a general hospital and has a BMT (bone marrow transplantation) unit with 26 beds.The process accreditation program(FACT Accreditation of Foundation for the Accreditation for Cellular Therapy) of the bone marrow transplant care started in January/20, being certified in 2024. The hospital already had a quality management system with computerized notification of patient-related events through the Interact system, but with a reduced occurrences number recorded by the BMT area. These notifying occurrences involving patients directly or indirectly, and which have caused harm or have a risk of harm occurring, is one of factors considered to create a patient safety culture. This process emphasized some types of specific occurrences that also needed to be recorded, investigated and monitored. After identifying these opportunities for improvement, the Quality Management area initiated actions with the area to increase notifications. Among the actions implemented, a minimum number of occurrences was stipulated to be recorded monthly by the sector based on number of beds from April/21, which began to be counted weekly to guide the area until the end of months. Situations to be reported were identified through FACT standards, such as cellular products collected with positive microbiology results and biosurveillance occurrences. Barriers to health care-related infections identified were also recorded.

OBJECTIVE

To analyze the notification of occurrences by the BMT area after the start of the FACT Accreditation process and the improvement in the patient safety culture data quality.

METHOD

Monthly measurement and critical analysis of the number of notifications registered in the system by the area were carried out.

The data was grouped by quarter and the percentage increase between them was calculated. Results

There was an increase in occurrences that identify risks such as risky circumstances, non-conformities and near-failures from 51% in 2021 to 77% in 2023 and a reduction in incident notifications, which affected patient, causing some type of damage or not. In the first quarter/2021, before the actions, 49 incidents were reported. In the 2nd quarter/2021, actions were initiated and from the 3rd quarter/2021 onwards there is a progressive increase in monthly transplant notifications, reaching 120 in the 4th quarter/2023.

CONCLUSIONS

There was a boost in patient safety culture after the start of the FACT process. Notifications of occurrences with the patient by multidisciplinary team increased and the unit started to identify and record more risk situations, presenting a lower rate of harm caused to the patient. The improvement in notifications strengthened the patient safety culture in the unit with the team presenting greater risk identification and application of preventive barriers.

THE APPLICATION OF THE PDCA CYCLE IN OPTIMIZING THE BONE MARROW TRANSPLANT PROCESS AT A PROADI-SUS HOSPITAL IN THE NORTHEAST

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INTRODUCTION

The Sistema Nacional de Transplantes (SNT) coordinates transplants in Brazil, with a focus on bone marrow transplantation (BMT), predominantly financed by the Sistema Único de Saúde (SUS) at 88%. BMT management faces challenges in quality, costs, and efficiency. According to the literature, there is a need for scientific approaches in quality management to improve patient satisfaction and well-being, emphasizing the relevance of enhanced nursing practices. Objective: To implement the PDCA Cycle (Plan, Do, Check, and Act) to enhance the BMT process, optimize and elevate patient care quality, comparing the years 2022 and 2023.

METHOD

A feasibility study was conducted at a Northeast hospital specialized in BMT, participating in the PROADI-SUS program. Data were collected from October 2022 to December 2023, including records and interviews with 10 healthcare professionals. Using the PDCA methodology, the following steps were applied: Plan - Identifying key areas for improvement, establishing roles and responsibilities in collaboration with the participating center, and defining a feasible timeline; Do - Implementing proposed actions, with the hospital carrying out activities, with essential involvement and communication; Check - Collecting data during implementation to track progress and evaluate the impact of actions on established indicators; and Act - Based on the analysis of collected data, making necessary adjustments to the plan, offering additional training, and revising strategies as needed. Indicators to assess effectiveness included the number of allogeneic BMTs, average length of stay and waitlist in days, catheter-related infections, and percentage of deaths. Comparison between years was conducted using the Wilcoxon test.

RESULTS

For execution, a Planner and a Monitoring Dashboard were structured with five domains: a) Increase the number of BMTs performed; b) Decrease the average length of BMT stay; c) Decrease BMT mortality rate; d) Cell therapy; and e) Overall. Each domain ranged from four to 29 factors with options "Activity not started", "In progress", "Unfeasible", "Delayed", and "Completed". Regarding indicators, no significant differences were observed between 2022 and 2023 respectively, in the number of BMTs (8 vs. 5; $p>0.050$), length of stay (15.7 vs. 11.7; $p>0.050$), and waitlist (0.75 vs. 0.83; $p>0.050$). The hospital completed all 65 project activities, overcoming obstacles with procedural improvements and multidisciplinary collaboration.

CONCLUSIONS

Although indicators did not show statistical differences, the research identified conflicts in services and gaps in the BMT process, using indicators as key metrics. The PDCA proved effective in evaluating processes and promoting efficient management, reinforcing the importance of quality management in healthcare and contributing to current knowledge on the subject.

KEYWORDS - BMT; PROADI; PROJECT MANAGEMENT.

THE IMPACT OF THE FACT ACCREDITATION PROCESS ON DATA REPORTING TO THE CIBMTR BY THE COMPLEXO HOSPITALAR DE NITERÓI - CHN

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INTRODUCTION

CHN has been performing autologous Hematopoietic Stem Cell Transplants (HSCT) since 2007 and allogeneic transplants since 2012, totaling 1459 transplants until March/2024 (1115 autologous and 344 allogeneic). However, the hospital has an open clinical staff consisting of 8 teams (about 90 doctors), which makes it difficult to collect pre and post transplant data. With the aim of improving the monitoring and outcomes of these patients, the institution became to report data to the Center for International Blood and Marrow Transplant Research (CIBMTR) in 2019 and initiated the accreditation proicess by the Foundation for the Accreditation of Cellular Therapy (FACT) in 2020.The FACT accreditation process showed some issues related to data collection, including low reporting of transplants to the CIBMTR, delays in completing forms, and lack of diagnostic and treatment data for patients. Additionally, after HSCT, the patient would return to their referring physician, and the hospital didn't have access to survival and outcome data. Upon identifying these issues, the institution began efforts to improve data capture and late patient follow-up. CHN implemented some tools included multidisciplinary consultations with the creation of a form for pre-transplant patient data collection; a weekly multidisciplinary clinical session (HSCT board) for case presentation and discussion; and a post-transplant assessment for late follow-up. The institution also invested in training a team of data managers with expertise in hematology to increase the accuracy of reported data.

OBJECTIVE

To analyze adherence to data reporting throughout the FACT accreditation process and the improvement in data quality.

METHOD

Periodic internal audits were conducted to review the accuracy of reported data.

RESULTS

In 2021,98 transplants were performed and 68 were reported to the CIBMTR(69%). In 2022,118 transplants were performed, and in 2023, 115, and 100% were reported to the CIBMTR. The audit conducted in 2022 on a total of 1388 fields revealed 9.3% missing data and 4% non-conforming data. In 2023, 2656 fields were audited with a significant reduction in critical errors and missing data. The team developed action plans to continue reducing critical errors and to increase adherence to completion of medical forms. The post-transplant visits was implemented and can now provide the outcomes for patients transplanted at the service. All critical data, such as graft-versus-host disease, response rates, adverse events, and secondary neoplasms, are collected and entered into the institution's medical records.

CONCLUSIONS

The FACT process resulted in increased adherence of the multidisciplinary team to complete data reporting, and as a result, the institution improved patient treatment during transplantation and better follow-up and management of post-transplant complications.The improvement in data collection contributed to the increased quality of patient monitoring.

THE TRAJECTORY SEARCHING FOR QUALITY AND GETTING PREPARED TO FACT INSPECTION – NOT A FAIRY TALE

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INTRODUCTION

Obtaining certification by the Fondation for Accreditation of Cellular Therapy (FACT) represents recognition of compliance with quality standards and clinical practices. The processes to obtain this certification involves several steps and involvement of the professional team.

OBJECTIVE

To report the trajectory of a private service throughout the entire process up to the FACT inspection.

METHOD

This is an experience report study carried out in a private hospital in São Paulo between January 2021 and October 2023. The first step was the administrative decision of improving quality of care in the transplant service. Getting prepared for obtaining certification involved several steps. The service registers at the portal, completes self-checking of eligibility, determines the key people responsible for conducting the certification process, maps all processes and internal documents, creates and modifies documents, builds a specific quality management program, establishes specific quality indicators, designs and performs internal and external audits, checks competencies and trains the multidisciplinary team, performs regular meetings to discuss clinical outcomes and quality involving the multidisciplinary team and institutional quality management in all processes.

RESULTS

Between January 2021 and October 2023, this process of quality training and documentation involved the entire hospital and cell therapy service. We faced several challenges including integration between the areas, as well as ensuring the quality compliance of established flows. The FACT inspection was performed by three inspectors specialized in clinical program, apheresis, and cell processing. The inspectors reviewed all documents, visited, and interviewed our staff in the three areas, including intensive care units, operating rooms, and day-hospital. Evidence of multidisciplinary team training, document flows, clinical outcomes analyses, product monitoring, donor management, quality management, and CIBMTR data management was presented to the inspectors. At the end of the second day of inspection, they presented an overview of their findings and opportunities for improvements. The inspection was friendly and extremely educational.

CONCLUSIONS

The process of seeking certification allowed us to improve the quality of the service across the line of patient care, improve interaction between the multidisciplinary team and provide an accurate evaluation of the clinical outcomes and quality processes. We are still waiting for the post-inspection results at the time of this writing, but in the general analysis it that it was possible to observe several improvements to the program, such as greater quality in the training, more accurate analysis of the clinical outcomes and the development of specific quality management strategies for the hematopoietic cell transplant program. The certification process is an extremely valid experience to ultimately improve the patient care.

TRAINING PROGRAM FOR DATA MANAGERS IN HEMATOPOIETIC CELL TRANSPLANTATION AND ADVANCED CELL THERAPY

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INTRODUCTION

Prior to 2016, there was no unified Brazilian Hematopoietic Cell Transplantation (HCT) registry, hindering national outcome analysis. The Brazilian Association of Organ Transplantation (ABTO), was the sole source providing indicator on the quantity of procedures in some categories. Therefore, some centers have to manage and analyze their own data. Analyzing HCT outcomes in Brazil was laborious due to the need to join data from each center, besides; there was no standardized registration procedures. In 2016, a milestone was reached with the 1st Data Managers Meeting (GD during the Brazilian Bone Marrow Transplant Society (SBTMO) Congress. At this event, three Brazilian centers shared their experience in data management, alongside the technical coordinator from the Center for International Blood and Marrow Transplant Research (CIBMTR). Since then, GD meetings have been held annually at the Congress. Another significant milestone occurred with the establishment of monthly online meetings of the Data Managers Working Group (GTGD) of SBTMO in 2020, where experienced professionals, specialists or physicians in the field, delivers lectures on topics related to HCT and advanced cell therapy. During the monthly GTGD meetings, a Data Manager (DM) presents a clinical case according to the theme of the lecture, providing a practical example of filling out CIBMTR forms or sharing their experience in data management.

OBJECTIVE

To present the methodology employed for DM training and the results over the past 9 years, in order to improve accuracy in collecting and reporting data on HCT and advanced cell therapy data.

METHODOLOGY

A survey was conducted on the topics discussed at SBTMO congresses since 2016, alongside the evaluations provided by participants of DM meetings regarding both the specialist's lecture and the DM's presentation since 2020. Evaluation scores ranged from 0 to 5, with yearly averages.

RESULTS

At the first congress, 4 presentations were delivered, increased to 12 presentations by 2023. The topics covered in the DM Session at the SBTMO Congress were categorized, with an emphasis on Form Filling (Table 1). Regarding the monthly meetings, there were 9 held in 2020, 8 in 2021, 10 in 2022, 10 in 2023, and 4 in 2024 so far (Graph 1). From 40 topics, the most frequently discussed were "How do I do?" (10) and diagnosis (5) (Graph 2). Participation in evaluations was not mandatory and not all meeting participants responded (Graph 3).

CONCLUSION

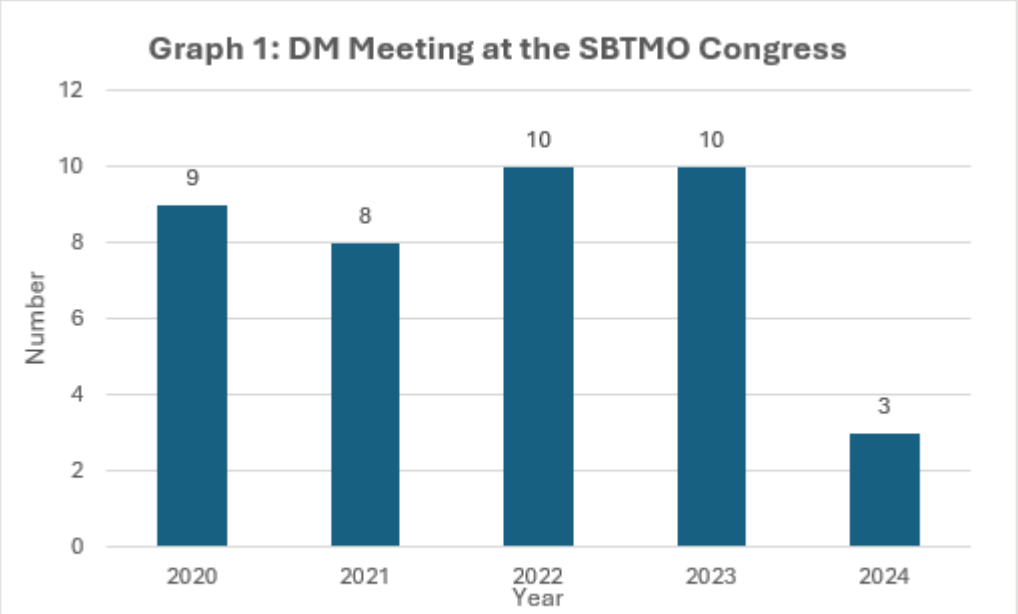
It is evident that a culture of continuous training for DMs has been established over the years, with the involvement of physicians, multidisciplinary teams, and DM themselves. However, the lack of regulation for the DM profession in the country signifies a higher turnover rate among this profession, setting challenges to training efforts. A continuous education program is crucial due to the diverse background of DM.

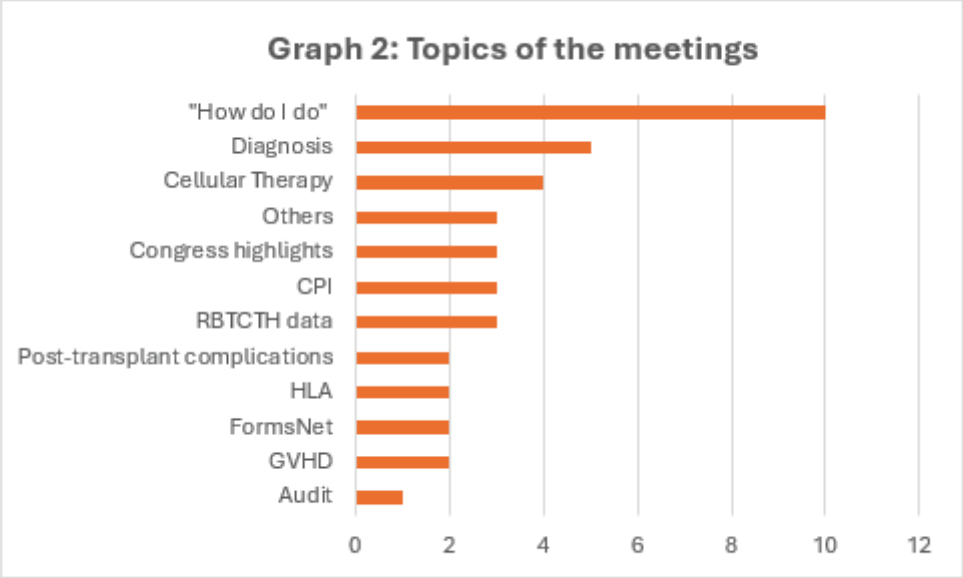
KEYWORDS

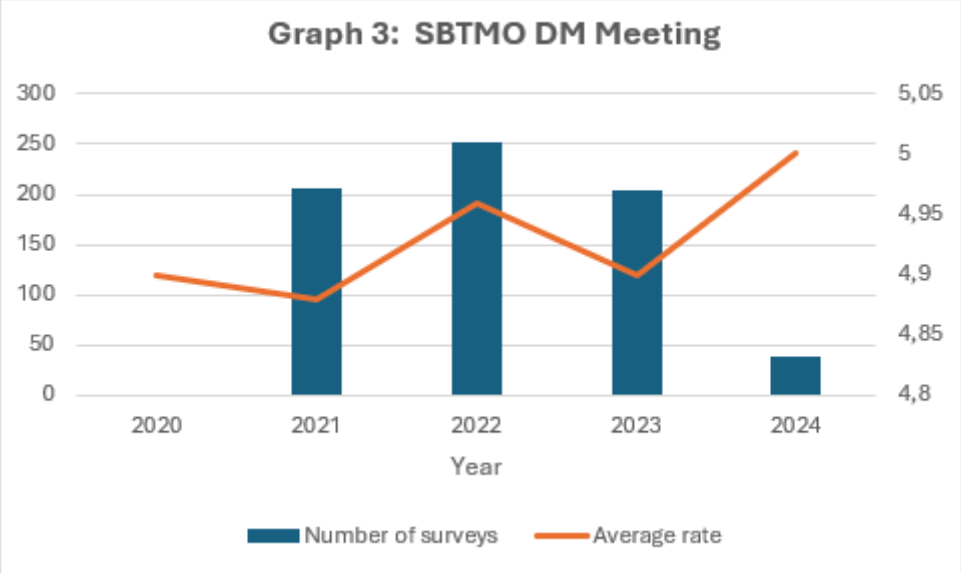
Data Manager, Hematopoietic Cell Transplantation, Continuing Education

Table 1: Congress Subjects

Subjects	N	%
Form Filling	27	32.9%
HSCTBR Data	16	19.5%
Statistics	10	12.2%
CIBMTR Tools	9	11.0%
Center Experiences	8	9.8%
Others	6	7.3%
Data Quality (Audit)	6	7.3%
Total	82	100%




Graph 2: Topics of the meetings
"How do I do"
Diagnosis
Cellular Therapy
Others
Congress highlights
CPI
RBTCTH data
Post-transplant complications
HLA
FormsNet
GVHD
Audit
0
2
4
6
8
10
12


Graph 3: SBTMO DM Meeting
300
250
200
150
100
50
0
5,05
5
4,95
4,9
4,85
4,8
2020
2021
2022
2023
2024
Year
Number of surveys
Average rate

USE OF BUSINESS INTELLIGENCE TOOL TO OPTIMIZE AND IMPROVE DATA MANAGEMENT IN THE HEMATOPOIETIC CELL TRANSPLANT REGISTRY IN LATIN AMERICA

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INTRODUCTION

The Latin American Bone Marrow Transplantation Group was created under the auspices of the Worldwide Network for Blood and Marrow Transplantation (WBMT) to assist and improve access to hematopoietic cell transplantation (HCT) in the region. The data is captured via WBMT Global Transplant Activity (GTA) form. Centers are required to complete a GTA per year and transplant modality. To collect data on transplants performed between 2019 to 2022 in Latin American, two working groups were established, one for Brazil and one for Spanish-speaking countries. Brazil has 86 HCT centers recognized by the Brazilian Ministry of Health.

Objective: Demonstrate the methods to collect data from Brazilian centers and the use of business intelligence (BI) tool to organize this data for submission to the WBMT system.

METHODS

From October to December 2023, our collaborative working group, in partnership with Sociedade Brasileira de Terapia Celular e Transplante de Medula Óssea (SBTMO), used official communication platforms to gather data from Brazilian transplant centers. Weekly directives and awareness campaigns emphasizing the significance of center participation in the registry were disseminated through email, Instagram, Facebook, and WhatsApp channels. To offer ample time for data collection, we extended submission deadlines (Figure 1). This strategic approach ensured comprehensive participation and robust data acquisition, further advancing our collective efforts in transplantation research and practice. Subsequently a dashboard template was created using PBI based on fields of data extracted through the GTA. Filters were created by center name, transplant type, disease, transplant year and adult/pediatric classification to enable some interactive reports.

RESULTS

A comprehensive dataset comprising information from 80 transplant centers has been collated, documenting a total of 12,751 transplants, encompassing both pediatric (2,038) and adult (10,713) cases (figure 2). To enhance data accessibility and usability, 365 spreadsheets covering various years and transplant types were imported into a BI tool. This transformation yielded an interactive spreadsheet, equipped with filters for easy data extraction based on transplant year and age group. Such optimization expedited the integration of Brazilian transplant data into the WBMT platform. Moreover, an interactive dashboard has been developed, providing an insightful overview of total transplants per year, and primary indications for HCT, categorized by modality and donor type.

CONCLUSION

The successful adherence to submission deadlines underscores the commitment and engagement of participating centers. The use of BI tools has further enhanced the accessibility and usability of the collected data, streamlining its integration into the WBMT platform. The development of an interactive dashboard serves as a powerful tool for gaining deeper insights into the patterns of transplants performed in Brazil.

FIGURE 1: Collection and analysis period

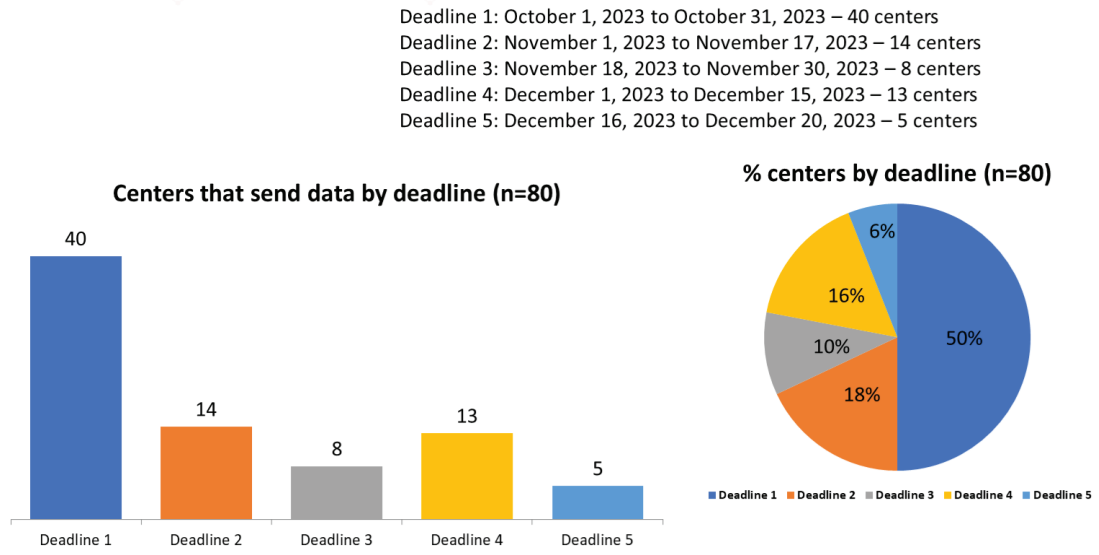

FIGURE 2: Interactive spreadsheet containing data from the 80 HCT centers

CentroTCTH: Todos | Categoria: Todos | Ano: Todos | 80 Centros participantes

Indication	HLA-id sibling, BM	HLA-id sibling, PBSC	HLA-id sibling, Cord	Other relative-MM-Haplo, BM	Other relative-MM-Haplo, PBSC	Other relative-MM-Haplo, Cord	Twin, BM	Twin, PBSC	Unrelated, BM	Unrelated, PBSC	Unrelated, Cord	Autologous, BM	Autologous, PBSC	Autologous, Cord	ALLO	AUTO	TOTAL
AML 1st CR	88	258	1	82	250	0	0	1	47	84	4	0	25	0	815	25	840
AML non 1st CR	47	141	0	74	190	0	0	2	37	76	1	2	65	0	568	67	635
ALL 1st CR	90	160	1	77	181	0	0	0	75	94	2	1	5	0	680	6	686
ALL non 1st CR	82	68	0	157	139	0	0	0	74	81	5	3	2	0	606	5	611
CML 1st cP	28	44	0	12	25	0	0	0	16	30	1	1	0	0	156	1	157
CML not 1st cP	10	46	0	4	28	0	0	0	16	16	0	0	1	0	120	1	121
MDS or MD/MPN	64	138	0	48	119	0	1	0	37	82	2	0	1	0	491	1	492
MPN	20	38	0	3	30	0	0	0	3	12	0	0	0	0	106	0	106
CLL incl. PLL	5	12	0	1	11	0	0	0	1	1	0	0	1	0	31	1	32
Other Leukemia	10	16	0	13	20	0	0	0	10	9	2	0	10	0	80	10	90
PCD - Myeloma	1	8	0	4	3	0	0	0	1	0	0	34	4238	0	17	4272	4289
PCD - other	1	2	0	0	1	0	0	0	0	0	0	1	129	0	4	130	134
HD	3	45	0	12	66	0	0	0	1	1	0	7	1272	0	128	1279	1407
NHL	10	76	0	10	77	0	0	0	3	5	0	10	1426	0	181	1436	1617
Other LPD	0	4	0	0	9	0	0	0	0	1	0	0	13	0	14	13	27
Neuroblastoma	2	0	0	2	0	0	1	0	0	0	0	3	226	0	5	229	234
Germ cell tumor	0	0	0	0	0	0	0	0	0	0	0	3	202	0	0	205	205
Breast Cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ewing	0	0	0	0	0	0	0	0	0	0	0	1	15	0	0	16	16
Other solid tumor	0	0	0	1	2	0	0	0	0	0	0	1	128	1	3	130	133
BMF - SAA	142	23	0	154	25	0	1	0	84	21	0	0	0	0	450	0	450
BMF - other	20	6	1	40	2	0	0	0	49	1	0	0	0	0	119	0	119
Hemoglobinopathy	52	2	1	25	4	0	0	2	11	0	0	0	0	0	97	0	97
Primary Immune Deficiency	16	1	0	77	4	0	0	0	54	2	2	0	0	0	156	0	156
Inherited Dis of Metabolism	5	2	0	11	0	0	0	0	14	4	9	0	0	0	45	0	45
Auto Immune Disease	1	0	0	0	0	0	0	0	0	0	0	0	6	0	1	6	7
Other Non Malignant Disease	2	2	0	8	3	0	0	0	7	1	0	0	5	0	23	5	28
Other (incl Histiocytosis)	2	0	0	1	2	0	0	0	7	2	0	1	2	0	14	3	17
Total	**701**	**1092**	**4**	**816**	**1191**	**0**	**3**	**5**	**547**	**523**	**28**	**68**	**7772**	**1**	**4910**	**7841**	**12751**

HEMOTERAPY AND CELLULAR THERAPY

CAR-T CELL DETECTION AND MEASURABLE RESIDUAL DISEASE IN ACUTE LYMPHOBLASTIC LEUKEMIA (ALL). CASE REPORT

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INTRODUCTION

Flow cytometry is a vital tool to assess the profile of CAR-T cells at various stages, from characterization during manufacturing, the infused product in the patient, and the follow-up of Measurable Residual Disease (MRD). Multiparametric flow cytometry (CFM) immunophenotyping has become an important monitoring tool through MRD research in monitoring infused immune cells (CAR) and assessing the immune response post-CAR-T. Chimeric antigen receptor T cells (CAR-T) are a treatment modality for pre-B ALL that have demonstrated high remission rates in refractory disease and relapses after bone marrow transplant. There are challenges regarding developing and validating flow cytometry methods for CAR-T cells. We reported four patients with pre-B ALL treated with CAR-T cell therapy. One patient is being followed up in the outpatient clinic; one died from COVID-19 (Dec/2023), one had a disease relapse two months post-infusion and died from leukemia progression, and another died due to cytokine release syndrome and neurotoxicity (April/2024). This last patient was diagnosed with B-ALL in 2007 and had an excellent first response. Relapse occurred four years after the end of therapy. She underwent a haploidentical transplant in 2017 and went into remission. In 2022, she had an isolated CNS relapse and was treated with IT chemo for a year. She was admitted to the ICU in 2024 due to leukocytosis and a very high risk of tumor lysis. She presented with cardiotoxicity as a result of many years of treatment. On February 2024, cells were collected for cart therapy and her infusion occurred 45 days later. Conditioning was Fludarabine 120mg/m^2 and CY 1000mg/m^2. We validated the CD19CAR Biotin reagent (Miltenyi Biotec). On D+8, 8.6% of B lymphoid blasts (840/uL) were detected in the peripheral blood, and on D+10, 730/uL leukocytes. CAR-T cells were quantified. Cell viability: 95.0%, 31.5% CD19CAR+ and 58.1% T lymphocytes. No blasts on day ten. She received three doses of tocilizumab + Dexamethasone for her neurotoxicity. On D+11 post-CAR-T, the patient died due to cytokine release syndrome complications.

