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VOLUME THREE

SBTMO
Sociedade Brasileira de Transplante de Medula Óssea

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Dear transplant colleagues

In 2019 we celebrated the 40th anniversary of the first bone marrow transplant (BMT) in our country, with the pioneering spirit of Professor Ricardo Pasquini, Eurípides Ferreira and his team, a fact that was undoubtedly a milestone and the driving force for us to arrive where we are. Today, we are 84 BMT-enabled centers in Brazil and we have seen the great success of these teams, demonstrating a process of maturation of our transplant recipients.

Our company was founded in 1996 by a group of specialists and within this same premise. Today we are prominent in the worldwide transplanting community, having entered into several partnerships with international entities, such as ASCT, LABMT, CIBMTR, FACT, among others.

We have a research group at GEDECO (Grupo de Estudo Doença Enxerto Contra o hospedeiro e complicações tardias) ,coordinated by our dear Dr. Mary Flowers and Dr Afonso Celso Vigorito. This started small as a group of studies on graft disease and because of its quality and empathy, it has now become the gateway to cooperative studies on various topics in our society. SBTMO also maintains a Pediatrics Group, a flow cytometry group, a multidisciplinary group and one of data managers. Every two years, a consensus of indications and complications of transplants is performed, which serves as a guide for the guidance of specialists and public policies.

Faced with this scenario, in a natural way, arose the need to have a journal that could disseminate the work of this scientific community, doctors and multidisciplinary professionals, thus strengthening our interaction with transplantation professionals from various countries.

It is with this spirit of joy and hope that we launched the first volume of JBMCT, Journal of Bone Marrow Transplantation and Cellular, which will certainly be a periodical to publicize the work of all those who believe that science , research and caring for patients, is the best way to improve our walking.

Fernando Barroso Duarte *Nelson Hamerschlak*

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INTRODUCTION

2020 brought us challenges our generation has never dreamed of. As of October 17, the World Health Organization Coronavirus Disease (COVID-19) Dashboard shows that 40 million people were diagnosed and over one million have died of the disease worldwide.[1] With a high number of asymptomatic carriers and an extremely limited access to diagnostic tests, we know that actual numbers are much higher. The Johns Hopkins University, dear to our hearts due to the development of the haploidentical transplants, once again stood out to show us, in the Covid-19 Dashboard,[2] over 150 thousand deaths in our country. We know that ups and downs are still to come and that 2021 will probably not bring us a mass vaccination yet.[3]

Among the 2.5 million active nurses in our country,[4] 41 thousand got Covid-19 and 451 have already died of the disease.[5] One health professional is infected with coronavirus every minute in Brazil.[6]

The transplant activity was severely affected in our country, but the allogeneic hematopoietic cell transplant programs were the least affected ones, with a 10% decrease in the first semester when compared with 2019.[7,8] Therefore, here we are, in the frontline, working very long hours and taking care of our patients despite all challenges!

In 2020, even the largest medical meetings were changed to online platforms, and most of them free of charge. With a strong solidarity, hundreds of talks can be seen either recorded or live, around the clock. Unfortunately, too many to be watched.

The XXIV Annual Meeting of the Brazilian Society of Bone Marrow Transplantation (SBTMO), typically in August, was first postponed to late October, but then changed to Online only, as all other professional meetings. For the first time, we had decided to have individual parallel meetings for all healthcare professionals involved in the care of our patients and also meeting for the patient, on this year focused on Sickle Cell Disease. After moving to the Online model, we decided to keep the full program and honor our commitment.

We are extremely thankful to Ms. Tatiana Almeida, Mr. Igor Dias and Ms. Valeria Duarte for an unbelievable hard work and dedication to make this meeting come true. We are also in debt with Dr. Fernando Barroso Duarte, the founder of the "Journal of Bone Marrow Transplantation and Cellular Therapy"(JBMTCT), with whom it has been an enormous pleasure to work. We also thank Dr. Afonso Vigorito, Dr. Carmem Bonfim, Dr. Leonardo Arcuri and Dr. Nelson Hamerschlak for the unrestricted support, friendship, and partnership leading SBTMO over the past three years. We thank all Scientific Committee for their support.

Despite all challenges, almost 200 colleagues had their papers accepted to presented at our meeting, and for the first time, we will have the pleasure of having them published in the JBMTCT. The best papers were also selected to have oral presentations in the meeting – 74 of them! It is a dream come true.

Our meeting is not only be about learning about HCT. It is about sharing experiences of how to take a better care of our patients. It is about being able to see our pears in the screen. It is about learning from each other and, above all, it is about our friendship.

We thank each of you for participating and hope you may be as proud as I am of having all accepted abstracts published in our journal.

Thank you so much and please enjoy it!