CONCLUSION

Clinical follow-up at diagnosis and during ongoing assessment in the different phases of the treatment are fundamental for a successful outcome. Multiparametric flow cytometry (MFC) is an essential tool in diagnosing ALL and evaluating MRD using standardized techniques and panels. The follow-up of MRD has demonstrated the efficacy of treatment. Studies are needed to evaluate the effects of CAR-T therapy and the possible mechanisms associated with treatment resistance.

EVALUATION OF THE UNCONTROLLED TEMPERATURE DECAY PROCESS FOR CRYOPRESERVATION OF CELL THERAPY PRODUCTS IN FREEZER -80ºC

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INTRODUCTION

The standard method of cryopreservation of cell therapy products used in the laboratory is with controlled temperature decay rate in a Programmable Freezer (Cryomed). However, it is important to validate an alternative freezing method for contingency use. Objective: To evaluate the efficacy of the uncontrolled temperature decay process for cryopreservation of Cell Therapy Products in a -80ºC freezer.

CASE SERIES

10 collections of Hematopoietic Progenitor Cells (HPC) collected by apheresis whose final product units were frozen by both methods. Only collections that met the following criteria were included in the study: Viability of pre-processing CD34+ cells ≥ 90%; and collections that are subdivided into at least two items for cryopreservation.

METHOD

The samples used in this validation were processed according to institutional protocols, as well as the analysis of the quantification of CD34 positive cells pre freezing and after thawing. After processing and addition of the cryoprotectant solution, the samples were divided into the freezing bags. The data logger sensor used to monitor the temperature decay was inserted into the canister of a unit to be frozen, which was placed directly in the -80ºC freezer. The freezer remained closed until the indicated temperature reached -76ºC. The remaining units from the same collection were subjected to controlled freezing in Cryomed. Subsequently, data from the Data Logger was retrieved and graphs with temperature decay curves were printed. On the next business day following freezing, a segment of the item subjected to freezing in the -80ºC freezer and a segment of an item frozen in the cryomed were sent for viability testing by flow cytometry.

RESULTS

The mean viability of CD34+ cells after processing was 99.93%, demonstrating the integrity of these cells before being submitted to the cryopreservation process. The post thawing viability of all samples, both those submitted to routine standard freezing (Cryomed) and those submitted to freezing in the -80ºC freezer, were above the minimum acceptance criteria. The average viability of post-thawing CD34+ cells subjected to standard freezing was 96.87% (93.1-99.5), while for cells placed in the -80ºC freezer it was 98.11% (95.7-100), with no significant difference between the values (p=0.11).

CONCLUSION

Since 100% of the units submitted to the process of uncontrolled temperature decay in the -80ºC freezer presented a viability rate above the acceptance criteria, the procedure was considered effective for cryopreservation of Cell Therapy Products, as an alternative to freezing in a Programmable Freezer (Cryomed), with assurance of the quality and safety of the product for therapeutic use.

KEYWORDS

cryopreservation methods, Hematopoietic Progenitor Cells, transplantation

EXPERIENCE OF A PEDIATRIC SERVICE IN THE STATE OF SÃO PAULO REQUESTING AND RECEIVING UNRELATED HEMATOPOIETIC STEM CELLS

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A major challenge for transplant centers is the graft acquisition when a compatible unrelated donor is chosen for the procedure. In addition to the complex logistics that involve several critical steps and the need of an experienced multidisciplinary team, another important challenge is the variability of hematopoietic stem cell collection methods that may or may not compromise neutrophil engraftment.

The objective of this study is to describe the experience receiving unrelated hematopoietic stem cell (HSC) products in a single pediatric center.

METHODS

This is a retrospective study of all unrelated HSC products received from national and international collection centers. Data were collected through specific forms from the Registry of Voluntary Bone Marrow Donors (REDOME) and data from the Cell Processing Center.

RESULTS

A total of 179 stem cell products have been received to date (December 2009 to April 2024) coming from national (n=144) and international (n=35) institutions, as described in Figure 1, to treat leukemias (n=129) and benign hematological diseases (n=50). Most national collections were performed within our southeast region (65%) and most international collections came from Europe (68%), 18 of them from Germany. Only six grafts could not be infused fresh and were cryopreserved for later use. The bone marrow was the predominant stem cell source (n=163). The unrelated donor activity progressively increased until 2019, the year with 21 transplants, but during the COVID19 pandemic (2020 and 2021) dramatically decreased to 12 and 3 collections (Figure 2). The number of unrelated transplants is increasing again but with a high rate of refusal or significant delays of marrow collections on top of the national shortage of marrow collection bags and therefore, many peripheral blood (PBSC) collections have been accepted, although they are not our first choice. The unrelated donor transplants are 20% of our current transplant activity and 40% of the allogeneic ones. The cell number of 33/163 (20%) marrow collections were lower than the 5x108 leukocytes/kg requested, median 3.9x108/kg (1.2-4.8). Of the 14 PBSC products, the lowest cellularity requested was 5x106CD34/kg and only two collections were lower than that, 2.3 (Brazilian) and 3.7x106 CD34/kg (international). Today, 64% of the patients remain alive. There were no reports of complications during transportation or failures in the process of identification of the recipient and donor numbers.

CONCLUSION

In the past 15 years, with the 179 grafts received for unrelated donor transplants, we can describe a satisfactory graft most of the time, but worrisome significant delays and a shift from marrow to PBSC collections, that are known to have a higher chance of severe chronic graft versus host disease and negatively impact of the children's quality of life.

FIGURE 1: Distribution by collection center region.

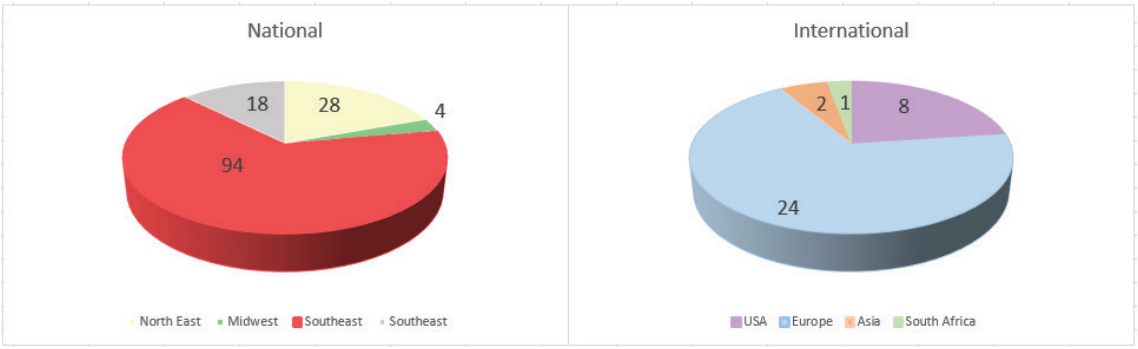

TABLE 2: Number of HSC products received per year.

EXPERIENCE OF IMPLEMENTING THE PROTOCOL FOR VIABILITY ANALYSIS OF HEMATOPOIETIC PROGENITOR CELLS IN A FLOW CYTOMETRY LABORATORY IN A STATE IN THE NORTHEAST REGION.

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INTRODUCTION

Quantifying cell viability is an extremely important procedure in the post-freezing phase of cryopreserved material, as it reflects and guarantees that the collected cells meet the specifications necessary for Hematopoietic Stem Cell Transplantation (HSCT).

AIM

The present study aims to describe the established protocol, in addition to reporting the laboratory experience, highlighting the coping with the difficulties experienced in this first year.

CASUISTIC

From March 2023 to April 2024, 121 cell viabilities of cryopreserved material were analyzed in the flow cytometry sector.

METHOD

As of March 2023, we began routine cell viability analysis using the nucleic acid dye 7-amino-actinomycin (7-AAD), which allows it to be used in conjunction with phycoerythrin (PE) and monoclonal antibodies labeled with isothiocyanate. fluorescein (FITC) in two-color analysis, with minimal fluorescence spectral overlap. We use a viability tube containing two antibodies: CD45 labeled on FITC and CD34 on PE, in addition to the nuclear dye 7-AAD. The material is thawed in a water bath at 37 degrees, and subsequently diluted (1:5) in saline solution. phosphate buffered (PBS). After preparing the 100 microliter solution, the antibodies are labeled according to the titration that was previously standardized. Then, the lysing solution is added and, after 10 minutes of incubation, 150 thousand events are acquired on the BD FACSCantoTM II equipment. The analysis is subsequently carried out using the FACsDivaTMII software.

RESULTS

The median age of patients undergoing bone marrow transplantation was 57 years, with 70 (60.8%) patients diagnosed with multiple myeloma, 19 (16.5%) Hodgkin lymphoma, 8 (6.9%) mantle cell lymphoma, 7 (6.0%) diffuse large B-cell non-Hodgkin lymphoma, 7 (6.0%) acute leukemias, 2 (1.7%) lymphoblastic lymphoma, 2 (1.7%) syndrome from POEMS. Still in relation to cell viability, 115 (95%) were from autologous units and 6 (5%) were allogeneic. The median number of days of cryopreservation was 17 days (maximum 1917 days and minimum 1 day). We set a viability target above 70% for cryopreserved products and observed that the values obtained were adequate, with 82.6% above the value. Some difficulties in relation to sample transport conditions, mainly in relation to the delay between leaving the cell processing center and arriving at the laboratory, may explain the fact that the values are not 100% adequate. During this first year, we needed to adjust the analysis strategy with regard to the gate of viable cells, this was done through discussion of cases with more experienced centers.

CONCLUSION

The results obtained in our laboratory demonstrate excellent quality in processing and cryopreservation, however we need to document and correlate with data regarding the time of neutrophil engraftment so that, in this way, we can further consolidate and support our protocol, thus allowing it to be shared.

KEYWORDS- Viability, HSCT, cryopreserved.

EXPERIENCE OF THE HEMOTHERAPY SERVICE IN IMPLEMENTATION OF CAR-T CELL THERAPY

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CAR-T cell therapy is one of the most innovative and studied therapies in recent times in hematology. In this immunotherapy, T lymphocytes are genetically modified, resulting in the presence of the chimeric antigen receptor (CAR), which recognizes tumor cells and promotes their destruction. The process for CAR-T cell therapy involves collection of lymphocytes by apheresis, genetic manipulation, lymphodepleting chemotherapy and infusion of CAR-T cells and hemotherapy services are essential for the success of this therapeutic. After CAR-T infusion, intensive monitoring is required for the appearance of adverse reactions to the medication. Among these reactions is described Cytokine Release Syndrome (CRS), mainly characterized by fever, arterial hypotension, and hypoxia, and the Neurotoxicity Syndrome Associated with Effector Immunological Cells (ICANS), which mainly occurs in the first 2 weeks after CAR-T cell infusion. At our hospital, the process of collecting and infusing CAR-T cells began in December 2022. Therefore, we will present our experience with the implementation of this therapy. The collection of autologous cells from 7 patients diagnosed with refractory/recurrent diffuse large B-cell non-Hodgkin lymphoma, with an average age of 66 years, occurred from December 2022 to January 2024. Among these, 3 patients received CAR-T cells (Kimriah® Novartis), and 2 were administered CAR-T cells (Yescarta® Kite), none experienced any reactions during the infusion process. Diphenhydramine 50 mg was administered 30- 60 minutes before infusion in all patients. Four patients did not receive CAR-T cells; among them, 1 evolved with disease progression, 2 died (1 before the start and 1 before the end of manufacturing), 1 is still awaiting CAR-T cell manufacturing request. The average CD3+ collected was 9.8x10^9 (4x10^9 to 26x10^9). No adverse reactions were reported during collection. The minimum time between collection and CAR-T cell infusion was 73 days (ranging from 73 to 102 days). This time was influenced, especially by health insurance authorization and the cell manufacturing process. Adverse drug reactions after infusion were recorded in 4 patients. Two patients developed ICANS, with corticosteroid therapy indicated, and 2 patients were diagnosed with CRS, responding well after tocilizumab use. Ten days after cell infusion, 4 patients were discharged from the hospital in good general condition and continue to be monitored, maintaining disease remission 5 months and 2 months after infusion, respectively. 1 patient died 53 days after infusion due to septic shock. CAR-T cell therapy is a complex process that should be implemented in the hospital network through a multidisciplinary team to minimize risks to patients. We can also stress that the release process for therapy takes time, which can lead to disease progression or death before the entire process occurs.

EXPRESSION OF PD-1 IS ASSOCIATED WITH FAVORABLE CLINICAL RESPONSE IN SYSTEMIC SCLEROSIS PATIENTS TREATED WITH AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION

Systemic sclerosis (SS) is an autoimmune disease characterized by inflammation, vascular damage, and progressive fibrosis of the skin and internal organs. The therapeutic effect of AHSCT involves depletion of the autoreactive T and B cells, renewal of the lymphocyte repertoire, and improvement of immunoregulatory mechanisms. During the initial periods after transplantation, the non-depleted autoreactive lymphocytes, either residual or reinfused from the unselected graft, undergo repeated cell divisions to reconstitute a new immune system. The expression of Programmed cell Death protein 1 (PD-1), an inhibitory immune checkpoint receptor that has a protective role, controls the oligoclonal expansion of residual cells after AHSCT.

OBJECTIVE

To assess PD-1+ T cell frequencies before and after AHSCT in patients with SSc and their correlation with clinical outcomes.

METHODS

Peripheral blood mononuclear cell (PBMC) samples from 40 SSc patients were evaluated by flow cytometry to identify CD3+, CD4+, PD-1+ T cell populations. The results were retrospectively correlated with clinical data up to 24 months after AHSCT.

RESULTS

Most participants were female (85%) with a median age (range) of 34.4 (16-59) years. The clinical evaluation of fibrosis, measured by the modified Rodnan skin score (mRSS), was improved at 6 months when compared to baseline (pre-transplantation) ($p<0.01$). Baseline clinical characteristic are shown in Table 1. When analyzed in all patients, PD1+ CD4+ cell frequency was higher at 3 months post-AHSCT when compared with baseline values ($p<0.001$), and subsequently decreased at 12 and 18 months post-AHSCT. When analyzed according to clinical response, patients that sustained disease control had higher PD-1 expression in CD4+ T cells at 3 months compared to baseline ($p<0.001$), that also subsequently decreased ($p<0.05$) in later time points. Conversely, patients that reactivated the disease after AHSCT had also higher PD-1 expression in CD4+ T cells at 3 months compared to baseline ($p<0.05$), whereas no significant changes were observed in the following time periods post-transplantation.

CONCLUSIONS

PD-1 expression increased in the first 3 months after transplantation, as a mechanism to control the early homeostatic proliferation of reminiscent autoreactive lymphocytes. In patients who remained in clinical remission after AHSCT, the decline in PD-1 expression suggests that immune cell populations returned to a homeostatic balance. On the other hand,

in patients who reactivated the disease, sustained PD-1 expression in longer periods after transplantation indicates that CD4+ cells maintained an exhausted phenotype.

KEY WORDS - Systemic sclerosis, Autologous Hematopoietic Stem Cell Transplantation, Homeostatic proliferation, Inhibitory Immune Checkpoint.

FINANCIAL SUPPORT

FAPESP, CAPES, CNPQ, FUNDAÇÃO HEMOCENTRO-RP, HCFMRP-USP.

Figure 1: CD4+ PD1+ cell frequencies in all evaluated SSc patients after AHSCT

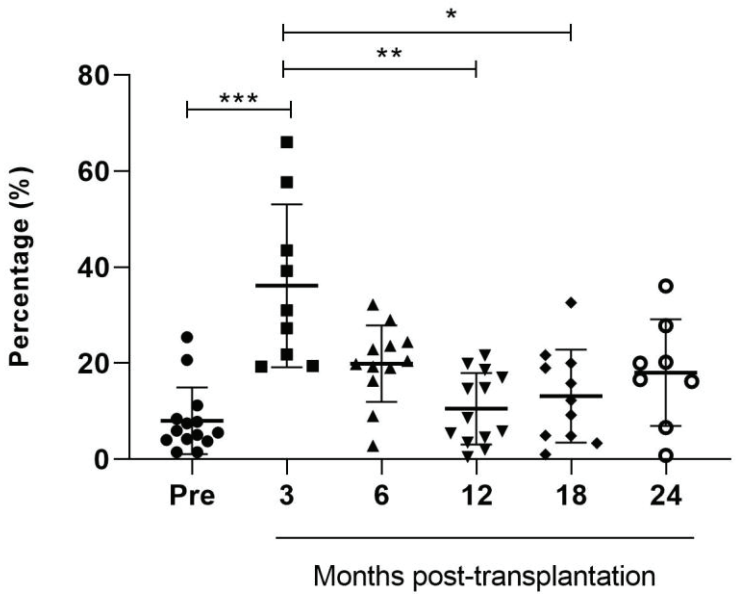

Figure 2: CD4+ PD1+ cell frequencies in SSc patients with sustained remission after AHSCT

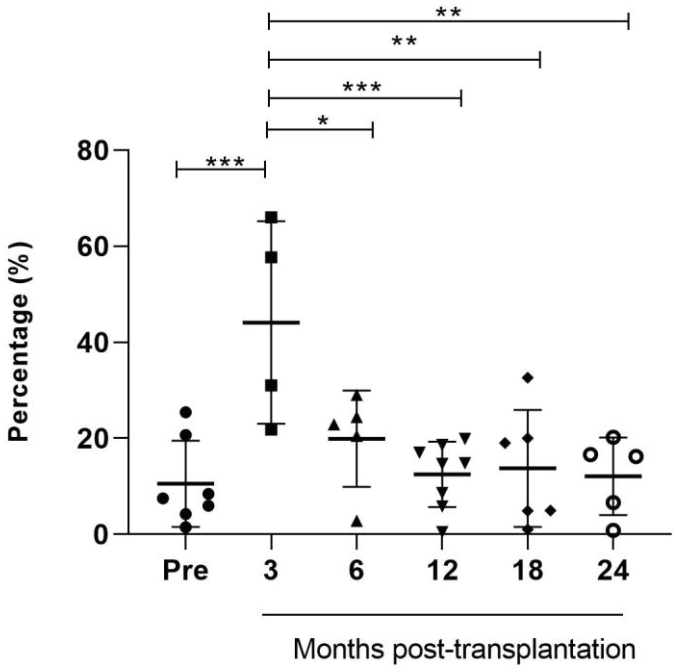

Figure 3: CD4+ PD1+ cell frequencies in SSc patients who reactivated the disease after AHSCT

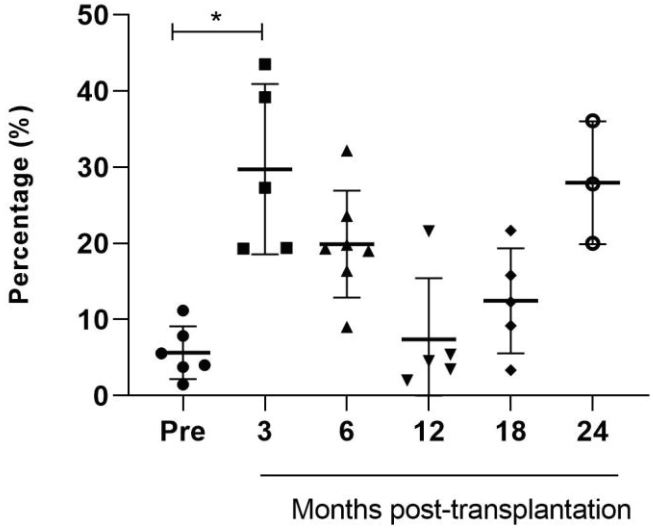

Table 1: Patient baseline characteristics and transplant details

Total number of patients	40
Median (range) age (years)	34.4 (16-59)
Gender (%)	34 (85%) female
Disease subtype	40 (100%) diffuse
Median (range) disease duration (years)	3.1 (1-14) years
Organ involvement:	
skin, n (%)	40 (100%)
Gastrointestinal, n (%)	40 (100%)
Lungs, n (%)	34 (85%)
Positive anti-SCl70 antibodies, n (%)	33 (82.5%)
Previous immunosuppressive treatment:	
Methotrexate, n (%)	14/40 (35%)
Cyclophosphamide, n (%)	13/40 (32.5%)
Prednisone, n (%)	16/40 (40%)
Rituximab, n (%)	1/40 (2.5%)
Azathioprine, n (%)	4/40 (10%)
Transplant regimen:	
Cyclophosphamide + ATG, n (%)	38 (95%)
Fludarabine + Melphalan + ATG, n (%)	2 (5%)
Clinical response	
Sustained remission	17/40
Reactivation	23/40

FIRST CLINICAL AUTOMATED MANUFACTURE OF AUTOLOGOUS CD19 CAR-T CELLS FOR TREATMENT OF B NEOPLASIA

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INTRODUCTION

Chimeric antigen receptor (CAR) T cells targeting the CD19 antigen effectively treat adults and children with B-cell malignancies. Centralized manufacturing may improve performance and accessibility for the rapid expansion of this cellular therapy.

AIMS AND METHODS

Here we show the first clinical manufacturing of an anti-CD19 CAR manufactured on the automated CliniMACS Prodigy under current good manufacturing practices.

PATIENT

Female, 61 yo, was diagnosed with DBLCL ABC, with abdominal bulk mass in October 2017. She achieved complete remission (CR) after 6x R-CHOP. In September 2020, patient relapsed and was treated with 3x R-ICE presenting partial response. In May 2021 she was submitted to an autologous stem cell transplantation and responded with CR. In December 2022, the patient was submitted to PET-CT and lymph node conglomerate in the mesenteric chain and in the ileum in the pelvic cavity was detected. Biopsy revealed DLBCL. In February 2023, she was forwarded to our service for CAR-T treatment.

Results: PBMC from apheresis pawn product was processed without cryopreservation. The T cell composition at D0 was 17.24% CD4 T cells and 28.8% CD8 T cells, and viability was 98.7%. The sample was loaded onto the CliniMACS Prodigy. After column purification, CD4 and CD8 T cells were enriched to 33.2% and 51.4%, respectively. On day one, cells were transduced, and the MOI was approximately 20. Surprisingly, the cell viability dropped to 64,6% on day 5 and dropped further and reached 47.9% on day 7. On day 8 AB serum 3% was added to the culture. After protocol modification on day 8, 70% of cell viability was achieved at day 10. On day 14 cells achieved 91.1% of viability and T cell composition was 73.15% CD4 and 17.29% CD8. On day 15 the transduction efficiency of CD3+ cells were 54.29%, with 76.5% CD4 CAR-T and 17.83% CD8 CAR-T. Non-T cells fraction after CD4/CD8 enrichment was below 4.31% and dropped below 1.94% in the final product, with most NKT cells (2.79%) and some NK cells (0.03%). The cells were harvested on day 15, and the final product was submitted to quality control analysis. On March 11th, 2023, patient received CART infusion without complications. On day 1 she showed cytokine release syndrome level 1 presenting fever and chills, without any instability or hypoxemia. The patient was conscious during all time. During the follow-up, 2 episodes of colitis were observed as severe adverse events. At day 90+ post infusion patient experienced CR. CAR T cell persistence was evaluated by flow cytometry in the peripheral blood up to one year after infusion, and the reached the peak at day 14+.

CONCLUSION

Therefore, the data show results from the first patient included in this Clinical Trial and present the challenges for making assertive decisions to manufacture an advanced cellular therapy product. The product reached all quality control criteria to be infused in the patient. This first patient is one year disease free survival.

KEYWORDS - CAR-T cell; CAR-T CD19; Prodigy

GENE THERAPY IN THE HEMATOLOGICAL TREATMENT OF SICKLE CELL ANEMIA: A LITERATURE REVIEW

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INTRODUCTION

Sickle cell anemia is a hereditary disease characterized by a mutation in the beta-globin gene, evidenced by the substitution of glutamic acid with valine. This conversion results in the formation of hemoglobin S, which undergoes sickling and acquires a sickle shape. The consequence of this process is the formation of hemoglobin with reduced oxygen-carrying capacity and a shorter lifespan, leading to numerous alterations in the body, including intense joint pain crises, increased infection rates, and asthenia. Advances in gene therapy foster the scenario of yet another curative option through autologous hematopoietic stem cell transplantation, a measure aimed at facilitating access to treatment for affected patients.

OBJECTIVE

To conduct a literature review on gene therapy in the treatment of sickle cell anemia. Methods: This is a qualitative and descriptive literature review, selecting studies from the SCIELO, PUBMED, and LILACS databases. The search resulted in the reading of 11 articles that met the study's objective. Information was selected between September 4 and 16, 2023, covering the years from 2015 to 2023.

RESULTS

This study highlights the severity of sickle cell disease, its symptoms, and the limitations of existing treatments. Although conventional therapy includes blood transfusion and the use of hydroxyurea as the only drug, acute complications are not entirely eliminated, and conditions can worsen due to alloimmunization resulting from multiple transfusions. For this reason, allogeneic transplantation becomes the only curative therapy, as it replaces the dysfunctional bone marrow of a sickle cell individual with ineffective hematopoiesis. However, few patients are eligible, and the availability of compatible donors is low, making continuous investigation of new curative options indispensable to provide more effective and less invasive treatment options. Conclusion: It is understood that sickle cell anemia is a hereditary condition with palliative therapies that have progressively toxic effects and largely non-curative outcomes. Therefore, it is important to highlight that gene therapy indicates new treatment perspectives, particularly concerning autologous hematopoietic stem cell transplantation, which is a curative, safe method with fewer clinical repercussions.

KEYWORDS - Sickle cell anemia, Gene therapy, Treatment.

HEMATOPOETIC STEM CELL HARVEST BY EFFICIENCY-GUIDED LEUKAPHERESIS AND ITS IMPACT ON PROCESSED BLOOD VOLUME AND ACD-A TO DONORS: A SINGLE-CENTER EXPERIENCE

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INTRODUCTION

Although processing a fixed number of donor total blood volumes (TBVs) is still a practice in resource-constrained settings, where peripheral CD34 count is not readily available, many centers are tailoring leukapheresis by their own eficiency data from previous procedures, rather than by manufacturer's standard efficiency rate.

AIM

We herein report our experience transitioning from processing a fixed number of TBVs to guiding processed volume (PV) by our efficiency data. Cohort: We retrospectively collected data from 734 leukaphereses performed between 2019 and 2023. Until 2020, 216 procedures were carried out using Spectra Optia (group 1) and 56 using COBE Spectra (group 2) both processing 6 TBVs. As of 2021, all 462 procedures were performed using Spectra Optia and PV was guided by mean efficiency rate from previous leukaphereses.

METHOD

Mean efficiency rates for autologous and allogeneic harvest were calculated separately. Statistical analysis was carried out with SPSS 20.0. At the physician's discretion, it was possible to process more TBVs than calculated by mean efficiency in order to avoid the need for a second or third leukapheresis.

RESULTS

In comparison to groups 1 and 2, group 3 showed inferior median processed blood volume (20.23 IQR=9.5L group 3 vs 23.07 IQR=8.12L, p<0.001 group 1; vs 25.49 IQR=7.02L; p<0.001 group 2), fewer processed TBVs (5 IQR=2 group 3 vs 6 IQR=1, p<0.001 group 1; vs 6 IQR=1, p<0.001 group 2) and less ACD-A to donor (1.64 IQR=0.77L group 3 vs 1.75 IQR=0.62L, p=0.007 group 1; vs 1.86 IQR=0.49L, p=0.006 group 2). Second or third leukaphereses to meet target CD34 represented 15.1% of procedures and were significantly rarer in group 3 than in group 1 (12.3% vs 21.8%, p=0.002) and in allogeneic than in autologous donors (3.6% vs 19.3%, p<0.001). As of 2021, allogeneic donors presented less processed volume (18.51 IQR=9.95L vs 20.87 IQR=9.32L, p=0.049), fewer processed TBVs (4 IQR=3 vs 5 IQR=2, p<0.001) and a tendency to receive less ACD-A (1.52 IQR=0.82L vs 1.70 IQR=0.76L, p=0.057) than autologous donors.

CONCLUSION

In our center, tailoring leukapheresis by mean effiency rate resulted in less processed blood volume and ACD-A to donors. This benefit seems to be greater to allogeneic donors.

HEMATOPOIETIC STEM CELLS COMPARTMENT IN UMBILICAL CORD BLOOD OF NEONATES WITH CONGENITAL HEART DISEASES

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INTRODUCTION

Umbilical cord blood (UCB) is a valuable source of hematopoietic stem cells (HSC), which are used in the treatment of patients with hematological disorders such as leukemia, lymphoma, and myeloma, as well as other types of diseases. Congenital heart diseases (CHD) include a group of structural and functional abnormalities in the heart and its major blood vessels, present at birth or before birth. It's one of the most common birth defects with a prevalence of 4-50/1000 live births. No studies were found in the literature on the composition of the hematopoietic stem cell compartment in the umbilical cord blood of neonates with CHD.

OBJECTIVE

The present study aimed to determine the obstetric and neonatal characteristics and the frequency of HSC in the umbilical cord blood UCB of neonates with CHD.

MATERIALS AND METHODS

UCB was collected from 26 neonates diagnosed with congenital heart diseases, by 2D ecocardhiography with Doppler and color flow mapping.The UCB was collected in utero, by the obstetrician, during delivery by cesarean. Cases with chromosomal abnormalities were excluded from the study. Inclusion criteria: pregnant over 18 years of age; minimum gestational age of 35 weeks; at least two prenatal consultations; absence of fever, diabetes or preeclampsia; absence of infectious processes; and non-reactive serological tests. The samples were evaluated for frequency of HSC by hematology analysers and flow cytometry. The study was approved by the Research Ethics Committees and all selected pregnant women agreed to participate in the study and signed the informed consent form.

RESULTS

Obstetric and neonatal caracteristics: maternal age (y) 32,69 ± 5,92; gestational age (wk) 37,60 ± 0,68; birth weight (g) 3043 ± 364,87; 5-min Apgar 9 and female gender 14 (53,8%). Frequency of HSC: volume of UCB (mL) collected 81,80 (73,30-99,70); total number of nucleated cells 8.00 x 108 (6.50-10.40); cell viability with 7 AAD 91,50% (88.90- 94.30); viable CD34+/CD45+ 0.35% (0.27-0.47); the results are presented as median and interquartile range.

CONCLUSION

Our results showed that the volume and hematopoietic stem cells in the UCB of neonates with congenital heart disease have normal values and frequency, showing that these children have a compartment of normal stem cells which represents a benefit for the health of the organism in general.

KEY WORDS

Hematopoieti stem cells; Umbilical cord blood; Congenital heart diseases.

FINANCIAL SOURCES

CAPES, FIPE-HCPA.

PROGRAMMED FREEZER VALIDATION: CELL THERAPY PRODUCTS FOR PHARMACEUTICAL INDUSTRY

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This work describes the validation of the programmed freezer (PF) for freezing lymphocytes obtained by apheresis for further manufacturing of advanced cell therapy products by Novartis. We used buffy-coat (BF) samples, obtained from the LRS Chambers from platelet apheresis collection mimicking a HPC product, that was dispensed, in a biological safety cabinet, into a dry tube selecting the number of chambers that would be part of the same BF bag, then transferred to a 300ml transfer bag. Was transferred 1ml to an EDTA tube for leukocyte count and pre-freezing viability. Were produced 5 bags with BF: 17mL,19mL, 20mL, 26mL, 46mL, the cryoprotective solution (CS) was Dimethyl sulfoxide 5%; Protein: Human serum albumin 2.5%; Electrolyte solution: Plasma-Lyte A. After preparation, the CS was refrigerated in a chamber for cooling at 2-8°C and slowly injected into the bag containing BF, while gently mixing. From this stage ahead, a gel pack (pre-cooled) was used to keep the bags containing the CS and the product refrigerated. Also, 5ml of samples were left for filling the cryogenic tubes. After, transfer of the contents from the transfer bag to a cryopreservation bag, the air was removed, sealed and identification of the bag, cryogenic tubes and plate was performed using labels. In the programed freezer, the bag was placed in a canister for freezing on a specific rack. The 5 cryogenic tubes were frozen in the same run in a separate tube rack. The sensor for the bag was positioned next to it, securing it with micropore tape. The PF was configured, and the run was started. At the end of the freezing, the canister was transferred to the MVE tank, placed in a specific rack. The cryogenic tubes were stored in a metal box and placed in another specific rack in the MVE tank as well. The canister and tubes were left in the MVE tank (vapor phase) for a specific period and removed to perform viability testing on the bag and cryogenic tubes. The acceptance criteria included visual inspection: no damage to the bag and labels, no deterioration, breakage, or plastic deformity during the cryopreservation process. Cell viability is described in Table 01. Freezing curve carried out according to the freezing program approved by Novartis, the average time of the 03 curves performed was 75.6 minutes (approximately 1 hour and 15 minutes).

The freezing curve performed is in accordance with the specifications requested by the pharmaceutical Novartis for the cryopreservation of lymphocytes for subsequent manufacturing of advanced cell therapy products, causing no harm to the cryopreserved product.

TABLE 01: Cell Viability

Viability before freezing			Viability after freezing	
BC Identification	Viable cells %	pre-Leucocytes/ mL	Cryopreserved Bag Viability %	Tube cellular viability %
1	100,0	1,18E+08	97,41	97,41
2	99,6	1,28E+08	99,62	99,56
3	99,3	1,48E+08	99,70	99,64
4	99,0	1,32E+08	99,56	99,01
5	100,0	1,39E+08	100,00	99,44

PROLONGED CENTRAL NERVOUS SYSTEM REMISSION IN A CHILD AFTER CHIMERIC ANTIGEN RECEPTOR (CAR) T-CELL THERAPY FOR POST-HEMATOPOIETIC STEM CELL TRANSPLANTATION RELAPSE OF ACUTE LYMPHOBLASTIC LEUKEMIA

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INTRODUCTION

Acute lymphoblastic leukemia (ALL) relapse after BMT has a poor prognosis and the treatment is challenging, especially with CNS involvement. CAR-T cell therapy is a promising alternative option for these patients, especially in refractory diseases.

OBJECITVE

Demonstrate response to CAR-T therapy in advanced CNS-positive ALL.

METHODOLOGY- Case report.

RESULTS

Patient diagnosed at 3 years old with Ph+ALL, CNS negative. Treated with chemotherapy and imatinib. During the maintenance phase, CNS relapse and positive BM MRD were detected. Rescue with relapse protocol and changed TKI to dasatinib. He underwent haploidentical BMT with PT-Cy in July 2020, conditioned with fludarabine and TBI with CNS boost and received maintenance with dasatinib. He then developed steroid-sensitive GII acute GVHD. Eight months after BMT, he presented an isolated CNS relapse. Later, he had testicular relapse, BM MRD positive and multiple CNS recurrences, culminating in refractory CNS disease. Three years after BMT, after lymphodepletion with cyclophosphamide and fludarabine, he received anti-CD19 CAR-T cell therapy with 4-1BB costimulatory domain (2.8x106 cell/kg). Pre-infusion assessment: 100% donor chimerism, MRD of 0.017% CD19+ blasts in BM and 2 cells/µL with 22% blasts in CSF (flow cytometry). He had manageable CRS grade 2 and ICANS grade 3. Assessment at 1, 2 and 3 months after infusion: BCR-ABL1 in BM and MRD (BM and CSF) by flow cytometry all negative. The presence of CAR-T cells was quantified in peripheral blood: at 1 mo, 12 cells/µL (0.76% of CD3+ T cells); at 3 mo, 2.3 cells/µL (0.17% of CD3+ T cells); at 5 mo, 3.6 cells/µL (0.24% of CD3+ T cells). Aplasia B in all assessments. At 5 months, MRD was positive only in BM: 0.21% of CD19- blasts, RT-PCR

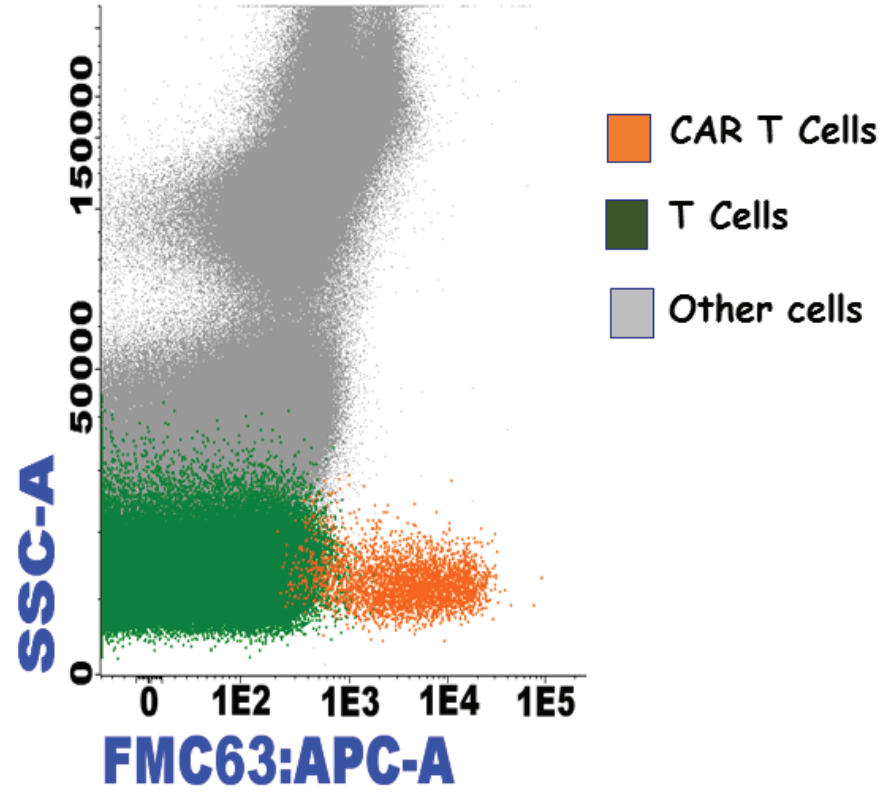
positive for BCR-ABL1. At 7 months, progression to 20% CD19- blasts in BM, but CNS remained negative. He is currently undergoing chemotherapy, with a second BMT planned, with no detectable disease in the CNS.

CONCLUSIONS

The best approach to ALL relapse post-BMT remains under debate. In particular, R/R CNS disease presents few therapeutic options. CAR-T cell therapy is known to be effective in patients with resistant disease and with strong evidence of action in the CNS, including reports of protection from later relapses in this site. In the reported case, from the first relapse after BMT until the infusion of CAR-T cells (3-year interval), the patient did not sustain undetectable CNS disease, despite targeted treatment. Progressively, he required intervals of less than two weeks between intrathecal chemo. After CAR-T cell therapy, carried out 9 months ago, the patient remains CNS negative, even after BM relapse. Even more surprising considering the escape via CD19- clone. CNS disease control made it possible to propose a curative approach with a second BMT, completely modifying the patient's course of treatment.

KEYWORDS - CAR-T therapy; Acute lymphoblastic leukemia; central nervous system relapse.

Figure 1: Immunophenotypic identification of CAR T cells on peripheral blood at D+30. CAR T cells (orange dots), T cells (green dots) and other cells (gray dots)



SKIN MANIFESTATIONS RELATED TO CAR-T CELL INFUSION: A CASE REPORT

Wysterlânyo Kayo Pereira Barros[1], André Costa Meireles[1], Paloma Martinho Resende[1], Carlos Wilson de Alencar Cano[1], Felipe Galvão Batista Chaves[1], Bárbara Ferreira Cordeiro Galvão[1], Luiz Frederico Bezerra Honorato[1], Rodrigo Seiti Kojima[1], Patrícia Karla de Souza[1], Renata Leati Stanzione[1], Leonardo Javier Arcuri[1], Andreza Alice Feitosa Ribeiro[1], Mariana Nassif Kerbauy[1], Lucila Nassif Kerbauy[1], Nelson Hamerschlak[1]

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INTRODUCTION

The use of Chimeric Antigen Receptor (CAR) T-cell therapy is expanding in Hematology and other specialties, presenting well-established adverse reactions such as Cytokine Release Syndrome (CRS) and Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS). Among the less common toxicities are cutaneous manifestations, the focus of this case report.

CASE REPORT

A 57-year-old woman diagnosed with Diffuse Large B-cell Lymphoma (DLBCL), germinal-center type B-cell (GCB), stage IIIA in 2020, initially treated with 6 cycles of R-CHOP, experiencing relapse 4 months after treatment completion. She achieved complete response (CR) after salvage therapy with 4 cycles of R-ICE and underwent autologous hematopoietic stem cell transplant (HSCT) in October 2021. In June 2022, she experienced a new relapse and underwent 6 cycles of R-GemOx with CR and peripheral blood mononuclear cell collection for CAR-T cell production. The patient was admitted on 02/22/23 for Kymriah (tisagenlecleucel) infusion. Lymphodepletion was performed with cyclophosphamide 250 mg/m^2 and fludarabine 25 mg/m^2 (D-5 to D-3) with infusion of 4,1x108 viable CAR-T cells/kg. Approximately 30 minutes after infusion completion, the patient developed fever and hypotension (BP 60 x 40 mmHg) interpreted as CRS, treated with tocilizumab 8 mg/kg and transferred to the ICU. Broad-spectrum antimicrobial coverage was initiated, and blood cultures were negative. On D+1, the patient developed a rubelliform rash on the face, trunk, and extremities, which later became follicular purpuric. A biopsy was performed, revealing mixed interstitial and perivascular dermatitis with mild epidermal spongiosis, not attributed to medication use. Subsequently, the patient was treated with antihistamines and topical corticosteroids, with progressive improvement of lesions and resolution by D+10. The patient also experienced other toxicities post-infusion: fever > 38°C and hypoxemia on D+3 and D+4 (CRS grade 2), treated with two additional doses of tocilizumab, and on the night of D+4, she had drowsiness (ICANS grade 1), with normal MRI and EEG.

DISCUSSION

The incidence of cutaneous eruptions after CAR-T anti-CD19, including tisagenlecleucel, is 9–22%, presenting as papules, maculopapular rash, urticarial, vesicular, purpuric, dry skin, or oral mucositis, with latency periods ranging from 1 day to 19 months post-infusion.

CONCLUSION

Cutaneous toxicity related to CAR-T cell therapy is an important and highly variable adverse reaction, which should be increasingly recognized in clinical practice and warrants further study in the literature.

KEYWORDS

CAR-T cell, Cutaneous manifestations, Adverse reactions.

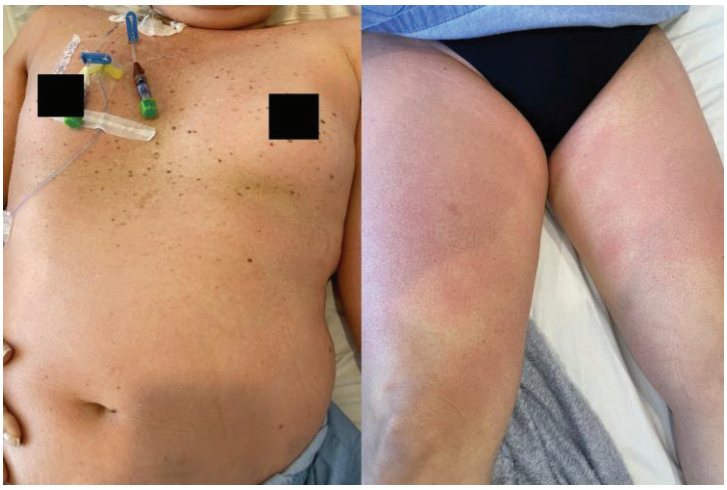

FIGURE 1: Rubelliform rash on the trunk and lower limbs on D+1

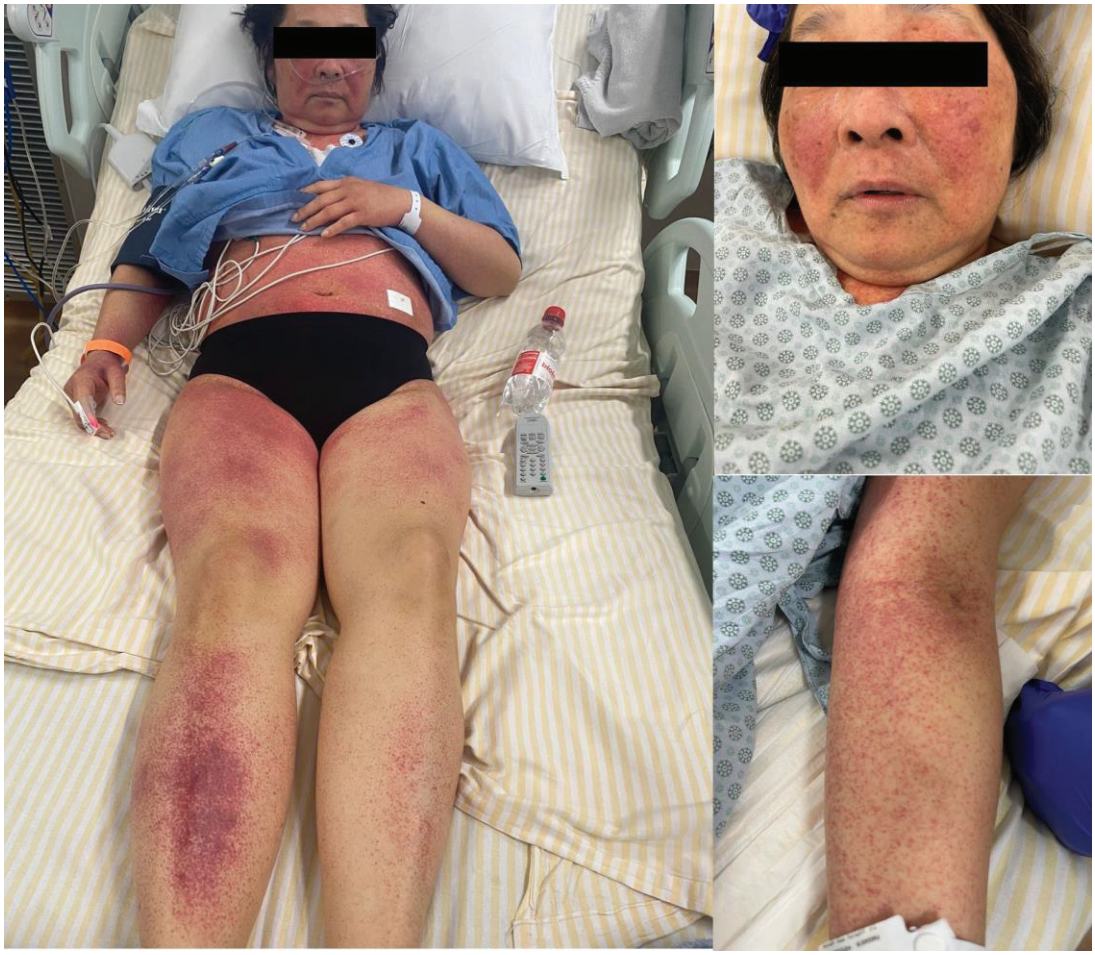

FIGURE 2: Purpuric rash with follicular accentuation on D+5

REFERENCES

1. NUSBAUM, K. B. et al. Cutaneous manifestations of chimeric antigen receptor T-cell therapy: An introduction for dermatologists. Journal of The American Academy of Dermatology, v. 87, n. 3, p. 597–604, 1 set. 2022.

2. LI, Y. et al. The pathogenesis, diagnosis, prevention, and treatment of CAR-T cell therapy-related adverse reactions. Frontiers in Pharmacology, v. 13, p. 950923, 14 out. 2022.

STRATEGIES FOR EARLY IDENTIFICATION AND EFFECTIVE MANAGEMENT OF CYTOKINE RELEASE SYNDROME IN PATIENTS WITH LLA UNDERGOING CAR-T CELL THERAPY: AIMING FOR BETTER PROGNOSIS

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INTRODUCTION

Acute Lymphoblastic Leukemia (ALL) is a type of hematological cancer frequently diagnosed in children between the ages of 2 and 5. It is characterized by the rapid growth of malignant lymphoid precursor cells, the blasts, in the bone marrow and bloodstream; and has high mortality rates. Chimeric antigen receptor T-cell therapy (CAR-T cell) has emerged as an approach to treating patients with refractory or relapsed ALL, offering hope to those who do not respond to conventional treatments. Despite being a revolution in the treatment of hematological cancers, the use of CAR-T is associated with cytokine release syndrome (CRS). SLC is triggered by an exaggerated immune response, resulting in the excessive release of pro-inflammatory mediators that trigger a series of serious and potentially fatal pathophysiological effects.

OBJECTIVE

To highlight the importance of early diagnosis and appropriate treatment of CLS in patients undergoing CAR-T cell therapy for ALL, with a view to improving prognosis.

METHODOLOGY

The narrative review includes articles from 2016 to 2023, freely available in English and Portuguese in the PubMed and Virtual Health Library databases; using the descriptors: "CAR-T cell", "LLA", "SLC" and "Signs and Symptoms", combined with the boolean "AND". Thirteen studies were chosen after excluding duplicates and incompatible studies.

RESULTS

SLC affects 70-90% of patients treated with CAR-T therapy, presenting significant clinical manifestations such as fever, chills, headache, fatigue, myalgia and stiffness. Additional symptoms include dyspnea and hypotension, the latter of which can lead to syncope and, in severe cases, shock. Vomiting, diarrhea, abdominal pain and skin manifestations such as rash, itching and erythema are also common. Although rare, delirium and convulsions are potentially serious symptoms. Pro-inflammatory cytokines such as IL-10, TNF-alpha and IL-6 play central roles in the pathophysiology of the syndrome. Laboratory findings can reveal abnormalities such as thrombocytopenia, leukopenia and increased liver enzymes. Treatment of CLS involves supportive measures in severe cases, immunosuppressive therapies such as corticosteroids and Tocilizumab (anti-IL-6 monoclonal antibody). Some elevated biomarkers manifest themselves as pre-infusion risk factors for the development of the syndrome, including bone marrow blasts, C-reactive protein, ferritin, IFN-γ, IL-2 and IL-10. Close medical monitoring is crucial to ensure early diagnosis and appropriate intervention when necessary.

CONCLUSION

This syndrome triggers complex inflammatory responses that can have serious and potentially fatal consequences. Therefore, deepening knowledge in this area is crucial to increase the safety of CAR-T cell therapy, thus improving the prognosis and overall quality of life of patients affected by ALL.

KEYWORDS - CAR-T Cell, Cytokine Release Syndrome and Signs and Symptoms.

TISAGENLECLEUCEL IN DIFFUSE LARGE B-CELL LYMPHOMA RELAPSED IN THE CENTRAL NERVOUS SYSTEM: CASE REPORT

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INTRODUCTION

The risk of CNS involvement in patients with DLBCL is approximately 5%. However, certain clinical and biological features have been associated with a risk of up to 15%. Secondary CNS lymphoma (SCNSL) often occurs within months of the initial diagnosis of lymphoma, suggesting the presence of occult disease at diagnosis in many cases. Outcomes are generally poor with a median overall survival of approximately 6 months in retrospective series, particularly in those patients presenting with SCNSL after prior therapy. A proportion of patients will not respond to induction therapies or will subsequently relapse, indicating the need for more effective treatment strategies. Autologous haematopoietic stem-cell transplantation (HSCT) is an option in those who achieve remission but its use is very limited in older and comorbid patients.

OBJECTIVE

To describe the case of a patient with primary DLBCL, relapsed in the CNS, successfully treated with a chimeric antigen receptor (CAR) T-cell therapy, tisagenlecleucel.

CASE DESCRIPTION

Male patient, 75 years old, diagnosed with primary DLBCL with testicle involvement in October/2020. He underwent treatment with 6 cycles of R-CHOP, followed by CNS prophylaxis with 4 applications of MADIT. In May/2022, he presented symptoms of dizziness and diplopia, and was diagnosed with relapse in the CNS. The MRI demonstrated expansive lesions in the right frontal region and in the cerebellum, in addition to signs of supratentorial hypertensive hydrocephalus and herniation of the cerebellar and transtentorial tonsils. He received 3 cycles of high-dose MTX, rituximab and temozolomide, with partial response. He underwent a 3rd line of therapy with 2 cycles of high-dose cytarabine, rituximab and temozolomide. In October/2022, he presented a new symptomatic progression of the disease. He underwent a 4th line of therapy with high-dose MTX, rituximab and temozolomide, with no response. The patient was then referred to our center. The 5th line of therapy consisted of 4 cycles of R-MPV plus ibrutinib, with partial response. The MRI and PET-CT demonstrated a significant reduction in glycolytic metabolism in the heterogeneous expansive lesion in the posterior fossa. T-cells were collected and while manufacturing the patient received one additional cycle of R-MPV plus ibrutinib. Tisagenlecleucel – tisa-cel (4x109 CD3/kg) was then infused in February/2023. He presented grade 1 CRS and grade 2 ICANS, successfully managed during hospitalization. MRI and PET-CT performed 30 days, 60 days, 6 months and 12 months after CAR T-cell confirmed the sustained complete remission. The patient remains in remission, with no signs of disease progression 15 months after the infusion of tisa-cel.

CONCLUSION

In the context of relapsed DLBGL in the CNS, tisa-cel is an emerging therapy that has shown high efficacy in treating this highly aggressive disease, and may be considered a safer and possibly more efficient option than autologous HSCT.

UNCOMMON PRESENTATION OF LARYNX CRS FOLLOWING CAR-T CELL THERAPY IN A PATIENT WITH DIFFUSE LARGE B CELL LYMPHOMA: A CASE REPORT

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INTRODUCTION

Chimeric Antigen Receptor T-cell (CAR-T) therapy offers new promise for patients with refractory or relapsed Diffuse Large B Cell Lymphoma (DLBCL). However, as a novel therapeutic modality, it brings forth a spectrum of unique adverse events, being Cytokine Release Syndrome (CRS) a well-recognized complication.

CASE REPORT

A 61-year-old female, diagnosed with Diffuse Large B Cell Lymphoma, stage IVA, IPI 4, relapsed after six cycles of R-CHOP and autologous hematopoietic stem cell transplant (HSCT) preceded by six cycles of R-ICE/MATRix and refractory to salvage therapy with R-GemOx, was referred for CAR-T cell therapy. She received lymphodepletion chemotherapy (Flu-Cy) followed by tisagenlecleucel (Kymriah) infusion on November 27, 2023. One day after infusion, she developed fever (37.9°C) and localized erythema and pruritus around the right cervical area, without lymphadenopathy. Cultures were ordered, along with antibiotics prescription. Despite initial treatment, fever recurred within 12 hours, prompting Tocilizumab administration on day +2. Subsequently, she reported mild dysphagia and dysphonia, with persisting neck erythema. CT imaging revealed edema of the epiglottis and soft tissues in the hypopharynx, leading to escalated treatment with wide-spectrum antibiotics and Dexamethasone on day +3. Bronchoscopy revealed mild mucosal edema throughout the oro and hypopharynx and Epinephrine was administered. Consideration was given to administering a new dose of Tocilizumab, but it was not carried out due to concerns that the clinical presentation may have been due to an allergic reaction to the initial dose. On day +4, she presented with regression of cervical erythema and significant clinical improvement, with no fever spikes. She continued clinical improvement with decreasing inflammatory markers, resolving dysphonia and dysphagia. Dexamethasone was tapered off on day 9 and by day 14, the patient was discharged without recurrence of symptoms.

DISCUSSION

The incidence of CRS after CAR-T therapy is well-documented, but the recognition and management of atypical manifestations, such as laryngeal involvement, remain a clinical challenge.

CONCLUSION

CAR-T cell therapy may precipitate a wide spectrum of CRS presentations, with challenging implications in terms of diagnosis and management. Recognition of atypical CRS manifestations is paramount for timely intervention, mitigating potential life-threatening complications.

UNRELATED PEDIATRIC UMBILICAL CORD BLOOD TRANSPLANTATION

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Unrelated umbilical and placental cord blood (UCB) is an effective source of hematopoietic stem cells, replacing bone marrow or peripheral blood stem cells when there is no related donor or matched unrelated adult available. To improve engraftment of these units with very low cellularity, the New York Cord Blood Bank (NYBC) has developed a method of thawing with slow dilution and washing of the cells based on in vitro data (Rubinstein, 1995), to reduce the osmotic damage caused by the density gradient at the time of infusion if cells are infused with no manipulation.

The objective of this study is to report a two decade the experience using UCB as a source for hematopoietic reconstruction.

METHODS

Data was collected from the Cell Processing forms. The UCB units were received from national and international cord blood banks. The dimethylsulfoxide (DMSO) removal was performed according to Rubinstein's protocol: after almost complete thawing in a water bath at 37ºC, a cold (4oC) 5% dextran-albumin solution was slowly added to the bag in a 1:1 ratio on an icy surface, with continuous manual homogenization. An aliquot was removed for quality control and the cells were transferred to another bag and centrifuged at 400g 4°C for 20 min. The supernatant was transferred to a new bag and the buffy coat was resuspended in the same dextran-albumin solution and sent for infusion with a simple tubing. The supernatant was recentrifuged and infused until <107 cells/kg remained.

RESULTS

Between Jun,2000 to Sept,2020 we received 47 UCB units, 34 of them from international banks (17 from the NYBC) and the others from two national banks. We performed 40 transplants in 37 patients with benign and malignant hematological diseases. Seven patients received a double UCB graft. The median age was 6 years (range: 1-18), weight 18 kg (7–68), and 25 patients were male. The median cellularity infused was after thawing and washing was 4.6x107/kg (1.7-17.2). The median time of engraftment was 10 days (range: 6–59) and 47% of the patients are alive. Six patients died without engraftment. An additional patient had his autologous UCB infused after a private bank collection and did not have hematopoietic reconstitution.

CONCLUSION

The infusion of UCB is feasible when there are no other donors available, however, the logistic of requesting, receiving, storing and manipulating the cells require an experienced team in the cell processing center and in the management of the patients.

*Rubinstein P, et al. Processing and cryopreservation of placental/umbilical cord blood for unrelated bone marrow reconstitution. Proc Natl Acad Sci U S A. 1995 Oct 24;92(22):10119-22

VALIDATION OF THE CRYOPRESERVATION PROCESS OF HEMATOPOIETIC PROGENITOR CELLS USING DIMETHYL SULFOXIDE (DMSO) AT A CONCENTRATION OF 5%

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INTRODUCTION

Dimethyl sulfoxide (DMSO) is widely used in cryopreservation process of hematopoietic stem cells (HSC) due to its proven efficacy as an intracellular cryoprotectant, conferring high rates of post-thaw cell viability. However, DMSO is also closely associated with adverse reactions in transplant recipients due to its toxicity.

OBJECTIVE

To evaluate the impact on the viability of cryopreserved CD34+ cells using DMSO at a concentration of 5% to support the change from the previously used technique (concentration of 10%). Acceptance criteria: Mean viability of CD34+ cells post thawing: ≥85%.

SAMPLE - 21 HSC samples collected by apheresis.

METHOD

The collections were processed according to the laboratory's standardized technique. In summary, each unit was centrifuged at 3000 rpm for 20 minutes and the plasma was removed. The product final volume was calculated to adjust the leukocyte concentration to 350,000/mm3, and the DMSO concentration to 5%. The units were frozen in temperature-controlled decay equipment and subsequently stored in liquid nitrogen. After a minimum storage period of seven days, viability assay was performed by flow cytometry using 7-AAD on a segment of the units, following the ISAGHE protocol.

RESULTS

Table 1 presents the descriptive analysis of the viable CD34+ cells pre processing, post processing and post thawing and the viability loss rate of the post-thawing samples in relation to the post processing (pre freezing) samples. There was one case that presented post thawing CD34+ cell viability of 80%, however, the mean viability was 93.17%, which is above the proposed acceptance critera. 17 of the 21 collections included in this study have already been infused, with 3 collections being for the same patient, totaling 15 transplants. 5 of these transplants were allogeneic with an average granulocyte engraftment time of 17 days (15-20) and 10 were autologous with an average granulocyte engraftment time of 10 days (9-16). The average storage time of transplanted products was 39 days (7-242). There were 4 cases of mild adverse reactions, requiring no intervention.

CONCLUSION

As can be seen, the 5% DMSO concentration for cryopreservation did not negatively impact cell viability or engraftment time. There were also no reports of DMSO toxicity in these transplants. Another positive impact observed was the reduction in costs for the laboratory, as DMSO is one of the most expensive inputs in the cryopreservation procedure. Thus, the procedure using DMSO at a concentration of 5% has been validated for use in the institution.

KEY WORDS - Cryopreservation, DMSO, HSC

TABLE1: Descriptive analysis

Viability CD34+ cells (%)	Minimal	Maximum	Average	Standard deviation
Post processing	96,60	100,00	98,94	1,14395
Post thawing	80,00	100,00	93,17	4,70148
Viability loss rate	-0,41	20,00	5,80	5,12261

HISTOCOMPATIBILITY

ALLELIC FREQUENCIES OF NON-CLASSICAL HLA GENES IN A POPULATION OF HEMATOPOIETIC CELL TRANSPLANTATION RECEPTORS

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INTRODUCTION

Class I MHC genes are divided into Classical HLA-Ia (A, B, C) and non-classical HLA-Ib (E, F, G, H). Class Ib molecules have a highly conserved peptide-binding groove with specific expression patterns. In the IPD-IMGT database v3.56, there are 353 alleles described for HLA-E, 91 HLA-F, 160 HLA-G, and 72 HLA-H. The numbers of expressed proteins are 140 HLA-E, 17 HLA-F, 50 HLA-G, and no expressed protein for HLA-H. Despite the low polymorphism, non-classical HLA could be mismatched even in HLA identical transplants. There is a growing interest in the impact of non-classical HLA molecules in immune system factors on hematopoietic cell transplantation (HCT).

OBJECTIVE

The aim of this study was to evaluate the frequency of non-classical HLA Class I alleles in a population of 948 HCT receptors. Methods: Classical and non-classical HLA genes were identified using AlloSeq Tx17 Next Generation Sequencing/AlloSeqAssignv1.03 software and Assign CopyNumber V 0.5.11 (CareDx-,Inc). Statistical analyses were performed by PyPop 1.0.2 software to calculate single locus frequency for Class Ib alleles and multi locus frequency by Expectation-maximization algorithm to infer haplotypes for HLA-A~E~F~G~H .

RESULTS

The most frequent HLA-E alleles were E*01:01 and E*01:03, which comprised 98.58% of cases. Less frequent HLA-E alleles are described in Table 1. For HLA-F, 98.73% of cases presented HLA-F*01:01 or HLA-F*01:03. HLA-G*01:01, G*01:04, and G*01:03 comprised over 91% of cases. 17 new alleles were detected (8 HLA-F, 3 HLA-G, and 6 HLA-H), confirmation process is ongoing. The association HLA-H*DEL with HLA-*23/24 alleles was confirmed by copy number analyses, as already stated in the literature. The frequency of all HLA Class Ib alleles is described in Table 1.

The most frequent haplotypes were A*02:01~E*01:03~F*01:01~G*01:01~H*01:01 and A*02:01~E*01:01~F*01:01~ G*01:01~H*01:01, 10.48% and 8.89% of the cases, respectively. Discussion: Studies have shown that E*01:03 homozygosity in HCT receptors was associated with a low risk of GHVD and E*01:01 homozygosity was associated with a high risk of infection. In our population, 17.16% and 32.91% presented homozygosity E*01:03 and E*01:01, respectively. Future studies are needed to evaluate the clinical aspects of these patients. The impact of HLA-F remains unclear. Few studies have associated HLA-G 3'UTR 14pb INS/DEL and 14pb DEL/DEL genotypes with better outcomes in HCT, analyses in this region should be performed in our data. Conclusion: This study drives a forward look for further data about non-classical HLA genes. HCT outcomes remain a challenge for clinicians, and as new knowledge is added to the literature, more accurate choices can be made. This is a very preliminary study focused only on describing the HLA diversity of Class Ib genes. A deep look at this data should be made, especially those impacts on HCT outcomes.

KEYWORDS - Non-Classical HLA genes, HLA-Class Ib, HLA frequency

Table 1. Class Ib allele frequency

Allele	Frequency	Allele	Frequency	Allele	Frequency	Allele	Frequency
E*01:01	57,07%	F*01:01	84,44%	G*01:01	66,61%	H*01:01	25,53%
E*01:03	41,51%	F*01:03	14,29%	G*01:04	15,61%	DEL	14,24%
E*01:06	0,63%	F*01:04	0,69%	G*01:03	9,76%	H*02:05	11,55%
E*01:05	0,21%	F*01:02	0,53%	G*01:06	4,54%	H*02:04	8,81%
E*01:11	0,21%	F*01:05	0,05%	G*01:05:01N	2,80%	H*02:01	7,65%
E*01:66	0,21%			G*01:08	0,26%	H*02:09	6,22%
E*01:12	0,11%			G*01:38Q	0,16%	H*01:02	5,38%
E*01:127	0,05%			G*01:11	0,11%	H*02:07	4,85%
				G*01:04:01Q	0,05%	H*02:02	3,85%
				G*01:07	0,05%	H*02:03	3,17%
				G*01:09	0,05%	H*02:12	2,48%
						H*01:03	1,95%
						H*02:08	1,79%
						H*02:10	0,84%
						H*02:11	0,53%
						H*01:04	0,48%
						H*02:23	0,37%
						H*02:25	0,21%
						H*02:13	0,11%

ANALYSIS OF HLA ALLELE AND HAPLOTYPE FREQUENCIES BY NEXT GENERATION SEQUENCING IN VOLUNTEER BONE MARROW DONORS IN A LABORATORY IN THE STATE OF PARANÁ

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INTRODUCTION

HLA typing at high resolution by NGS (Next Generation Sequencing) is essential in bone marrow pre-transplantation, as it reduces the chances of rejection due to the higher sensitivity of the technique used. Brazilian evidence of allele frequencies by NGS is scarce, however, studies for the characterization of this population using a more accurate technique are necessary.

OBJECTIVE

To analyze the allelic and haplotypic frequency of HLA at high resolution in voluntary bone marrow donors (VBMD), served at a laboratory in the state of Paraná.

METHOD

During the years 2022 and 2023, 2,569 VBMD were analyzed for HLA class I and class II typing at a laboratory in the northwest region of the state of Paraná. Of these, 1,689 donors were female, with an average age of 25 years. Regarding ethnic characteristics, the white ethnicity was predominant, with 1,722 donors; 696 donors identified as brown, 79 as black, 69 as yellow, and 3 did not provide information. The samples underwent DNA extraction using the QIAamp® DNA Blood Mini kit (Qiagen), HLA typing using the AllTypeTM FASTplexTM NGS 11 loci kit (One Lambda), and sequencing on the iSeq100 equipment (Illumina). HLA typing was determined by the TypeStream Visual® software v 3.0.0. Allelic and haplotypic frequencies were calculated using Rstudio software v 4.2.1.

RESULTS

The most frequent alleles in this population during the study period were: HLA-A*02:01:01 (21.7%), A*01:01:01 (9.8%), A*24:02:01 (9.4%), B*51:01:01 (8.2%), B*35:01:01 (6.4%), B*44:03:01 (5.9%), C*04:01:01 (15.8%), C*07:01:01 (9.6%), C*07:02:01 (8.3%), DRB1*07:01:01 (12.6%), DRB1*03:01:01 (7.0%), DRB1*01:01:01 (6.4%), DRB3*02:02:01 (14.1%), DRB3*02:02P (7.6%), DRB3*01:01:02 (6.5%), DRB4*01:03:01 (14.9%), DRB4*01:01P(4.2%), DRB4*01:01:01G (2.3%), DRB5*02:02:01 (4.2%), DRB5*01:01:01 (4.1%), DRB5*01:01P (3.7%), DQA1*05:05:01 (16.6%), DQA1*01:02:01 (12.9%), DQA1*02:01:01 (9.1%), DQB1*05:01:01 (11.8%), DQB1*02:02:01 (9.7%), DQB1*03:02:01 (8.2%), DPA1*01:03:01 (65.4%), DPA1*02:01:01 (14.2%), DPA1*02:02:02 (5.1%), DPB1*04:01:01 (21.6%), DPB1*02:01:02 (9.9%), DPB1*01:01:01 (5.1%). The most frequent haplotypes were: A*29:02:01~B*44:03:01~C*16:01:01~DRB1*07:01:01~DQB1*02:02:01~DPB1*04:01:01~DQA1*02:01:01~DPA1*01:03:01 (0.273%), A*03:01:01~B*07:02:01~C*07:02:01~DRB1*15:01:01~DPB1*06:02:01~DQA1*04:01:01~DPA1*01:02:01~DRB3*01:03:01 (0.254%), A*02:01:01~B*14:02:01~C*08:02:01~DRB1*01:02:01~DQB1*05:01:01~DPB1*04:01:01~DQA1*01:01:02~DPA1*01:03:01 (0.215%).

CONCLUSION

This study is fundamental for the characterization of HLA class I and class II alleles and haplotypes at high resolution in the Brazilian population, aiding in the precise definition of HLA compatibility between bone marrow donors and recipients and successful transplant outcomes.

KEYWORDS - HLA Frequency; Brazilian Population; Transplants.

CONTACT WITH POTENCIAL DONORS AND THEIR WILLINGNESS TO PARTICIPATE IN RESEARCH PROJECTS

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INTRODUCTION

The establishment of a database registry has emerged as indispensable in facilitating the matching process between organ donors and recipients for transplantation. The Brazilian Registry Bone Marrow Donors (REDOME) performs this role of collecting data, finding a potential compatible donor, and contacting them to confirm their interest in donation. Presently, the number of potential donor registrations has steadily increased, surpassing 5.5 million registrations. However, these registrations persist in the database for years until the potential donor reaches the maximum age for transplantation, resulting in registrations remaining active for a maximum of approximately 40 years, regardless of contact. Despite the substantial number of registered individuals, their willingness and eligibility to participate in associated research projects remain uncertain, influenced by diverse life circumstances experienced over the years. Therefore, the project of creating a national haplobank of induced pluripotent stem cells (iPSC) uses the REDOME database to contact potential participants. To achieve this, a survey was conducted to assess the receptiveness of contacted listed towards collaborating on unfamiliar research projects.

OBJECTIVE

To determine the response rate of individuals who received invitations to participate in a research project and ascertain whether they accepted or declined.

METHODOLOGY

The whole team received training to conduct contacts via phone calls and standardized messages to send via text. Successfully contacted numbers received an explanation about the biobank project, as well as the informed and clarified consent form. Once all doubts were addressed, they were invited to provide a sample to become part of the iPSC biobank.

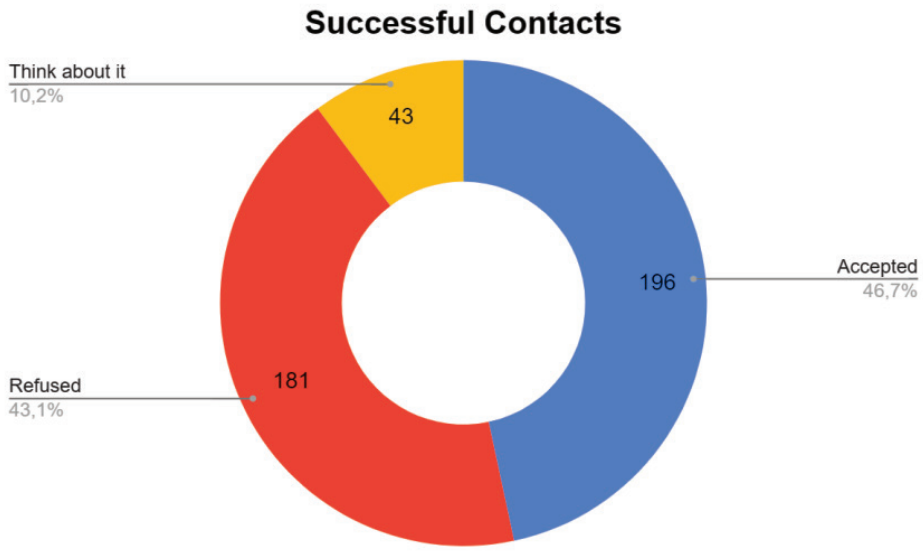
RESULTS

A total of 420 possible participants in the registry were successfully reached. Among these, 196 accepted the invitation (out of 34 no-shows), while 181 declined, and 43 expressed intentions to consider or confirm availability without providing further response. We did not require any explanations about refused invitations, and those who answered "I'll think about it" in general didn't express significant interest in participating in the project.

CONCLUSION

The data demonstrate that the susceptibility of contacted potential participants to accept invitations for research participation stands at approximately 45% when successfully reached. Reasons for the decline were not systematically surveyed; however, some cited impediments such as illness or difficulty in reaching the collection point, while others simply expressed disinterest. This highlights an acceptance rate of nearly 50%. This work was partially granted by Health Ministry and CNPq.

FIGURE 1: Successful contacts. number of responses about the invitation to research.



DISCREPANCY ANALYSIS IN CONFIRMATORY HLA TYPING RESULTS OF UNRELATED DONORS IN THE YEAR 2023

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1 REDOME / INCA.

INTRODUCTION

The analysis of discrepancies in HLA typing results from unrelated donors has been implemented at this institution since 2016 as part of the Quality Management System and in accordance with WMDA (World Marrow Donor Association) standards. Typing discrepancy is also a key performance index (KPI) defined by WMDA, with a target value for HLA confirmatory typing (CT) discrepancy below 1%.

OBJECTIVE

To analyze the number of discrepancies in donor HLA confirmatory typing results in 2023 and the main causes of divergence.

METHOD

The data were obtained from the information systems used for unrelated donor searches (SISMATCH and REDOMENET). The type of error identified was classified among pre-analytical, analytical, and post-analytical according to the explanation presented by the laboratory.

RESULTS

In 2023, 4727 unrelated donors' CT results were performed, and 70 (1.48%) demonstrated a discrepant result compared to the initial HLA typing (figure 1). The 70 discrepant results originated from 36 different laboratories (35 from Brazil and 1 international), and 64 (91.43%) were resolved. Among these divergences, 4 (6.25%) were classified as post-analytical (typing) errors. In comparison, 40 were classified as analytical errors (technical errors) and 20 (28%) as pre-analytical errors (sample identification error or sample switch) (figure 2). At the time of data collection, 3 cases (4.29%) were still under analysis. Discrepant cases were resolved when a concordant result was obtained between the laboratories. This can occur after reviewing the initial analysis or performing a new HLA typing in a different laboratory.

CONCLUSIONS

The discrepancy result obtained from Brazilian donors on CT (1.48%) is above the KPI stablished by WMDA and should be analyzed carefully by HLA laboratories in Brazil. Even though most of the discrepancies are resolved, 91.43%, as indicated in this study, changes in donor initial HLA typing affect the unrelated donor search process with the need for new donors' requests, increased search time, and unnecessary use of public resources. Additionally, the number of discrepant results associated with pre-analytical errors (28%), especially wrong blood sample identification and/or selection, or blood samples "switch", emphasizes the need for improvements in the quality process of HLA Laboratories in Brazil. These data reinforce the importance of accurate HLA typing at donor recruitment as part of an efficient unrelated donor search process, and the Histocompatibility laboratories have a great responsibility to ensure this result, reducing the impacts caused by incorrect reports and divergent HLA typings.

Figure 1: HLA Discrepancies in unrelated donors during 2023

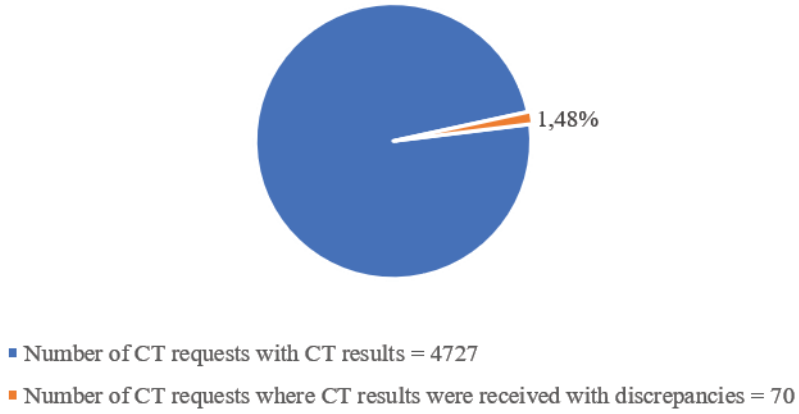
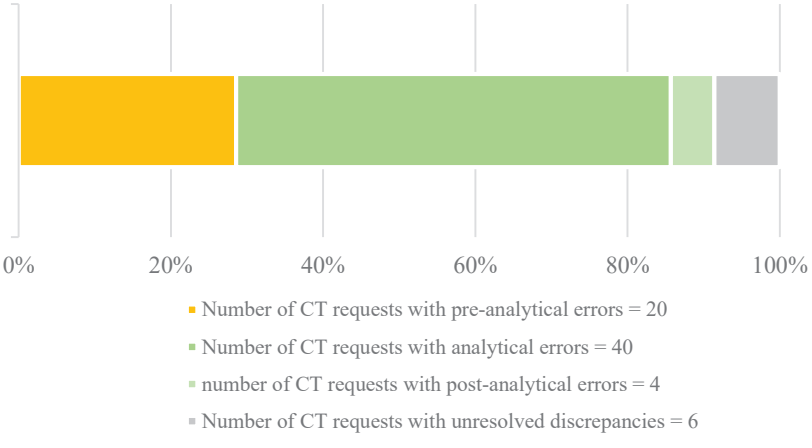


Figure 2: Analyzes of Donor CT Discrepancy - 2023



ESTABLISHMENT OF A NATIONAL BIOBANK OF INDUCED PLURIPOTENT STEM CELLS REPRESENTATIVE OF THE BRAZILIAN POPULATION FOR THERAPEUTIC AND CLINICAL RESEARCH PURPOSES

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INTRODUCTION

Brazil grapples with a daunting organ transplantation waiting list, encompassing over 40,000 individuals eagerly awaiting procedures. Alleviating this challenge and bolstering transplant accessibility is paramount. Yamanaka's groundbreaking discovery in 2017, enabling the reprogramming of adult cells into an embryonic stage termed induced pluripotent stem cells (iPS), presents a promising avenue for addressing Brazil's organ transplant deficit. By genotyping the human leukocyte antigen (HLA) and identifying cells displaying triple homozygosity at the HLA-A, -B, and -DRB1 loci, as well as quintuple homozygosity at the HLA-A, -C, -B, -DRB1, and -DQB1 loci, iPS cells can be generated. This innovative approach facilitates the establishment of a repository of homozygous cells potentially compatible with a substantial portion of the population for clinical utilization.

OBJECTIVE

This study aimed to recruit samples displaying triple homozygosity at the HLA-A~B~DRB1 loci, encompassing the 30 most frequent alleles in Brazil, into the iPS biobank, and to ascertain the identification of quintuple and hexa homozygous HLA-A~CB~DQB1~DPB1 samples among the collected samples.

METHOD

The recruitment targeted individuals aged 18 to 60 residing in Brazil possessing prevalent haplotypes in the Brazilian population. Peripheral blood samples were obtained from HLA-A-B-DRB1 low-level resolution homozygous donors sourced from the REDOME database for isolation, processing, and cryopreservation of mononuclear cells. Additionally, DNA extraction was performed for high-resolution HLA typing using next-generation sequencing techniques. Samples were collected in Rio de Janeiro and São Paulo.

RESULTS

Recruitment endeavors are underway, with potential donors contacted via telephone. As of April 2024, the biobank comprises 152 registered samples, with 151 confirmed triple homozygous typings by low resolution. Upon high-resolution typing, the number of triple homozygous samples decreases to 122. Among these, 108 are penta-homozygotes, and 66 are hexa-homozygotes. Across all samples, a total of 83 different haplotypes have been identified, exhibiting varied frequencies relative to the population. Initially, the biobank prioritizes storing the 30 most frequent haplotypes in the Brazilian population, currently holding 22 out of these 30.

CONCLUSION

To date, 152 samples have been collected from two different municipalities. High-resolution typing has slightly reduced the number of homozygotes, necessitating the establishment of additional collection sites to encompass the 30 most frequent haplotypes in the population. Determining the number of penta and hexa-homozygotes enhances the probability of compatibility for clinical use of these samples. This endeavor received partial funding from the Health Ministry and CNPq.

EVALUATION OF HLA COMPATIBILITY IN FAMILIES OF PATIENTS WITH BONE MARROW TRANSPLANTATION INDICATION IN MINAS GERAIS, BRAZIL

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INTRODUCTION

Bone marrow transplantation is a crucial intervention for patients with various hematopoietic disorders, and for it to occur, laboratory compatibility tests such HLA typing must be performed to minimize the chances of rejection. Related allogeneic transplantation seeks a compatible donor with the highest chance of compatibility and transplant success. Due to the pattern of codominant inheritance and Mendelian segregation, the possibility of finding a compatible donor among siblings is directly proportional to the number of siblings. However, family groups are complex and present a challenge for analysis and familial typing due to their heterogeneity. Currently, transplants with haploidentical donors have gained space in medical practice and may be a path for recipients who do not have identical HLA donors.

OBJECTIVE

Assess the profile of family groups undergoing compatibility investigation may allow us to develop more assertive strategies and workflows for the attended population. This study aims to generate a profile of this population of patients and related donors, their family constitution particularities, transplant indication, and compatibility index among the studied groups.

CASUISTRY AND METHOD

A retrospective analysis of patient reports from the Laboratory archive for the years 2018 and 2019 was performed, and the sample included patients from familial haplotypic segregation and HLA typing results of Locus HLA-A, B, C, DRB1, DQB1. Patients/donors with at least two typed loci (HLA-A and B) were included. The obtained data were compiled and analyzed using the GraphPad Prism statistical package.

RESULTS

552 families and 1889 related donors (2441 tested individuals) were included. The obtained data were compiled (Table 1), and after analysis, it was found that the average family size is 3 individuals, with a predominance of siblings as potential donors (64%). Out of the 552 evaluated family groups, 210 (38%) found HLA identical donors, and among the 1889 donors, 1188 (62.9%) were haploidentical to the recipient. Of the 286 compatible donors, 282 (98.6%) were siblings of the recipient, resulting in a 23.3% compatibility rate among siblings, one grandmother (0.3%), one mother (0.3%), and two uncles (0.7%). When analyzing the frequency of HLA-Identical results according to the number of siblings, it was observed that individuals with 2 to 5 siblings had higher chances of identical results in our population.

CONCLUSIONS

The results found corroborate with the literature regarding the predominance of siblings with compatible results, and the Mendelian probability was close, with differences potentially justified by variations in family size and number of siblings. These data are part of a broader project to organize information and build structured databases that will enable further studies and analyses in our population.

HLA TYPING BY NEXT GENERATION SEQUENCING (NGS): VALIDATION USING THE PLATFORM MGI DNBSEQ-G99

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AIM

MGI, a part of the BGI Group, introduced the G99 equipment in 2021, a significant advancement in genomics, offering efficient DNA and RNA analysis. The G99, utilizing DNA nanoballs (DNBs),provides high-volume data with exceptional speed, capable of PE150 sequencing in just 12 hours, yielding approximately 80 million reads. This study evaluates DNBseq sequencing chemistry using the G99 for HLA typing, aiming to understand its impact on histocompatibility laboratories offering high-quality results.

METHODS

The samples used in this evaluation contained know HLA genotypes obtained by a highresolution technology, previously validated. Samples were chosen from the Quality Control Brazilian Program provided by the Brazilian Association of Histocompatibility and Immunogenetics (ABHI). Additionally, in collaboration with some Brazilian laboratories, samples containing rare and null alleles were included. Samples containing allelic groups with a tendency for dropout, such as DQB1*02 and DQB1*03, were also selected. For the amplification of target genes and library preparation, the AllType™ NGS 11 loci kit from One Lambda, Thermo Fisher Scientific was used. The loci evaluated were HLA-A, B, C, DRB1, DRB345, DQB1, DPB1, DQA1, and DPA1. The library preparation process followed the manufacturer's instructions. The Four libraries were prepared, each containing 96 samples, and combined to generate different throughputs. Libraries were measured for fragment size distribution using the TapeStation System. Sequencing results were analyzed using TypeStream™ Visual NGS Analysis Software.

RESULTS

Libraries exhibited varying fragment size distributions. Different combinations of libraries yielded varying throughputs. Across runs, %Q30 and reads were satisfactory, exceeding manufacturer promises. The stability of Q score distribution throughout cycles was observed.

CONCLUSION

The G99 runs produced high-quality results with 96 to 384 samples per flow cell. A concordance rate of 99.97% with pre-existing HLA typing data was achieved. The G99 offers a rapid, high-volume sequencing option for histocompatibility laboratories.

HOW WELL-ESTABLISHED AND STATE-OF-THE-ART SEQUENCING TECHNOLOGIES CAN WORK TOGETHER BOOSTING NUMBERS ON NOVEL HLA ALLELES?

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INTRODUCTION

The human leukocyte antigen (HLA) system harbors the most polymorphic genes in the human genome and plays a crucial role in immune recognition. With the advent of next-generation sequencing (NGS) for HLA typing, there has been a significant increase in the number of newly described alleles. The submission of new alleles to the IPD-IMGT/HLA Database is paramount to maintain accurate and current genetic data on a global scale . Over the past two decades, Illumina-based sequencing has established itself as the gold-standard for HLA typing in combination with long-range PCR-based library prep kits. Novel technologies such as the hybrid-capture approach for library prep and the long-read nanopore sequencing came out to the market, and they all have value to add to an HLA lab routine if the strategy is wisely planned.

OBJECTIVE

This study aimed to synergize traditional and innovative sequencing technologies to identify a greater number of novel HLA alleles over a year of routine operations in an immunogenetics laboratory.

METHOD

DNA sequencing was performed using commercial kits (Holotype HLATM – Omixon; NGSgo® MX-6 – GenDx, and AlloSeqTM Tx9 – CareDx) on the Miseq and NextSeq platforms (Illumina). In select cases, long-read nanopore sequencing (Oxford Nanopore) was used with the commercial kit NanoTYPE HLATM (Omixon) to obtain a fully phased consensus sequence. All results were analyzed using at least two software tools (HLA Twin – Omixon, NGSengine – GenDx, and AlloSeq Assign – CareDx), and the new sequences were submitted to the GenBank and IPD-IMGT/HLA databases.

RESULTS

A total of 17 newly reported allele sequences were identified, officially designated as novel alleles at either the second or third field of resolution, comprising 11 Class I alleles (4 HLA-A, 3 HLA-B, 4 HLA-C) and 6 Class II alleles (3 HLA-DRB1, 3 HLA-DQB1). Notably, 7 sequences exhibited mismatches in key exons and 10 in other exons, with 10 synonymous and 7 non-synonymous mismatches, altering encoded amino acids. Long-read sequencing was indispensable for defining the phasing of 7 alleles. Fourteen complete sequences and three partial sequences were deposited.

CONCLUSIONS

For each challenging sample in a laboratory routine, a different sequencing approach can be used. This study underscores the feasibility of combine the existing technologies to augment the submission of novel HLA sequences, enhancing data quality and staying abreast of laboratory innovation. Exclusive reliance on traditional sequencing methods would impose significant limitations, hindering the characterization of reported alleles. Characterizing and submitting new alleles directly contributes to updating HLA diversity, enriching databases for precise sequencing result interpretation, and elucidating HLA diversity within specific populations. Enhanced comprehension of human genetic diversity fosters advancements in transplantation and the exploration of disease associations.

KEYWORDS

HLA, new alleles, next generation sequencing

SUPPORT

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IDENTIFICATION AND CHARACTERIZATION OF A NEW RECOMBINANT HLA-C ALLELE: CONSIDERATIONS OF NEXT GENERATION SEQUENCING ANALYSIS

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INTRODUCTION

We present a case of HLA typing using Next Generation Sequencing (NGS) Multiplex and NGS Singleplex, revealing a novel recombinant allele in blood samples from a patient and their relatives.

OBJECTIVE

To describe the identification and characterization of a novel HLA-C allele in a family, highlighting interpretation errors, challenges, and strategies adopted during the analysis process.

CASE DETAILS

Blood samples were collected from a patient, two siblings, and a child who share the same mutations.

METHOD

The samples underwent HLA typing testing by NGS using the Illumina platform and the All Type - OneLambda Kit. Initial alignment revealed an anomalous pattern in reads containing C*17, with low coverage and a novel allele with 11 MMs.

RESULTS

After refinement of processing and comparative analysis, a novel allele C*17:01P with 29 MMs in exons 4 and 5 was identified, shared among family members. Retesting with singleplex kit confirmed the same alterations, identifying the novel recombinant allele as C*17:01:01:01 with C*15:02:01:04. This allele was submitted to IMGT, resulting in the assignment of the name HLA-C*17:75.

CONCLUSIONS

The case underscores the importance of understanding the alignment strategy used, avoiding misinterpretations of sequencing coverage problems, solely related to differences in the reference used. Additionally, it highlights the occurrence of novel alleles derived from recombination in HLA Class I genes, emphasizing the need for precise analyses for accurate interpretation of results with anomalies.

IDENTIFICATION OF FALSE NEGATIVE MALE GENOTYPE USING THE AMELOGENIN MARKER IN THE ANALYSIS OF CHIMERISM IN A PATIENT UNDERGOING HSCT

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Most commercial multiplex kits for human identification include the gender marker amelogenin and autosomal short tandem repeats (STR) markers. STR markers are widely used in the forensic area and to monitor engraftment and/or disease relapse in patients undergoing hematopoietic stem cell transplantation (HSCT) through chimerism analysis. Amelogenin, the main protein found in tooth enamel, plays a crucial role in determining the gender of an individual. It exists in two forms: AMELX on the X chromosome and AMELY on the Y chromosome. These copies differ slightly in the number of base pairs (bp), with the AMELX copy being 6 bp shorter than the AMELY copy. Polymerase chain reaction (PCR) followed by fragment analysis is commonly used to detect these variations. If two fragments with a 6 bp difference in size are detected, it indicates a male sample and the presence of only one fragment suggests a female sample. Mutations in the primer annealing site or deletions in the amelogenin gene can lead to unexpected results. In some cases, male samples may show only one fragment due to such mutations. Non-detection of the AMELY gene is rare but can have serious consequences if misassigned. This work describes the strategy used to confirm the gender identity of a pre-HSCT peripheral blood sample. The case involves a patient with a normal male phenotype, but a female genotype based on amelogenin analysis. A 10-year-old male patient with Fanconi Anemia underwent an unrelated HSCT. The patient's peripheral blood sample was collected before transplantation. STR markers from the Promega PowerPlex® 16 HS System Kit were used for analysis. Shortly, a PCR with fluorescent primers amplified alleles at specific loci, capillary electrophoresis separated the fragments, and the analysis was done with GeneMapper® Software. Surprisingly, the amelogenin gene showed a female genotype. This led to suspicion of sample mix-up or other issues. DNA extraction and STR marker amplification were repeated, but the female profile persisted. The patient's karyotype revealed a male pattern (46,XY) and no clonal abnormalities were observed. Autosomal markers were reanalyzed using the PowerPlex Fusion® 6C System Kit, confirming the female designation on the gender marker. Additional analysis with the PowerPlex® Y23 System revealed the absence of peaks in markers DY570 and DYS576. Specific alleles of the Y-chromosome were detected in other markers analyzed. Parental samples confirmed segregation of STR alleles. Interestingly, the father's sample also exhibited a female amelogenin pattern.

CONCLUSION

Genetic changes in the amelogenin gene can mislead in gender genotyping due to allele loss from deletions or mutations. Incorrect gender identification may lead to suspicion of sample exchange, as well as the need to repeat the chimerism analysis and additional costs to confirm the results.

KEYWORDS

chimerism, amelogenin, pre-transplant sample, Y chromosome

INTERLOCUS GENE CONVERSION: IDENTIFICATION OF HLA-A*23:128 IN A BRAZILIAN INDIVIDUAL

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INTRODUTION

Gene conversion (GC) events involve the donation of a DNA segment from one chromosomal homolog to the other.

Objectives: Describe the interlocus GC event that generated of the HLA-A*23:128 allele.

MATERIAL AND METHODS

The HLA-A*23:128 allele was generated by an interlocus GC event identified in a female volunteer bone marrow donor from the Brazilian Registry of Bone Marrow Donors (REDOME). HLA typing was performed using the Sequence-Based Typing (SBT) method, employing the SeCore™ HLA kit (One Lambda, Inc., Canoga Park, California), and the ABI 3730 platform for sequencing and data acquisition. The analysis was conducted using uType software version 7.3.

RESULTS

Considering the HLA-A*23:52 allele as the most similar to the new sequence, the new allele has 13 point mutations, which are described in table 1. According to the Common, Intermediate and Well Documented (CIWD) catalog version 3.0.0, the HLA-A*23:52 allele is not-CIWD. Thus, HLA-A*23:128 was aligned with all HLA-A alleles to confirmed that there was an intra-locus GC event. However, no HLA-A allele has the same sequence observed between codons 91 and 138 as the novel A*23:128 allele. Based on this, it was hypothesized that it may have been the result of an interlocus GC event, where the HLAB*58:02:01:01 allele donated the fragment between códons 91 and 138 to an A*23:01:01:01 allele (Figure 1). The complete HLA typing of this donor was HLA-A*23:128,33:01; -B*53:JV,58:02; -DRB1*08:04,11:02. The nucleotides sequence of this novel allele was submitted to GenBank (accession number OP481070) and the IPD-IMGT/HLA Database. The name of this HLA allele was officially assigned by the WHO Nomenclature Committee for Factors of the HLA System in November 2022.

CONCLUSION

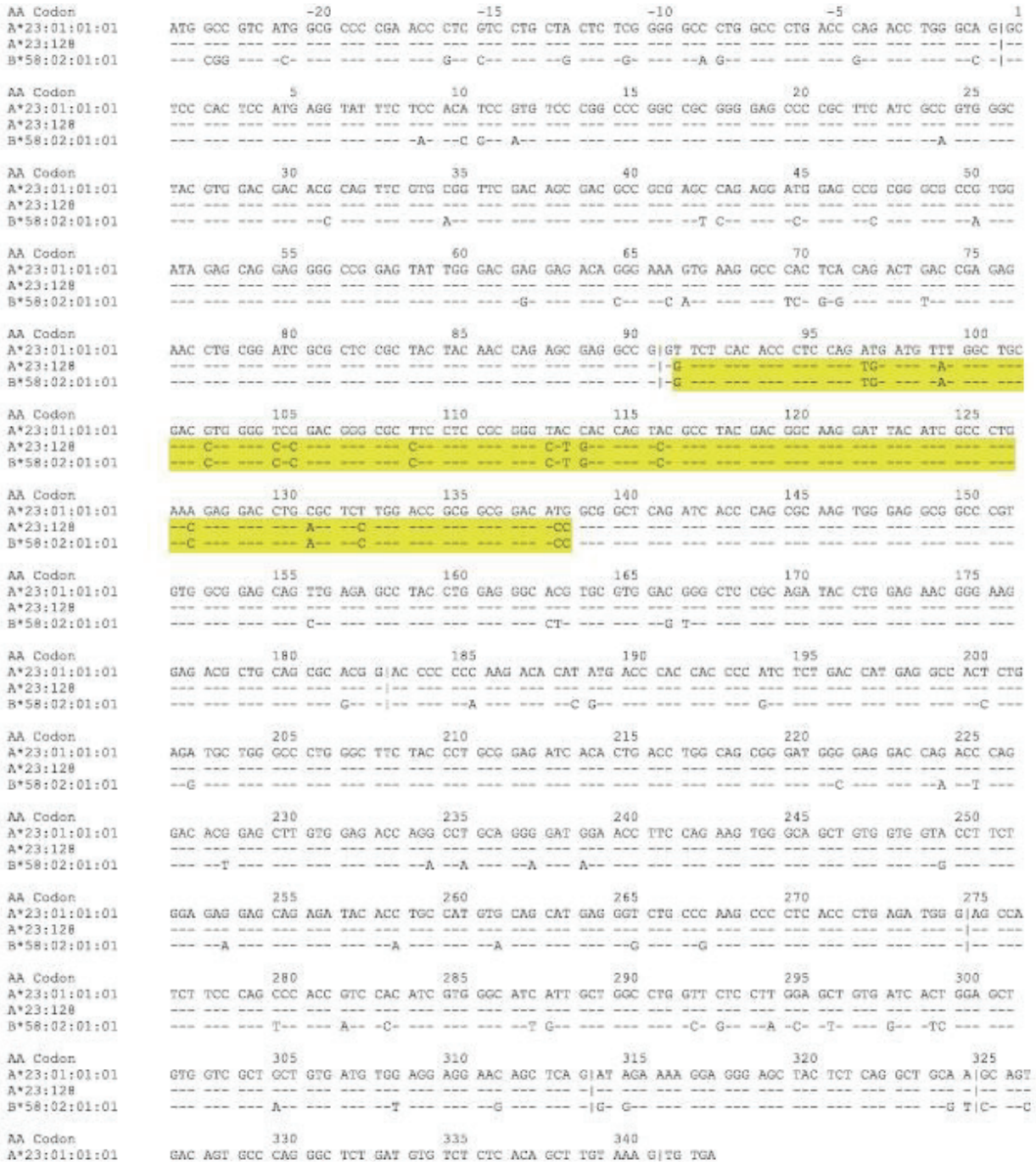
While intralocus GC events are prevalent, interlocus events, although rare, also occur, and play an important evolutionary role in mixing sequences and forming new functional alleles.

KEYWORDS

HLA sequencing, Gene conversion, New allele

TABLE 1: Point mutations observed in the allele HLA-A*23:128.

Exon	Position	Mutation	Codon	Aminoacid
3	345	GGT>GGG	91.3	G>G
3	361/362	ATG>TGG	97.1/97.2	M>W
3	368	TTT>TAT	99.2	F>Y
3	379	GTG>CTG	103.1	V>L
3	385/387	TCG>CCC	105.1/105.3	S>P
3	419	TAC>TCC	116.2	Y>S
3	453	AAA>AAC	127.3	K>N
3	463	CGC>AGC	131.1	R>S
3	468	TCT>TCC	132.3	S>S
3	485/486	ATG>ACC	138.2/138.3	M>T



NANOPORE SEQUENCING AS COMPLEMENTARY SOLUTION FOR ACCURATELY DESCRIBE NEW HLA ALLELES

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INTRODUCTION

HLA typing faces enormous challenges due to the high degree of gene polymorphism with most differences involving nonsynonymous single nucleotide polymorphisms (SNPs). Next Generation Sequencing (NGS) platforms enable the sequencing of entire HLA genes playing an important role for identification of a large number of new polymorphisms inside and outside coding regions, contributing for a better compatibility in transplantation. The short-read sequencing technologies (400 bp) have limitations as the inability to phase distant polymorphic regions. Third-generation technologies has emerged as a potential solution because it works with long read lengths (2.500 bp) allowing the phasing of distant SNPs within HLA genes.

AIM

Describe a new HLA-C allele identified by Oxford Nanopore Technology (ONT).

METHODS

HLA typing in blood and buccal swab samples was initially performed with Illumina technology/AlloSeq Tx17® kit (CareDx, AU) and genotypes assigned using AlloSeq Assign® software v.1.0.2 (CareDx). Inconclusive HLA-C typing was tested using the MinIon sequencer®/ NGS-Turbo® kit (GenDx, NL) using a Flow cell with R10.4.1. chemistry (Oxford Nanopore Technology, UK) and NGSengine-Turbo® software (GenDx, NL). IPD-IMGT/HLA Database version 3.51.0 was used for data analysis in both softwares.

CASE REPORT

A new polymorphism on HLA-C was observed in the blood sample of a male patient with Chronic myeloid Leukemia from the Brazilian Bone Marrow Registry. It was not possible to determine if the mutation belonged to HLA-C*03:04:01 or C*03:03:01 due to a phase loss (Figure 1). The new polymorphism was confirmed on buccal swab sample. The phasing challenge was solved by long-read platform ONT (Figure 2). By integrating different sequencing generations, we confirmed the new variant as a SNP within exon 6, codon 323 (CAG>CGC), in comparison to allele C*03:04:01. The official name HLA-C*03:678 was assigned by World Health Organization (WHO) in March 2024. Conclusion: The use of long reads sequencing provides better phasing of distant polymorphisms and could be an interesting tool to solve important ambiguities for HLA typing.

FUNDING

GenDx company provided NGS-Turbo® reagents for HLA sequencing.

KEY WORD - Nanopore, New allele, HLA-C

Figure 1. Analyses screen of NGS typing shows a single nucleotide exchange (A>G) within exon 6, codon 323 (CAG>CGC). However, due to homology between HLA-C*03:03:01 and HLA-C*03:04:01, it was not possible do define in which alelle the mutation occurried.

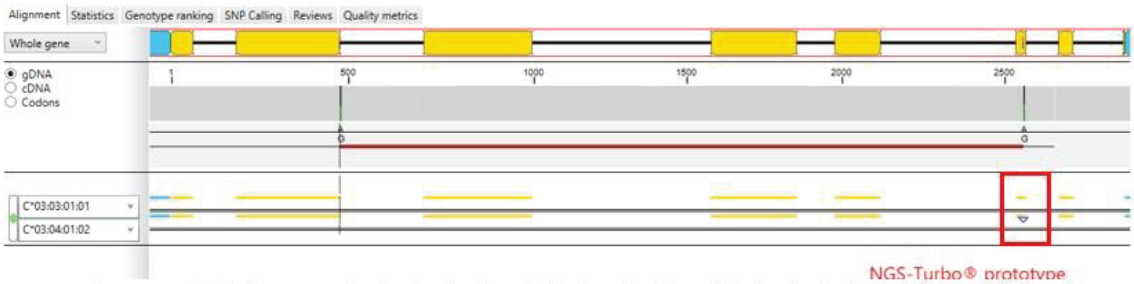

Figure 2. Analysis screen of Oxford Nanopore Technology (ONT) software highlighting the ability to fully phase both alleles, which allowed the determination that the new polymorphism belonged to the sequence similar to HLA-C*03:04:01 allele. The identification of the SNP enabled the submission of the new allele for registration under the new nomenclature HLA-C*03:678 by World Health Organization (WHO).

NOVEL HLA ALLELES CHARACTERIZED BY NGS IN SOUTH BRAZILIAN BONE MARROW VOLUNTEER DONORS

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INTRODUCTION

The number of new HLA alleles described has increased with molecular biology techniques for HLA genotyping. Implementing Next-Generation Sequencing (NGS) allowed a better characterization of HLA polymorphism, which is essential in highly admixed populations, such as the Brazilian[1], leading to a relatively high frequency of new alleles.

OBJECTIVE

Our laboratory finished the characterization of 15 new HLA alleles this year (Table 1), and the other 11 are in progress, 8 of which are in the final stage, awaiting their official names to be assigned. These 15 new HLA alleles were identified during the HLA typing of admixed bone marrow volunteer donors' blood samples for Redome, the Brazilian registry of volunteer bone marrow donors, between December 2021 and April 2024.

METHODS

The peripheral blood genomic DNA was isolated using the Biopur DNA extraction kits (Mobius Life Science) and submitted to HLA genotyping with the NGS Alltype kits (One Lambda) in the NGS Illumina platform. The NGSgo AmpX kits (GenDX) were used for sequence confirmation. The data was analyzed using their respective softwares, TSV3.0 and NGSengine.

RESULTS

About 3204 bone marrow volunteer donors were typed on this period for HLA-A, -B, -C, -DRB1, -DRB3 (and/or -DRB4, and/or-DRB5), -DQA1, -DQB1, -DPA1 and -DPB1 meaning 26 of about 57672 alleles (0,05%) were new. One donor possessed 2 new alleles, 1 -DPA1 and 1 -DPB1. Most of these new alleles were found in volunteer donors from Parana State (20 donors, meaning 80%), 02 donors were from Rio Grande do Sul state (8%), 01 from São Paulo state (4%), 01 from Rio de Janeiro state (4%) and 01 donors from Chile (4%). This means variability remains to be discovered even in geographical regions considered well-represented in REDOME.

CONCLUSION

The new HLA alleles sequences were submitted to GenBank and then to the IPD-IMGT/HLA Database. The WHO Nomenclature Committee for Factors of the HLA System officially assigned the alleles' names between February and March 2024. They were included in the IMGT/HLA nomenclature lists from the 3.56 (April 2024) version, following their agreed policy[2]. The lists of the new alleles will be published in the following WHO Nomenclature Report. We initially characterized alleles with new variants in coding regions once there are limitations in reporting the ones with new variants in non-coding regions. The misinterpretation during the data analysis of these regions by the softwares, phasing (especially in HLA class II due to the large size of some introns) and amplicon limitations, with some areas not properly covered or with low quality by the NGS techniques performed, are factors that complicate the non-coding region's characterization. The implementation of alternative techniques, like long fragment sequencing, will allow us to expand even more the identification of new HLA variants.

KEYWORDS - HLA, NGS, Novel HLA alleles

REFERENCES:

1. Machado R, Zagonel-Oliveira M, Schüler-Faccini L, Fagundes NJR. HLA diversity in Brazil. HLA. 2020; 95:3–14

2. Marsh SG, Albert ED, Bodmer WF, et al. Nomenclature for factors of the HLA system, 2010. Tissue Antigens. 2010; 75(4): 291-455.

Table 1. Detailed information about the 15 new alleles recently described

Allele Name	genomic position	gene region	codon	nucleotide change	aa change	Molecule location	closest allele	ID GeneBank	IMGT
HLA Class I									
A*23:140	1968	exon 5	282.1	G>A	Val (non polar) > Ile (non polar)	Transmembrane region	A*23:01:01:01	PP196521	HWS10069177
A*31:01:56	6	exon 1	-23.3	C>G	Ala (non polar)> Ala (non polar)	Signal peptide	A*31:01:02:01	PP238629	HWS10069251
B*39:09:01:07	1038	intron 3	n.a	insert. ATATCCAGCGGAGGTTGCGGAGGGGGTAGCAACCT	n.a	n.a	B*39:09:01:01	PP213466	HWS10069207
	1039	intron 3	n.a	insert. TAG	n.a	n.a			
B*42:37	744	exon 3	100.2	G>T	Gly (non polar) > Val (non polar)	alpha-2 chain	B*42:02:01:02	PP238637	HWS10069415
C*03:667	378	exon 2	59.2	A>T	Tyr (polar) > Phe (non polar)	alpha-1 chain	C*03:03:01	PP238628	HWS10069237
C*04:520	2040	exon 5	295.2	C>T	Ala (non polar)> Val (non polar)	Transmembrane region	C*04:01:01:11	PP259353	HWS10069291
C*06:30:01:02	168	intron 2	n.a	T>A	n.a	n.a	C*06:30:01	PP238633	HWS10069401
C*12:406	839	exon 3	131.1	C>T	Arg (basic polar) > Cys (polar)	alpha-2 chain	C*12:03:01	PP238627	HWS10069233
HLA Class II									
DPA1*01:03:56	4383	exon 3	122.3	G>A	Leu (non polar) > Leu (non polar)	alpha-2 chain	DPA1*01:03:01:04	PP238629	HWS10069251
DPB1*1599:01	4725	exon 2	35.1	T>A	Phe (non polar) > Ile (non polar)	beta-1 chain	DPB1*04:02:01:02	PP213465	HWS10069205
DPB1*1600:01	9701	exon 4	194.2	G>A	Arg (basic polar) > Gln (polar)	Transmembrane region	DPB1*350:01	PP213464	HWS10069201
	6069	intron 2	n.a	T>G	n.a	n.a			
	6090	intron 2	n.a	T>A	n.a	n.a			
	6153	intron 2	n.a	G>A	n.a	n.a			
	6271	intron 2	n.a	C>A	n.a	n.a			
	6366	intron 2	n.a	C>T	n.a	n.a			
	6411	intron 2	n.a	G>A	n.a	n.a			
	6420	intron 2	n.a	T>G	n.a	n.a			
	7181	intron 2	n.a	A>G	n.a	n.a			
	8018	intron 2	n.a	C>T	n.a	n.a			
	8711	intron 2	n.a	G>A	n.a	n.a			
	8835	intron 2	n.a	C>T	n.a	n.a			
	9150	intron 3	n.a	G>A	n.a	n.a			
	9476	intron 3	n.a	T>C	n.a	n.a			
	9520	intron 3	n.a	G>A	n.a	n.a			
	9819	intron 4	n.a	C>T	n.a	n.a			
	9863	intron 4	n.a	C>T	n.a	n.a			
	9936	intron 4	n.a	G>A	n.a	n.a			
	9944	intron 4	n.a	G>T	n.a	n.a			
	10066	intron 4	n.a	C>T	n.a	n.a			
	10140	3' UTR	n.a	insert. A	n.a	n.a			
DQA1*01:02:26	4659	exon 3	134.3	T>A	Gly (non polar) > Gly (non polar)	alpha-2 chain	DQA1*01:02:01:05	PP259352	HWS10069421
DQB1*03:488:02N	4930	exon 3	169.3	T>C	n.a*	n.a	DQB1*03:488N	PP238638	HWS10069443
	5291	intron 4	n.a	C>A	n.a	n.a			
DRB1*07:158	8084	exon 3	166.1	C>T	Arg (basic polar) >Trp (non polar)	beta-2 chain	DRB1*07:01:01:01	PP196522	HWS10069179
DRB1*11:333	8022	exon 3	145.2	C>A	Thr (polar) > Ile (non polar)	beta-2 chain	DRB1*11:01:01:01	PP213463	HWS10069199
	*it would be a synonymous mutation in exon 3 codon 134, both GAT and GAC encoding Asp, but there is a Stop codon before this position, at exon 2, codon 79								

NOVEL HLA ALLELES IDENTIFIED AFTER THE INTRODUCTION OF NEXT-GENERATION SEQUENCING

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INTRODUCTION

The Human Leukocyte Antigens (HLA) are characterized as high polymorphic molecules responsible for the immune response and graft rejections. During cell or organ transplantations, a high level of HLA compatibility is essential to reduce the chances of rejection by the recipient immune system. The Next-Generation Sequencing (NGS) is one of the most advanced technologies available to carry out HLA typing, it is capable of identify all sort of mutations that may lead to new alleles.

OBJECTIVE

Since the introduction of NGS in our laboratory, we have observed a significant increase in the number of novel HLA alleles identified in volunteer bone marrow donors. Our objective is to summarize these new alleles.

METHODS

To perform the HLA typing we extracted the genomic DNA from peripheral white blood cells using commercially available kit (QIAamp® DNA Blood Mini kit, Qiagen) following the manufacturer's instructions. The Next-Generation Sequencing was carried out on the iSeq 100 platform (Illumina) with AllTypeTM FASTPlexTM NGS 11 Loci kit (One Lambda Thermo Fisher). The HLA sequencing data was analyzed using TypeStream Visual ® 3.0.0 software (One Lambda Thermo Fisher). The allele sequences were submitted to GenBank and IPD-IMGT/HLA.

RESULTS

Since 2022, a total of 2,928 samples have been sequenced, resulting in the identification of 11 new HLA alleles. Five of them were Class I, with predominance of HLA-B, one possible explanation for this phenomenon is: this gene is the most polymorphic of the human genome leading to a greater number of mutations. The remaining six alleles were Class II, with predominance of HLA-DRB3, as it is shown in the Table 1.

CONCLUSION

The DNA sequencing technology employed in this study enabled the identification of novel HLA alleles and demonstrated the high degree of polymorphism exhibited by these genes. Cataloging novel alleles is essential in the field of Immunogenetics and Histocompatibility as it provides a better search for donors and recipients with similar alleles, increasing the chances of successful transplantations. Furthermore, the execution of this technique in Brazil allows for a more comprehensive understanding of the alleles present in our region.

KEYWORDS - Human Leukocyte Antigens, Next-Generation Sequencing, Novel Allele.

TABLE 1 - Novel HLA alleles identified with NGS

Class I alleles	Class II alleles
HLA-A*68:190:02	HLA-DPA1*01:182
HLA-B*18:226	HLA-DPB1*14:01:15
HLA-B*39:03:02	HLA-DRB3*01:122
HLA-B*40:543	HLA-DRB3*01:123
HLA-B*44:373	HLA-DRB3*03:69
	HLA-DQB1*02:211

REACTIVITY PROFILE OF THE ANTIBODY REACTIVE PANEL (PRA) OF ACTIVE PATIENTS ON THE KIDNEY TRANSPLANT WAITING LIST, IN THE STATE OF RIO GRANDE DO NORTE, BRAZIL.

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INTRODUCTION

The role of the antibody reactive panel has gained worldwide acceptance in solid organ transplants. This parameter is used to measure the level of sensitization of potential solid organ recipients. More than a third of patients on the kidney transplant list are sensitized. And many present previously formed non-specific and specific antibodies against the donors and/or positive Crossmatch by complement-dependent cytotoxicity and/or by flow cytometry.

OBJECTIVE

To present and describe the positivity rate of antibodies against human leukocyte antigen, in kidney patients, active on the kidney transplant waiting list, in the state of Rio Grande do Norte.

METHOD

For this retrospective study, between January 2023 and December 2023, 261 patients were evaluated, active on the kidney transplant waiting list, in the state of Rio Grande do Norte. Reactive antibody panels were evaluated using the Luminex assay for the combination of classes I (A, B, C) and class II (DR, DQ and DP).

RESULTS

A positivity rate in the reactive antibody panel screening test was found to be 61.68% for our patients who are on the kidney transplant waiting list. However, after carrying out the test to define the reactive antibody panel, a positivity rate decreased for 53.25% of the entire transplant list was observed. We also observed positivity in the reactive antibody panel definition test only in Class I of 46.76%, only in Class II of 34.48% and in both Classes of 28.34%.

CONCLUSION

Patients on the kidney transplant waiting list in the state of Rio Grande do Norte have a high frequency of positivity on the reactive antibody panel and this positivity when compared to the panel's negativity is statistically significant.

KEYWORDS

Transplant, Renal, Antibody

USE OF CLASSICAL AND MOLECULAR CYTOGENETICS COMBINED WITH FLOW CYTOMETRY TO EVALUATE THE RESULTS OF BONE MARROW TRANSPLANTATION IN ONCOHEMATOLOGY PATIENTS AT A HEMATOLOGY AND HEMOTHERAPY CENTER IN NORTHEAST BRAZIL.

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Hematopoietic stem cell transplantation (HSCT) is an important part of curative therapy for oncohematological patients. However, the disease recurrence rate after HSCT is quite variable. Therefore, it is extremely important to analyze minimal residual disease (MRD) through flow cytometry and search for residual cytogenetic abnormalities in these post-HSCT patients for evaluation and monitoring of the transplant, enabling targeted and effective therapeutic conditioning. Therefore, this study aimed to evaluate the presence of residual cytogenetic abnormalities and MRD in oncohematological patients who underwent bone marrow transplantation, through karyotype analysis with G-banding, Hybridization in situ fluorescence (FISH) and flow cytometry. In the period from Oct/2021 to Feb/2024, 54 samples were received and analyzed from patients who underwent HSCT, with 35 (68.62%) receiving transplants from opposite-sex donors and 17 (31.3%) receiving transplants from donors of the same sex. The patients evaluated had a pre-transplant diagnosis of: myelodysplastic syndrome (MDS) (n=7), acute myeloid leukemia (AML) (n=20), B-lineage acute lymphocytic leukemia (B-ALL) (n=16), T-lineage acute lymphocytic leukemia (T-ALL) (n=1), chronic myeloid leukemia (CML) (n=4), chronic lymphocytic leukemia (CLL) (n=1), undifferentiated leukemia (n=1), leukemia biphenotypic (n=1), aplastic anemia (n=1), Hodgkin lymphoma (n=1) and myelofibrosis (n=1). The first cytogenetic analyzes after BMT by G-banding showed that 19 (40.6%) patients had complete chimerism, 11 (21.8%) had partial chimerism and 22 (34.3%) had an altered karyotype. Further analysis on D60 of 40 patients showed 14 patients with altered karyotype, 15 with complete chimerism and 5 with partial chimerism. Of these, 19 patients underwent further analysis (D90 or D120) and 7 presented altered karyotype, 7 presented complete chimerism and 5 presented partial chimerism. Evaluation by the FISH method, using the SHOX probe, was carried out in 15 cases that received transplants from donors of the opposite sex, showing agreement with the karyotype in 9 cases. Regarding MRD analysis by flow cytometry, five patients had positive MRD for AML (the patient's karyotype showed alterations), one case had positive MRD for B-ALL and one patient had inconclusive MRD. Of the cases that had an altered karyotype, 11 had negative MRD. B-ALL was the leukemia with the lowest response rate to HSCT, with nine of the 16 patients presenting a karyotype with residual genetic abnormalities after HSCT. Despite the still small sample size, the importance of performing combined techniques of classical and molecular cytogenetics with flow cytometry in the evaluation and monitoring of HSCT was highlighted. Furthermore, the importance of performing FISH in a scenario where there is no access to classical or even molecular chimerism (NGS) stands out. Therefore, this method used can be of great value when donors and patients are of different sexes.

KEYSWORDS - chimerism, cytogenetic, Hematopoietic stem cell transplantation

ACADEMIC LEAGUES

ANALYSIS OF GENETIC SEQUENCING DATA IN PATIENTS WITH AML AND MDS: HOW IT IMPACTS ON BONE MARROW TRANSPLANTATION?

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INTRODUCTION

Next-generation sequencing (NGS) has rapidly evolved in recent years as an efficient alternative for the genetic analysis of patients with Acute Myeloid Leukemia (AML) and Myelodysplastic Syndrome (MDS). Therefore, the description of this project aims to present a substantial understanding of the genetic, phenotypic and prognostic contributions promoted by this new technology.

GOALS

Analyze the particularities of patients with AML and MDS, perform genetic sequencing on the DNA of these individuals, using NGS, looking for specific genetic contributions, clinical and epidemiological relationships, as well as the prognostic value of this heterogeneous genomic profile.

PRELIMINARY RESULTS

From the analysis of data from current patients with an NGS report in the study (N=14), one can initially observe the prevalence of mutations in the TP53 and EZH2 genes, found in 64.2% of the patients studied. Furthermore, the ROS1, SF3B1, TET2 genes also presented high prevalence among patients, totaling 57.1% prevalence alone. Among these, the number of mutated variants in the ROS1 gene should be highlighted, which presented an average of 2.1 mutations per gene. The mutation of the HRAS, PTPN11, WT1, PDGRFB, U2AF1, NRAS, MYD88, IDH2 and DNMT3A genes proved to be the least frequent in the sample, appearing in only 7.69% of patients.

DISCUSSION

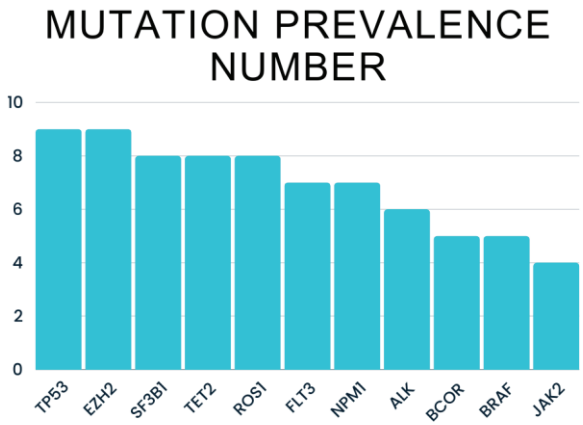
Knowing the phenotypic characteristics of the mutated genes in the sample, correlations can be made with the molecular findings and patient outcomes. Initially, we can mention an 81-year-old female patient, accompanied by low-risk MDS, with no indication of hematopoietic stem cell transplantation(HSCT) and without the need for transfusion, where a mutation of the SF3B1 gene was found, which is related to a good prognosis, especially when commutated with the TET2 gene, which is also present. Next one is a 72-year-old patient, who has an indication for HSCT, the large number of mutations in genes that predict poor prognosis, such as NPM1, SRSF2, ETV6, TP53 and U2AF1, were highlighted, in which the last two genes mentioned would be indicators of high risk of leukemic evolution. One can also mention a patient, female, who died at the age

of 81, in which it would be important to highlight in the genomic profile the mutations in the EZH2 and FLT3 genes, since this patient presented transformation from MDS to AML, an outcome highly correlated with the presence of these genes. Finally, we also evaluated a 59-year-old patient with transformed AML, who underwent HSCT and developed post-transplant relapse, where we can highlight the BCOR gene mutation, which would be highly related to negative outcomes in overall survival.

CONCLUSION

Therefore, we can see that the correlation of negative outcomes related to the genes NPM1, SRSF2, TP53, ETV6, FLT3, EZH2 and U2AF1. Among these, the evolutionary character of FLT3 can be highlighted, which is highly linked to MDS transformations in LMA.

The protective nature of the SF3B1 gene should also be highlighted, which is frequently found in low-risk patients with a good survival rate.



BLOOD DONATION CAMPAIGN AND REGISTRATION OF BONE MARROW DONORS AT A UNIVERSITY CENTER IN CEARÁ: EXPERIENCE REPORT OF AN ACTION PROMOTED BY MEDICAL STUDENTS

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INTRODUCTION

The transfusion of blood components has been gaining prominence in modern therapy, increasing the demand for blood transfusions, therefore, the high need for blood transfusions has been debated as a challenge to public health. Interest Group are fundamentally student entities designed to deepen the discipline of a specific medical field, and their activities are guided according to the principles of the university tripod of Teaching, Research and Extension. In this context, by actively acting on its extension principle, it can help face the challenge of dealing with rates that are still low in donation practice. As blood donation is a process capable of saving lives and, in this context, there is a need to rethink and expand strategies for obtaining blood components, hence the importance of knowledge of this topic by the academic population, and in general, for the maintenance of blood supply in health services.

OBJECTIVE

To report the experience of medical students, members of an interest group, who participated in promoting a blood donation campaign and registration of bone marrow donors.

METHOD

This is an experience report study. The interest group is an extension project founded by a group of Medicine students, coordinated by professors from the University Center, with the mission of adding knowledge to the academic and scientific community, contributing to the improvement of health services provided in the community, in addition to promoting the insertion of academics and the institution in society.

RESULTS

The health education extension action in partnership with the local blood center, although challenging for callers and advisors, provided an innovative extension action, with the aim of obtaining blood donations through collection from academics, through this process to be able to save human lives. With the aim of doing the best, planning was carried out for each stage and the actions and activities to be carried out were elaborated. A publicity campaign for the event was launched on social media, with the aim of encouraging student participation in donations and showing the importance of knowledge on this topic for the academic population. And so, the participants actively participated in all stages of the extension activity carried out at the university center, on April 1, 2024. As a result, 164 blood donation candidates participated and 117 donations were made, in addition to 14 registrations for bone marrow donation. Conclusions: The importance of the role of interest group in blood donation campaigns is notable, in which, through extension activities, it is possible to contribute to forming a network of solidarity, through pro-social behavior, for the benefit of others.

KEY WORDS

Blood Donation. Blood Component Transfusion. Bone Marrow Transplantation.

CARDIOVASCULAR RISK AFTER STEM CELL TRANSPLANTATION: AN OVERVIEW

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INTRODUCTION

Bone marrow transplantation has undergone various advances and proved to be crucial to the treatment of many diseases. However, the procedure carries its risks, and one of the main causes of morbidity and mortality among transplanted patients involves cardiovascular events, being two to four times more common than in immunocompetent patients. This occurs because transplanted patients often experience an intense immune and inflammatory response, which can lead to hemodynamic instability. It's essential to continue to be aware of these risks in order to intervene early in these patients and prevent long-term problems.

OBJECTIVES

The aim of this study is to understand the development of adverse cardiovascular conditions after stem cell transplantation.

METHODS

This is a literature review carried out by analyzing articles published between 2004 and 2024 obtained through the PubMed study base. The descriptors used were "stem cell transplant" and "cardiovascular risk".

RESULTS

Cardiovascular diseases represent a significant component in the mortality of patients undergoing bone marrow transplantation. In the studies described, cardiovascular risk after transplantation varies according to the underlying disease, the risk of previous cardiovascular events, age, sex, habits, especially smoking, and history of chronic kidney disease. High body mass index is not conclusively associated with an increased risk of thromboembolic events. Factor analysis can be calculated using different criteria, the ones widely used in several countries are the Framingham and Systematic Coronary Risk Evaluation (SCORE) models. Notably, patients diagnosed with diffuse large B-cell lymphoma and multiple myeloma had the highest incidence in the short and long term, respectively. The most common events presented were bradycardia, increased QT interval, atrial fibrillation, atrial flutter, ischemia and heart failure, all with a higher incidence over the 5 years after bone marrow transplantation. Studies also suggest the influence of the donor's risk on the risk assessment of the transplant recipient. A multidisciplinary assessment by health professionals is usually necessary, in order to prevent possible complications in the search for complete success of bone marrow transplantation.

CONCLUSIONS

It is concluded that greater monitoring of patients undergoing bone marrow transplantation is necessary for more careful management of the presented risks. This allows for the implementation of personalized interventions, raising the chances of transplant success and long-term quality of life. Lastly, further research is needed to explore the influence of donor risk and other emerging issues in order to advance the prevention and treatment of cardiovascular complications in these patients.

COMPARATIVE EPIDEMIOLOGICAL ANALYSIS OF BONE MARROW TRANSPLANTATION IN THE BRAZILIAN SCENARIO (DATASUS)

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INTRODUCTION

Bone marrow transplantation is an effective therapeutic measure used to treat various hematological diseases. This treatment can be divided into two main types: autologous and allogeneic (from related or unrelated donors). However, the access to this procedure in each region of Brazil is highly divergent, considering its socioeconomic aspects.

OBJECTIVES

This study aims to compare and analyze bone marrow transplantation in the Brazilian scenario, according to DATASUS, as to better understand the current scenario of the use of this type of treatment on a broader scale.

METHODS

This is an epidemiological study based on data obtained from the DATASUS platform regarding bone marrow transplantation procedures occurring from 2019 to 2023, using the number of hospital admissions by year and by the region in which it was performed.

RESULTS

As depicted in figure 1, which considers hospital admissions for bone marrow transplantation among unrelated donors in the last 5 years, there was a 40% decrease in procedures numbers in 2020, followed by an increase of approximately 30% in 2021, a pattern that is likely related to the COVID-19 pandemic, which had a significant impact on medical activities and resource availability, reflected in transplant numbers. Furthermore, there's a stabilization of admission volume between 2021 and 2023, with an average of 122 surgeries per year.

In figure 2, representing total hospital admissions for bone marrow transplantation procedures by region in Brazil, the prevalence of the Southeast region in performing such procedures through Brazil's public health system (SUS) is undeniable, accounting for 70% of procedures, given that most of the country's reference centers are located in the state of São Paulo. Following the Southeast, the South is seen playing a relevant role, representing 21% of all procedures performed through SUS. On the other hand, the Northeast, which accounts for 8%, and the Midwest, accounting for only 1% of all procedures, seem to have much less access to the procedure. Notably, data from the North region was not collected, which requires further investments for a more comprehensive understanding of the bone marrow transplantation situation across the country.

CONCLUSIONS

In conclusion, the data presented highlights the significant influence of the COVID-19 pandemic on the number of bone marrow transplants, while demonstrating that the geographical distribution of procedures within the country underscores the importance of the Southeast and South regions in providing these services, while emphasizing the need to improve data collection in the North and for there to be more investment for the Northeast and the Midwest. This information is essential for guiding health policies and resource allocation to ensure equitable access to bone marrow transplant services throughout Brazil.

Figure 1: Admissions for Allogeneic Bone Marrow Hematopoietic Stem Cell Transplants - Unrelated (2019-2023)

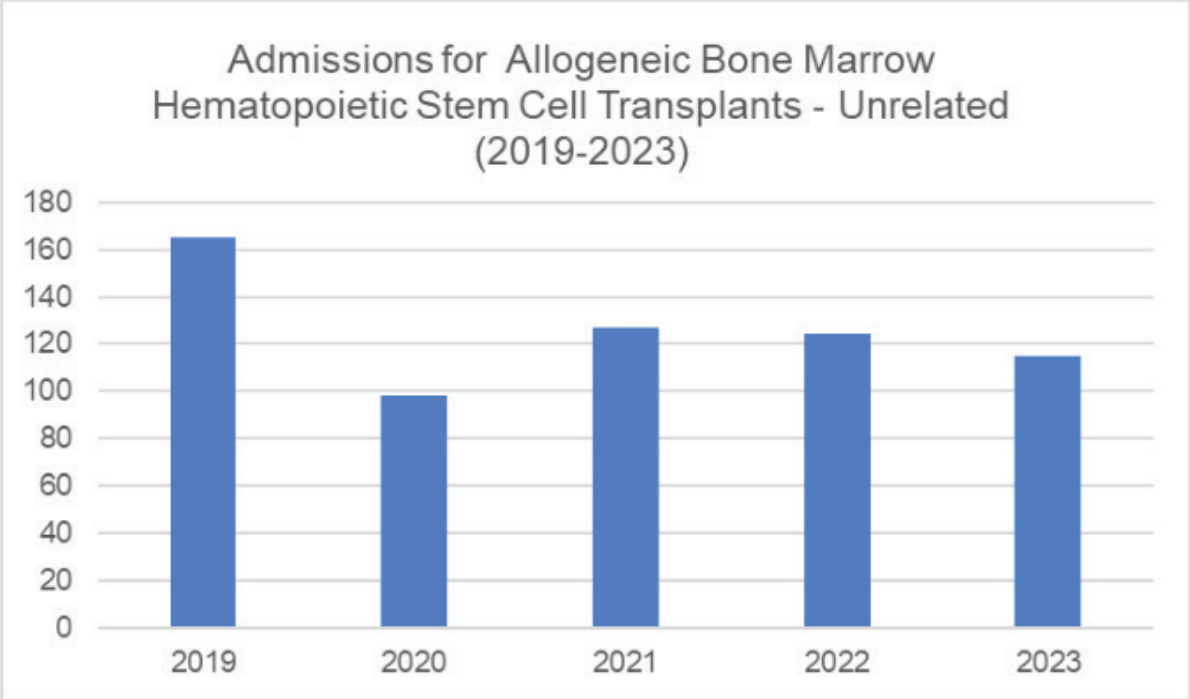
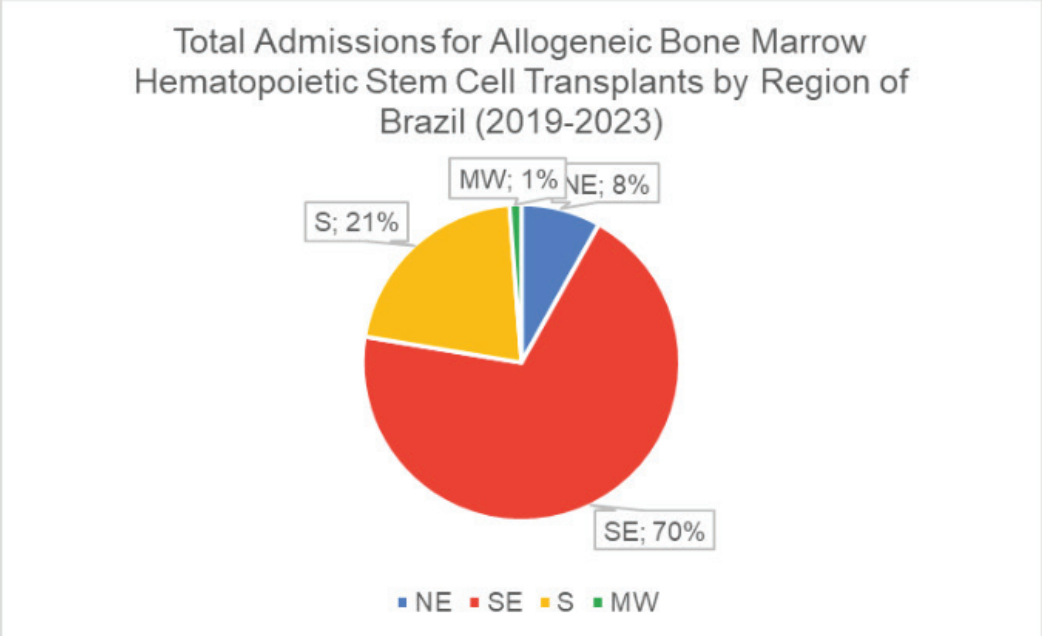


Figure 2: Total Admissions for Allogeneic Bone Marrow Hematopoietic Stem Cell Transplants by Region of Brazil (2019-2023)



DETERMINING FACTORS IN BONE MARROW TRANSPLANT REJECTION AND HOW TO PREVENT IT

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INTRODUCTION

Hematopoietic stem cell transplantation is a widely successful therapy for a great variety of diseases. However, many key factors, such as the accuracy of the genetic matching and the patient's compliance to the chosen conditioning regimen, must not be overlooked, as they exert great influence on the event of an early or late rejection of the treatment. Therefore, it is essential to point out the most recent studies emphasizing these crucial variables and nuances of bone marrow transplantation, as well as the development of preventative measures which should be taken to provide the patient with a safer and more predictable outcome.

OBJECTIVES

This study aims to analyze the most influential factors in bone marrow transplant rejection, as well as prevention mechanisms to overcome these factors and their possible outcomes.

METHODS

In the present descriptive study, a review of seven articles published in the PUBMED and SCIELO databases was conducted. These articles, dated between 2015 and 2022, were selected using the following keywords: immunosuppression, rejection and surveillance.

RESULTS

Notably, the main predisposing factors for bone marrow rejection were identified as incompatibility between donor and host, host immunocompromise, and, in addition, the use of immunosuppressants. Regarding incompatibility, studies revealed that the predisposition to rejection is higher with an unrelated donor compared to a related donor due to the differences in histocompatibility antigens. Furthermore, in relation to immunocompromise, it was observed that patients with a history of multiple treatments before the transplant faced a higher risk of rejection. Concerning the use of immunosuppressants, these medications can be used for prevention; however, they were found to be associated with side effects. A new and promising preventive measure to reduce immunological rejection is the removal of some T cells derived from the donor. Another strategy is the use of monoclonal antibodies that inhibit the recognition of foreign bodies by the host's cells. It is important to highlight that both techniques carry the risk of aggravating immunosuppression.

CONCLUSIONS

Based on the research findings, it is evident that bone marrow rejection is influenced by several predisposing factors, including donor-host incompatibility, host immunocompromise, and the use of immunosuppressants. Introducing new preventive measures has been essential to reduce immunological rejection. However, it is crucial to acknowledge that these techniques carry inherent risks and are not yet fully reliable. Further research of these approaches are imperative to enhance transplant success rates and minimize complications in transplantation.

EPIDEMIOLOGIAL INSIGHTS INTO BONE MARROW TRANSPLANTATION IN BRAZIL: ADDRESSING UNDERREPORTING.

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INTRODUCTION

Bone marrow transplantation (BMT) serves as a critical therapeutic intervention for various hematological disorders, offering patients the potential for prolonged survival and improved quality of life. In Brazil, the evolution of BMT over recent decades has been marked by significant advancements in technical and scientific capabilities, broadening the scope of treatable conditions and enhancing patient care through the establishment of specialized centers with multidisciplinary expertise.

In Brazil, this method has shown important evolution over the last few decades, with significant technical-scientific advances, in addition to expanding the spectrum of treatable diseases and the incorporation of new indications, providing, for this purpose, complex instruments with trained multidisciplinary teams, in order to offer the necessary support to patients throughout the process. Currently, the country is one of the leaders in BMT in Latin America, with a well-established network of specialized centers and results comparable to those of large centers in the world.

In this context, there are essential reporting institutes for collecting, analyzing and disseminating information about this therapeutic method. These entities play a pivotal role in program monitoring, efficacy and safety evaluation, and the formulation of evidence-based public health policies. Noteworthy among these reporting bodies are the Brazilian Association of Organ Transplantation (ABTO), the Center for International Blood and Marrow Transplant Research (CIBMTR), a global repository of transplant data, and the Information Technology Department of the Unified Health System (DATASUS).

This paper aims to elucidate the variance in reporting practices among these institutions and advocate for the imperative of standardization in data collection and assessment methodologies. By examining discrepancies in reporting metrics and methodologies, this study underscores the necessity for harmonization to ensure consistency, reliability, and comparability of BMT data.

METHODS

This study adopts a cross-sectional, retrospective, descriptive, and qualitative approach, utilizing data sourced from the Brazilian Unified Health System (SUS) information system (DATASUS), as well as from the Brazilian Transplant Registry (ABTO) and the Center for International Blood and Marrow Transplant Research (CIBMTR), represented by the Brazilian Society of Bone Marrow Transplantation (SBTMO).

Data retrieval was conducted through comprehensive searches on these platforms, focusing on the number of bone marrow transplants performed in the year 2023. Regional analyses were undertaken, encompassing the North, Southeast, South, and Central-West regions of Brazil, as well as an evaluation of national trends.

RESULTS AND DISCUSSION

The results demonstrated that there are large variations in the reporting of bone marrow transplant cases in Brazil, demonstrating a difference of 1,357 cases between the ABTO (4,262 cases) and DATASUS (2,905 cases) databases and 2,340 cases between DATASUS and CIBMTR (1,922 cases). In addition to the numer-

ical discrepancies between the ABTO, DATASUS and CIBMTR databases, a variation was observed in the geographic distribution of bone marrow transplant (BMT) cases in Brazil. According to available data, the state of São Paulo had the highest number of registered BMTs, both in the ABTO database, with 1,845 cases, and in DATASUS, with 1,161 cases (Table 1). However, it is important to highlight that the CIBMTR database did not present records by state.

These discrepancies can be attributed to differences in notification criteria and data collection methodologies between the institutions responsible for the databases. In particular, the CIBMTR database stands out for its detailed recording, which includes patient follow-up in the first 100 days, 6 months and 1 year post-transplant. While this level of detail allows for a more comprehensive assessment, it also presents a challenge for record keeping centers.

Given these discrepancies and the importance of accurate data for making clinical decisions and health policies, the need for greater uniformity in the reporting of BMT data at a national level is evident. Collaboration between different study banks is essential to guarantee the reliability and representativeness of the results. Furthermore, the implementation of standardized guidelines for data collection and reporting can significantly contribute to a better understanding of the epidemiology and outcomes of bone marrow transplantation in Brazil.

CONCLUSION

In short, standardizing the notification of bone marrow transplants in Brazil is essential to improve the quality of registration, facilitate the analysis of results and, consequently, improve the care provided to patients. Health in all degrees of complexity is affected by the lack of investment, gradually reducing coverage that no longer reached many regions.

It was identified that bone marrow transplantation is an extremely complex process, with users going through several hardships before accessing treatment. Deprivations that are not always related to illness, but the precarious conditions of an entire life that loom large in this new path. This study highlights the importance of continuous efforts in the search for excellence in monitoring and treating these diseases, always aiming for the well-being and health of the population.

TABLE 1

REGIÃO	ABTO	DATASUS	ABTO-DATASUS	CIBMTR
SP	1845	1161	684	
PR	415	307	108	
MG	400	356	44	
RJ	320	126	194	
RS	303	189	114	
PE	263	242	21	
DF	193	96	97	
CE	150	92	58	
SC	136	134	2	
RN	113	112	1	
BA	69	52	17	
GO	34	23	11	
PA	12	2	10	
PB	9	13	-4	
TOTAL	4262	2905	1357	1922

EXPLORING GRAFT-VERSUS-HOST DISEASE: AN UPDATED PERSPECTIVE ON THIS NON-INFECTIOUS COMPLICATION

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is a therapy of utmost importance for hemato-oncological patients, as it holds curative potential for various benign or malignant diseases. However, this procedure may be associated with some complications, such as Graft-Versus-Host Disease (GVHD), which occurs when the graft cells recognize the recipient as foreign and initiate an immune response against the healthy tissues of the host. In this context, it is of fundamental importance to extensively address this topic in scientific productions to optimize the outcomes of HSCT and expand its curative potential.

OBJECTIVE

To understand the importance of knowledge about Graft-Versus-Host Disease in post-Hematopoietic Stem Cell Transplantation patients in order to better address their needs

METHOD

This is a systematic review related to Graft-Versus-Host Disease, conducted based on available medical literature identified through searches on the MEDLINE/PubMed platform. Articles, systematic reviews, and controlled studies in both English and Portuguese were included in all their versions.

RESULTS

The impact of Graft-Versus-Host Disease on the survival of patients undergoing HSCT is considerable, primarily influenced by the severity of the disease, the timing of onset, the extent, and the organs involved. Despite the prophylactic use of immunosuppressive drugs, approximately 50% of HSCT recipients develop GVHD with varying degrees of severity and mortality. In light of these findings, various strategies have been developed to reduce this negative impact on patients' lives, including the use of less intensive conditioning regimens, targeted immunosuppressive therapies, cellular therapies, increased monitoring strategies for GVHD, among others.

CONCLUSION

It is concluded that GVHD continues to represent a significant clinical challenge in HSCT. However, ongoing advances in the diagnosis, treatment, prophylaxis, and management of this condition contribute to improving the quality of life and mitigating the harm to patients undergoing this vital treatment.

FANCONI ANEMIA AND HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT): LITERATURE REVIEW

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INTRODUCTION

Fanconi's Pancytopenia Syndrome is a rare and heterogeneous genetic disease, affecting approximately 1 in 360,000 births across all ethnic groups. In Fanconi anemia (FA), the only treatment with the potential for hematological cure is hematopoietic stem cell transplantation (HSCT).

OBJECTIVE

This study aims to conduct a systematic review of the scientific literature to investigate the relationship between Fanconi anemia and bone marrow transplantation.

Methods: This study aimed to conduct a systematic review of the scientific literature addressing the relationship between Fanconi anemia and bone marrow transplantation. It is a qualitative and descriptive literature review, selecting studies from the SCIELO, PUBMED, and LILACS databases. The search involved reading 11 articles that met the study's objectives. Data selection occurred between April 12 and 20, 2024, covering the period from 2019 to 2023. The descriptors "bone marrow transplantation," "Fanconi anemia," and "treatment" were used. Result: From the reviewed articles, it was understood that HSCT improved survival in Fanconi anemia patients, especially when performed before the age of 10 and with bone marrow stem cells. During the aplasia phase, HSCT demonstrates remarkable results, especially in patients with few transfusions and who have a fully compatible sibling donor. Supportive treatment for patients with bone marrow failure involves the use of androgens, growth factors, and blood transfusions. However, in cases of myelodysplasia and leukemia, the benefits of HSCT are limited, with only 10% to 20% of patients showing improvement, even when combined with radiotherapy or other conditioning drugs. Certain factors, such as extensive malformations, positive cytomegalovirus sorology in the recipient, and female donors, are associated with less favorable outcomes. Autologous gene therapy emerges as an alternative to avoid complications of allogeneic transplantation. Despite being the only curative option, HSCT faces challenges, especially due to the lack of generalization of results due to the dependence on case series from a single center. Therefore, multicenter collaboration is essential to enhance knowledge and optimize therapeutic strategies for Fanconi anemia patients.

CONCLUSION

This review highlights the crucial role of hematopoietic stem cell transplantation, a therapeutic approach used in the treatment of Fanconi anemia. This type of transplantation is an important curative option for patients with Fanconi anemia, offering the possibility of restoring normal hematopoietic function.

KEYWORDS

Hematopoietic stem cell transplantation, Fanconi anemia, Treatment.

GRAFT-VERSUS-HOST DISEASE (GVHD) AS A NON INFECTIOUS COMPLICATION FOR BONE MARROW TRANSPLANT: TREATMENT AND PROGNOSIS

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INTRODUCTION

Graft-versus-host disease (GVHD) is a common complication that may affect patients undergoing allogeneic hematopoietic stem cell transplantation, which occurs when the donor's alloreactive cells identify the recipient's body as foreign, causing various systemic immunological manifestations. Additionally, GVHD can be acute or chronic, and what differentiates the two is the clinical condition, not the time of onset of presentations. Regarding treatment, on average, half of all patients become resistant to medication, which can lead to a poor long-term prognosis.

OBJECTIVE

This study aims to review and synthesize the results of several studies on the treatment and prognosis of patients affected by graft-versus-host disease.

METHODS

In the present descriptive study, six articles published in the PUBMED database were conducted. The articles, dated between 2020 and 2022, were chosen using the following keywords: GVHD, complication and prognosis.

RESULTS

According to recent research, GVHD is the main cause of morbidity and mortality associated with bone marrow transplant and can be present in 30 to 50% of cases. Certain risk factors greatly predispose its occurrence, such as incompatibility between host and donor. Regarding prognosis, the severity of GVHD will depend on the response to initial therapy. In cases where positive results are observed with treatment or when GVHD manifests only on the skin, there's a better prognosis. However, when there is refractory GVHD, especially involving the gastrointestinal tract, the prognosis is worse. Early treatment is extremely important and the most current studies point out that the first line of treatment for acute and chronic GVHD is based on the use of corticosteroids. However, there is not yet a consensus on the management of GVHD-like rejection, a condition that presents a physiological and symptomatic mixture between GVHD and graft rejection. In this case, there are three discussed potential agents: Ruxolitinib, Ibrutinib, and Belumosudil, with the caveat that the last two are used only in the chronic stage.

CONCLUSIONS

GVHD is a common complication in patients undergoing allogeneic bone marrow transplants and its severity can range from mild to life-threatening, often causing high morbidity and mortality. Therefore, it is crucial to understand the most viable preventive measures. Additionally, it is worth noting that immunosuppressive therapy with corticosteroids is not the only available treatment option and there isn't currently a consensus on the best treatment for GVHD. Therefore, future studies should investigate new therapies in different settings of the complication in order to contribute to the therapeutic landscape for this prevalent condition.

IMPACT OF THE COVID-19 PANDEMIC ON ACCESS TO AND PERFORMANCE OF BONE MARROW TRANSPLANTATION: CHALLENGES AND ADAPTATIONS

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INTRODUCTION

Bone marrow transplantation is a form of treatment used mainly for advanced hematological diseases. It's important to note that its performance impacts the overall immunity of recipients and, in these patients, the COVID-19 pandemic poses a series of serious risks. Patients are more susceptible to acquiring the virus due to the procedure's immunosuppression, which requires additional caution. Furthermore, the pandemic hindered the number of people registering to be bone marrow donors, causing a reduction in the number of donors which lingers to this day.

OBJECTIVES

The aim of this study is to analyze the impact of the COVID-19 pandemic and its adaptations to deal with the ongoing need for bone marrow transplants amid various challenges during this period.

METHODS

This is a systematic literature review study supported by scientific articles published in the following databases: PUBMED and SCIELO. To guide the selection of the articles used for the study, the keywords "bone marrow transplantation" and "COVID-19 pandemic" were used.

RESULTS

Based on the selected articles, several points stood out regarding the effects of the COVID-19 pandemic on the access and performance of bone marrow transplantation. Mainly at the beginning of the pandemic, due to the scientific community's lack of knowledge regarding the virus, many transplants were delayed. Around the world, there was a great challenge in managing the use of health resources, such as intensive care units, which needed to be divided between transplanted people with various illnesses and non-transplanted patients who needed healthcare services for severe COVID-19 cases. Additionally, considering the risks and benefits of performing a transplant, patients with cardiopulmonary comorbidities had their procedures postponed, since potential mortality associated with post-transplant COVID-19 infection was superior to the expected benefit of the transplant. Meanwhile, many other patients had their transplant postponed due to the state of immunosuppression related to the procedure. Furthermore, due to mandatory isolation and the reduction in flights, the transportation of material needed in bone marrow transplant was hampered and, therefore, the number of transplants was reduced.

CONCLUSIONS

In conclusion, the COVID-19 pandemic has posed significant hurdles for bone marrow transplantation, affecting treatment accessibility and success rates. Initial virus-related uncertainties caused transplant delays, while logistic challenges, such as transportation disruptions, further complicated the process. To overcome these challenges, enhanced communication among transplant centers, better resource allocation, and ongoing awareness campaigns for bone marrow donation were and remain essential. Addressing these issues is vital to ensure access to this life-saving treatment, even amidst future crises.

LEUKOCYTAPHERESIS FOR PATIENT WITH ACUTE MYELOID LEUKEMIA PRESENTING WITH A HYPERLEUKOCYTOSIS AND LEUKOSTASIS: A LITERATURE REVIEW

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INTRODUCTION

Acute myeloid leukemia (AML) is the most common form of acute leukemia in adults and is characterized by the uncontrolled proliferation and interruption of differentiation of immature blood cells. This results in the infiltration of malignant cells into the bone marrow. One of the complications of AML is hyperleukocytosis, defined by an increase in the leukocyte count of more than 100x109/L, which constitutes a hematological emergency and possibly evolving leukostasis, a condition that has systemic involvement, mainly affecting the central nervous system and the lungs. One of the proposed treatments for the management of hyperleukocytosis and leukostasis in patients with AML is leukapheresis, which consists of removing white blood cells from the blood using an apheresis machine and centrifugation.

OBJECTIVE

This study aims to comprehensively review the efficacy and safety of leukocytapheresis in treating acute myeloid leukemia patients with hyperleukocytosis and leukostasis, critically analyzing available evidence on its impact on clinical outcomes.

METHODOLOGY

This is a literature review, using the MEDLINE and EMBASE databases with the descriptors “hyperleukocytosis”, “leukemia”, “acute leukemia”, “leukocytapheresis” and “leukostasis” with the analysis of four articles having as inclusion criteria works published since 2020 and until 2024 in English.

RESULTS

Results of two meta-analyses reveal that leukapheresis do not improve early mortality compared to non-leukapheresis did not improve early mortality. Across 24 retrospective studies.Subgroup analyses based on hyperleukocytosis cutoff (≥ 95,000/m^3 or ≥100,000/mm^3 ≥ and 50,000/mm^3) also showed no significant benefits in early monitoring Notably, leukapheresis was more frequently utilized in patients with clinical in patients with clinical leukostasis.

CONCLUSION

Leukapheresis is one of the options used to manage hyperleukocytosis and leukostasis in patients with AML, by reducing leukocytes. However, it has limitations, as it does not remove blast cells from the bone marrow and affected organs, which can lead to a rebound of hyperleukocytosis in the short term. Some studies state that leukapheresis is recommended for all patients with hyperleukocytosis with or without clinical manifestations, to prevent symptoms of leukostasis. However, the results of studies have shown that the early mortality benefit is still inconclusive. In addition, leukapheresis is a procedure that is not without risks, mainly related to the use of a central venous catheter, which predisposes to infection, thrombosis and hematoma, as well as other adverse events.

MAIN INDICATIONS FOR BONE MARROW TRANSPLANTATION IN PEDIATRICS AND THEIR MOST COMMON COMPLICATIONS

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INTRODUCTION

Pediatric bone marrow transplantation has been increasingly successful as a form of treatment for children and is currently being used as treatment for a wide spectrum of pediatric diseases. Unfortunately, there are complications associated with the procedure, which, on the other hand, are being reduced each year.

OBJECTIVES

This study aims to review updated studies on bone marrow transplantation in the pediatric population, with an emphasis on indications and possible complications.

METHODS

In the present descriptive study, a review of 12 scientific articles published in the PUBMED and SCIELO databases was conducted, with the articles dating between 2014 and 2022 and chosen using the following keywords: bone marrow transplantation, hematopoietic stem cells, complications, and children.

RESULTS

Currently, one marrow transplantation remains a preferred treatment approach for numerous pediatric hematologic malignancies; notably, it is the primary alternative when chemotherapy proves ineffective for tumors. The analyzed articles emphasize the importance of assessing various factors before subjecting a child to bone marrow transplantation, emphasizing the need for an individualized analysis considering aspects such as the child's age, disease stage, availability of a compatible donor, and the potential risks and benefits of the procedure. Data collection showed leukemias, severe anemias, primary immunodeficiencies, and metabolic disorders as the main pediatric pathological conditions that require the aforementioned treatment; furthermore, one of the scientific articles highlights that each disease requires individual indications for the most appropriate type of transplant, whether autologous, related allogeneic, or unrelated allogeneic. Additionally, attention is also directed to risk factors for treatment-related mortality, including HLA mismatch, age, myeloablative conditioning regimen, and comorbidities. Moreover, research reveals that the main complications in adverse events after hematopoietic cell transplantation generally include an immune reaction, called graft-versus-host disease (GVHD), highlighting both acute and chronic forms, as well as bacterial, viral, and fungal infections, hepatic and renal toxicities; conversely, other analyzed data reveal that cardiovascular and neurological complications may also be present.

CONCLUSIONS

Considering a significant increase in the number of children receiving bone marrow transplants, it's important to note indications for this therapy and detect possible short- and long-term effects and complications in these patients. From the analysis of relevant previous studies, it was possible to list main indications, highlighting leukemias, anemias, immunodeficiencies, and metabolic disorders, as well as the most common complications, with GVHD and infections caused by different etiological agents being the main ones that practitioners should look out for.

METHODOLOGY THROUGH A SEMINAR ON FANCONI ANEMIA AND HEMATOPOIETIC STEM CELL TRANSPLANTATION: AN APPROACH BY THE HEMATOLOGY INTEREST GROUP

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INTRODUCTION

Fanconi Anemia (FA) is a genetic disease, usually inherited in an autosomal recessive manner, with a high risk of developing pancytopenia and evolving into leukemias and solid tumors, with an estimated incidence of about 3 per 1 million live births. Currently, hematopoietic stem cell transplantation (HSCT) is the treatment with the perspective of hematologic cure for FA, and Brazil has been an international reference in this modality. Objective

To present the theme of Fanconi anemia, as well as to examine the available treatment options, with emphasis on bone marrow transplantation. Methods: On April 30, 2024, the weekly meeting of an academic Hematology league took place. On this occasion, a seminar was presented by a member of the league, whose central theme was Fanconi Anemia (FA). The seminar aimed to facilitate understanding of the adressed theme among interest group members. A total of 10 participants were present, including medical students from various semesters, as well as interest group faculty mentors. Following the presentation, group discussions were held to further understand the topic in detail, and the experiences and knowledge of the attending faculty members regarding the topic were shared.

RESULT

During the seminar, Fanconi anemia was discussed, demonstrating that it is a rare and severe genetic condition that affects the production of blood cells in the bone marrow. Regarding diagnostic methods, the most commonly used is genetic testing, analyzing genes most affected such as FANC and BRAC (1 and 2). Additionally, it was demonstrated that one of the most effective treatment approaches for Fanconi anemia is hematopoietic stem cell transplantation, also known as bone marrow transplantation. In this procedure, the patient's defective cells are replaced by healthy stem cells from a compatible donor. Another point emphasized by the students was that bone marrow transplantation is not without risks. Potential complications include graft rejection, infections, side effects of immunosuppressive therapy, and other medical complications.

CONCLUSIONS

Therefore, the seminar on Fanconi anemia offered a unique opportunity for participants to deepen their knowledge about Fanconi anemia and enhance the clinical skills of future healthcare professionals in diagnosing and managing this rare condition.

KEYWORDS - Fanconi anemia; Hematopoietic Stem Cell Transplantation; hematology.

PEDIATRIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) IN BRAZIL: A REGIONAL CHALLENGE

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is an advanced therapy that has presented a major revolution in the treatment of several serious hematological and immunological diseases. In Brazil, this therapeutic modality has gained increasing prominence and space over the years, becoming a viable and effective option for many patients. The procedure consists of replacing the patient's hematopoietic stem cells with healthy cells, generally collected from the bone marrow, peripheral blood or even the umbilical cord of a compatible donor. Healthy stem cells have the ability to regenerate the hematopoietic system, thus allowing unaltered blood cell production and, in many cases, eradicating the underlying disease.

In Brazil, HSCT is performed in multiple specialized centers and always in the presence of a highly qualified multidisciplinary team. These centers are distributed throughout the national territory, with a strong focus on the South and Southeast of the country, mainly in Curitiba and São Paulo, thus facilitating patients' access to treatment. Furthermore, the Unified Health System (SUS) guarantees coverage for transplantation in several situations,offering therefore, access to therapy among different social strata.

One of the main characteristics of HSCT in Brazil is the constant technological evolution of the therapy, consolidating current scientific methods and representing an important option in cases of serious hematological and immunological diseases.

OBJECTIVES

To demonstrate the disparity of pediatric HSCT centers in Brazil, in a disproportionate number to the diseases that require this procedure in all regions of the country.

MATERIAL AND METHODS

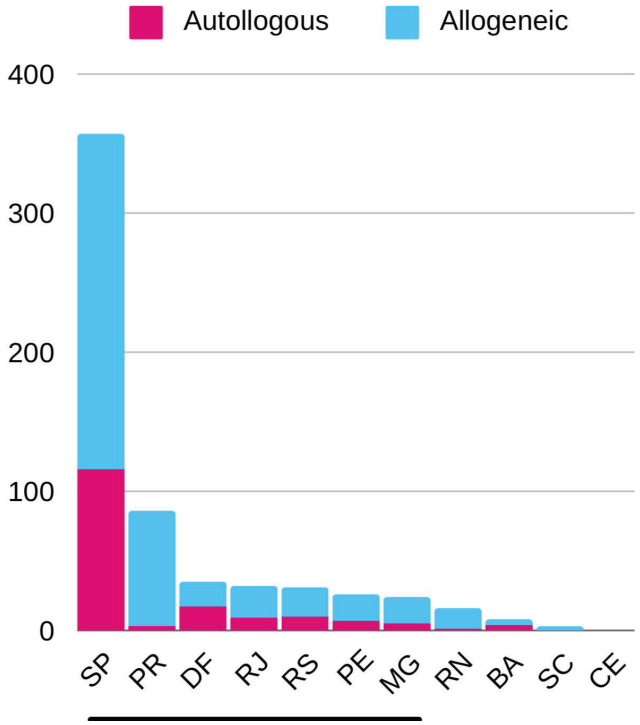
It consists of a cross-sectional, retrospective, descriptive and qualitative study, using data from the Brazilian Transplant Registry (ABTO). A search was carried out on this platform selecting the number of pediatric transplants performed in 2023 in the north, southeast, south and central-west regions of Brazil.

RESULTS AND DISCUSSION

During the year 2023, an analysis of the Brazilian Transplant Registry revealed a significant disparity in the performance of pediatric transplants between different regions of Brazil. In São Paulo, for example, 357 pediatric transplants were performed, in contrast to only one performed in Ceará (Figure 1). These numbers contrast with DATASUS data, which indicated a substantial number of children diagnosed with leukemia in the northeast, totaling about 415 cases in 2023, a condition often indicative of the need for hematopoietic stem cell transplantation (HSCT). the absence of transplant centers in the northern region of the country becomes apparent, while DATASUS data records approximately 376 new cases of patients with pediatric leukemia in the same region during the same period. This discrepancy in the geographic distribution of pediatric HSCT centers in Brazil raises significant concerns. Regions with a high incidence of pediatric leukemia often face difficulties in accessing these procedures due to a lack of specialized centers nearby.

CONCLUSION

The disparity in the distribution of pediatric HSCT centers in Brazil is evident, with a significant concentration in the South and Southeast regions, notably in Curitiba and São Paulo. This discrepancy contrasts with national demand, as evidenced by data from the Brazilian Transplant Registry and DATASUS, suggesting the pressing need for a more equitable distribution of these services throughout the national territory. Expanding the network of HSCT centers in regions with a high incidence of pediatric diseases that require this procedure is crucial to ensuring equal access to this vital treatment. Such a measure could not only mitigate regional disparities in access to healthcare, but also promote improvements in clinical outcomes for children across the country.



RBT, 2023. DATA ON PEDIATRIC MARROW TRANSPLANTATION BY STATE IN BRAZIL IN 2023.

Region	Total
Total	1.652
1 North	376
2 Northeast	415
3 Southeast	487
4 South	242
5 Central West	132
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TABLE 1. DATASUS. NEW CASES OF PEDIATRIC LEUKEMIA IN BRAZIL IN 2023.

STEM CELLS TRANSPLANTATION FROM UMBILICAL CORD BLOOD: MAIN ADVANTAGES AND DISADVANTAGES

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INTRODUCTION

The fetal blood, present in the umbilical cord, is known to be rich in hematopoietic stem cells, capable of producing the fundamental components of blood while having a higher proliferative rate compared to other stem cells. As a result, they have been extensively researched in the treatment of both malignant and non-malignant disorders. Nowadays, this treatment option still carries value due to several of its advantages, including the dispensation of complete compatibility between the cord blood and the patient, as required in bone marrow donation. However, disadvantages include the limited quantity of cells obtained from a single cord, which sometimes requires the use of multiple cords for application in adults.

OBJECTIVES

This study aims to critically analyze and point out the main uses and advantages, as well as real life applicability and disadvantages of umbilical cord blood as a form of treatment for hematological diseases.

METHODS

In the present descriptive and retrospective study, a review of seven articles published in PUBMED and SCIELO databases was conducted. These articles, dated between 2012 and 2022, were chosen using the following descriptors: umbilical cord blood, stem cell transplantation, fetal blood.

RESULTS

As a result of the research, the most mentioned advantages found in articles were: the possibility of quickly transplanting when finding a donor; does not require high HLA (human leukocyte antigen) compatibility, which increases the number of possible donors; lower risk of graft-versus-host disease, due to the low number of T lymphocytes and their immaturity; absence of risk to the newborn and mother at the time of collection and the high concentration of hematopoietic stem cells in umbilical cord blood (UCB). However, in regards to the notable disadvantages of the procedure, the following were identified: low availability of donors; small volume of blood available, taking into account the minimum volume required for transplants in adults, which leaves this type of transplant restricted to young recipients; fixed number of total nucleated and CD34 positive cells in each unit, making it impossible to adapt them to the recipient's weight, as well as to reuse them for immunotherapy; greater susceptibility to infections after transplantation, due to the slower immunological reconstitution.

CONCLUSIONS

Overall, considering the data presented in this summary, it is clear that the use of umbilical cord blood stem cells (UCSC) has been beneficial for patients requiring hematopoietic stem cell transplantation, despite some noticeable disadvantages. Therefore, it is possible to state that umbilical cord hematopoietic stem cell transplantation, despite its limitations, is a well established practice worldwide which can still be considered, as it is a safe option when performed correctly and in the right contexts. Nevertheless, new research is crucial to improve and overcome current limitations.

THE SIGNIFICANCE OF THE CLINICAL SESSION ON BONE MARROW DONATION ORGANIZED BY THE ACADEMIC LEAGUE OF HEMATOLOGY: EXPERIENCE REPORT

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INTRODUCTION

Hematology interest group are extension educational projects aimed at providing research, outreach, and teaching experiences in the field of hematology and hemotherapy to medical students, in order to enhance technical and scientific knowledge among students seeking further understanding in hematological studies. Among the activities carried out by the interest group, clinical sessions stand out, fostering moments of knowledge exchange between faculty and students, aiming to ensure the necessary pedagogical support for students to address educational and professional demands that will arise throughout their medical careers.

OBJECTIVE

Reporting on the importance of the experience lived during the clinical session on bone marrow donation promoted by an Hematology interest group. Method: Since its foundation in 2021, the group has been promoting numerous clinical sessions throughout the semester, aiming to integrate multidisciplinary knowledge among its members. On September 4th, 2023, the clinical session on bone marrow donation took place, with the participation of 9 students and 1 supervisor. The theoretical explanation was prepared by two students and presented in slide format to the other students and collaborators. Initially, the concept of bone marrow was defined, followed by a joint analysis with the professors on the types of donation and the requirements to become a donor. Subsequently, the criteria used by the blood center for donor selection and the main indications for transplantation were addressed. Finally, the stages of marrow collection were described, as well as the phases of the transplant process. During the presentation, students raised their doubts and debated the importance of the topic. Result: The educational tool used yielded positive results, as the members remained attentive to the information and actively participated in knowledge construction. Moreover, it sparked the interest of participants in becoming potential donors and assisting in the recruitment process. It also helped improve technical-scientific competencies through a rich intellectual experience. Conclusion: Theoretical-active methodologies such as those developed by interest group enable greater commitment from students to the development of extension projects aimed at social causes such as bone marrow donation campaigns. Through these tools, students can understand the importance of donation and the entire scientific and social complexity involved in recruiting donors and donating bone marrow. Consequently, it contributes to the improvement of health services provided and mobilizes the student community for social causes.

KEYWORDS

Bone marrow, Donation, Methodologies.

THE TREATMENT OF NEUROBLASTOMA IN BRAZILIAN CHILDREN WITH NEUROBLASTOMA: THE MEDICAL STUDENT'S PERSPECTIVE

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INTRODUCTION

Neuroblastoma (NB) is the most prevalent pediatric extracranial solid malignancy. Risk stratification depends on disease characteristics, such as age, staging, MYCN amplification, chromosome 11q abnormalities and ploidy status. This stratification determines treatment intensity and patient's prognosis. Children with high-risk disease need multimodal treatment: induction with chemotherapy, surgery, autologous stem cell transplant (ASCT), radiation to the primary tumor and sites of persistent disease, anti-disialoganglioside 2 (anti-GD2) immunotherapy, 13-cis retinoic acid, and Eflornitin (di-fluo-methylornithine – DFMO). Targeted therapy with Lorlatinib to Alk-mutated tumors and the use of therapeutic MIBG (meta-iodo-benyl-guanidine) are still under investigation. With the current multimodal therapy, survival has increased from 15% to over 50% of children with high-risk disease. The search for more effective treatments for NB has become an increasing priority in the scientific community due to its complexity and the need to improve survival rates. Despite all international efforts, little is known about the therapy of NB in Brazilian children. As medical students, the objective of our study is to understand the therapy of NB in our country.

METHODS

This is a search of information found in PubMed and SciELOdatabases between 2015 and 2024, as well as Brazilian social media.

RESULTS

There is a notable and growing search for more effective treatments in prolonging the life expectancy of NB patients. With the improvement in prognosis, there is increasing awareness of the importance of immunotherapy with anti-GD2 monoclonal antibodies after ASCT to further increase survival. The number of patients with relapsed disease is still too large. It is of note that there are no Brazilian studies on immunotherapy. This reality has a direct impact on the difficulty of Brazilian patients to have access to adequate treatments, which, in addition to being extremely expensive, are not offered by the "Sistema Unico de Saúde" (SUS). The Brazilian Ministry of Health informs that this therapy may only be made available after further complex analyses of efficacy proven by scientific studies. In conclusion, significant progress in the treatment of neuroblastoma in pediatric patients were made, but these advances do not translate yet in better caring for the Brazilian children.

UNDERSTANDING THE MAIN CAUSES OF INFECTIOUS COMPLICATIONS IN HEMATOPOIETIC STEM CELL TRANSPLANTATION: PROPHYLACTIC STRATEGIES

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) has emerged as one of the main therapeutic approaches for patients with various diseases, especially in pediatrics. Despite the good applicability, the practice of this procedure has shown a high rate of complications, particularly infections and long-term venous access complications, leading to a high morbidity and mortality rate. Therefore, it is necessary to analyze these common aggravations in HSCT promptly, implementing preventive and early therapeutic measures to investigate the best management approach for these patients and to promote the effective multidisciplinary approach that the procedure requires, aiming at reducing harm. Objective Understand the main complications related to HSCT, and act on early and preventive treatment.

METHODOLOGY

Using the PUBMED database and the keywords "Hematopoietic Stem Cell Transplantation" and "infectious complications", an analysis was carried out from 2019 to 2023 of systematic reviews and meta-analyses, totaling 13 complete articles.

RESULTS

Infectious complications are the leading cause of morbidity and mortality compared to other complications associated with HSCT, such as Graft-versus-Host Disease, neurological and pulmonary complications, endocrine disorders, and death. During the conditioning phase for HSCT, the patient undergoes high doses of chemotherapy and/or radiotherapy aimed at causing immunosuppression, making the individual susceptible to severe neutropenia, which is the main risk factor for infections as bone marrow depletion predisposes to infections by viruses, bacteria, or fungi. Therefore, the prophylactic use of antibiotics, triazole antifungals and antivirals, respectively, stands out. Additionally, individuals undergoing HSCT are typically implanted with a long-term catheter, usually a Hickman catheter, even before the conditioning phase, which may be associated with infectious complications, leading to early removal and the need for new intravenous devices. Furthermore, it is crucial to identify possible signs of severity and risk factors for complications in children and adolescents, such as the advanced age of the recipient and donor, negative serological status for cytomegalovirus in the donor, and the use of total body irradiation.

CONCLUSION

Given the above, a series of measures need to be implemented in a multifactorial aspect for all patients undergoing HSCT, such as avoiding invasive procedures in the transplant recipient, local cleaning accompanied by inspection, and the prophylactic use of drugs against infectious agents, involving medical practices and nursing care, highlighting that aseptic care in HSCT is quite specific and should be performed by specialized and trained professionals. However, it is essential to inform about the possible complications of the procedure to provide rigorous multidisciplinary follow-up, minimizing sequelae, improving survival rates and enhancing quality of life.

VIRAL INFECTIONS IN STEM CELL TRANSPLANTATION: AN OVERVIEW

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INTRODUCTION

Bone marrow transplantation is a crucial treatment for many life-threatening conditions, and expanding research has undoubtedly made it progressively safer and more efficient. Nonetheless, when considering the treatment's impact on a patient's immune system, a common and high risk complication involves the occurrence of infections, which pose difficult challenges seen in clinical practice, accounting for a considerable risk of morbidity and mortality.

OBJECTIVES

This study aims to analyze what is currently known regarding viral infections following blood marrow transplantation, a prevalent complication which often leads to severe repercussions.

METHODS

This is an integrative literature review based on the analysis of articles published from 2019 to 2021 retrieved from Pubmed, using the descriptors: Stem Cell Transplantation and Viral Infections.

RESULTS

As a result of the research carried out, some of the most prevalent infections after stem cell transplantation were identified, mainly including cytomegalovirus (CMV) infection and viral respiratory infections. CMV represents the most common viral reactivation after the procedure, with a frequency of reactivation after HSCT of 10% in CMV-negative recipients and 90% in CMV-positive recipients with CMV-negative donors. Due to its high incidence, CMV reactivation is the target of prophylaxis and preventive measures, such as frequent monitoring of the presence of CMV in the blood of patients who have received the transplant, by means of a quantitative PCR. Because of the drugs's considerable toxicity, drug prophylaxis is not always a standard in practice, as it can lead to the development of resistance to antiviral drugs. However, among the new drugs, letermovir has shown good safety and efficiency, although it is only indicated in CMV-seropositive adults who are recipients of allogeneic HSCT. Furthermore, respiratory viral infections (RVIs) have a wide-ranging incidence and its clinical presentations are not specific and vary in severity, which leads to the need for laboratory testing for the identification of the virus in order to support treatment decisions, which tends to be mainly symptomatic. Moreover, co-infections and alloimmune lung syndromes (idiopathic pneumonia syndrome, bronchiolitis obliterans syndrome) are associated as complications of RVIs in stem cell transplant recipients. In a prospective cohort study of allogenic HCT recipients presenting with diverse infections, mortality in the first 14 days after transplantation was 12%, and 6 out of 49 were due to RVI. Treatment is supportive, and, when applicable, antiviral therapy is used.

CONCLUSIONS

Therefore, it is concluded that, most notably, cytomegalovirus and viral respiratory tract infections greatly affect many patients undergoing bone marrow transplantation. It is important to be aware of these common infections and to evaluate the need for prophylaxis and the best treatment options available.

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