ADRIANA SEBER
for the SBTMO 2020 Online Executive Committee

1. https://covid19.who.int

2. https://coronavirus.jhu.edu/map.html

3. http://www.cofen.gov.br/brasil-nao-tera-vacinacao-em-massa-contra-covid-19-em-2021-diz-oms_82726.html

4. http://www.cofen.gov.br/enfermagem-em-numeros

5.http://observatoriodaenfermagem.cofen.gov.br, access on October 17, 2020

6. https://www1.folha.uol.com.br/internacional/en/scienceandhealth/2020/08/one-health-professional-is-infected-with-coronavirus-every-minute-in-brazil.shtml

7.https://site.abto.org.br/wp-content/uploads/2020/06/rbt2019-1sem-leitura.pdf

8. https://site.abto.org.br/wp-content/uploads/2020/08/rbt-1sem-final-leitura.pdf

CHRONIC GVHD TREATMENT IN BRAZIL: ANALYSES OF FAILURE FREE SURVIVAL

Afonso Celso Vigorito[1], Eliana Cristina Martins Miranda[1], Vergilio Antonio Rensi Colturato[2], Anderson João Simioni[2], Vaneuza Funke[3], Gisele Loth[3], Heliz Alves Neves[3], Maria Cristina Martins de Almeida Macedo[4], Bruna Leticia da Silva Santos Geraldo[4], Lorena Bedotti Ribeiro[5], Paula Moreira da Silva[5], Giancarlo Fatobene[6], Liane Esteves Daudt[7], Priscila de Oliveira da Silva[7], Maria Cláudia Rodrigues Moreira[8], Simone Pereira Lermontov[8], Livia Mariano[9], Vanderson Rocha[9], Marcos Paulo Colella[1], Larissa Codogno Guzelotto[1], Morgani Rodrigues[10], Cinthya Corrêa da Silva[10], Nelson Hamerschlak[10], Ricardo Rabello Chiattone[11], Mary E. Flowers[12]

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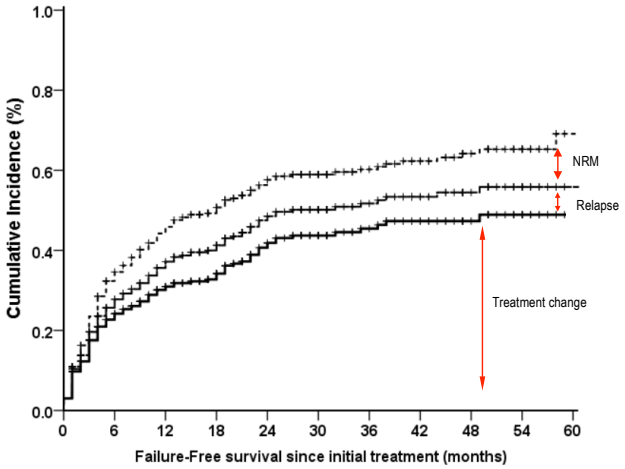
INTRODUCTION

Failure-free survival (FFS), defined as the absence of additional systemic treatment, recurrence of original malignancy and mortality not associated with recurrence, has been proposed as a potential end point for clinical trials in chronic GVHD. FFS is potentially useful, efficient and a robust measure to interpret results of initial systemic treatment of chronic GVHD. Objective: The aim of this study is to evaluate FFS after initial treatment of moderate or severe chronic GVHD in patients who received allogeneic hematopoietic cell transplantation (HCT) in 11 centers from a low/middle income country. Methods: This retrospective study included 329 consecutive patients (pts) after their first HCT between January 2014 and January 2018 who received initial systemic treatment for moderate or severe chronic GVHD at 11 centers in Brazil. Cumulative incidence estimates (CI) of recurrent malignancy, nonrelapse mortality (NRM), and treatment change as causes of failure during initial treatment were derived, treating each event as a competing risk for the other 2. Cox regression models were used to identify risk factors for treatment failure. Results: The median follow up of all pts was 32 months, and the median failure-free survival was 12 months (65% at 6 months, 54% at 1 year and 42% at 2 years). Additional systemic treatment was the major cause of failure. The CI rates of relapse, NRM and treatment change, as the cause of treatment failure, are displayed in Figure 1. In multivariate models, only 2 risk factors were statistically significant associated with treatment failure: less than 6 months from transplantation to initial treatment, and a National Institutes of Health severity score of 3 in liver, gastrointestinal tract or lung. Our results show that slightly over half of pts on systemic treatment for moderate or severe chronic GVHD will be failure-free survivors at 1 year and fewer than half of pts will reach 2 years without experiencing failure. Our study findings are similar to prior reports in North American population. Our results will serve as benchmark for future clinical trials of chronic GVHD in Brazil.



	6m	12m	18m	24m	30m	36m	42m	48m	54m	60m
Treatment change	25%	31%	35%	42%	44%	46%	48%	48%	49%	49%
Relapse	5%	9%	11%	12%	12%	12%	12%	14%	14%	14%
NRM	9%	14%	16%	17%	17%	17%	19%	21%	21%	30%
Failure -free survival	65%	54%	50%	42%	41%	39%	37%	35%	34%	34%

FIGURE 1: Cumulative incidence of treatment change, treatment change plus relapse, and treatment change plus relapse plus non-relapse mortality (NRM) since initial systemic treatment (months)

ELABORATION OF A CHILDREN'S BOOK TO TALK ABOUT SICKLE CELL ANEMIA

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INTRODUCTION: Sickle cell anemia is a genetic disease which is characterized by sickle-shaped red blood cells, accelerated hemolysis, and increased risk for vascular obstruction. As it is a chronic disease and its crises end up leading to a high number of hospitalizations, therefore, children and adolescents with this hemoglobinopathy end up decreasing their hours spent at school and executing productive activities, being the Hematopoietic Stem Cell Transplantation the only treatment with a curative perspective. Inside the hospital, the child has the right to be informed by the medical team about the disease, respecting the cognitive phase, and giving psychological support when it's necessary. Objective: Present a book that was designed to help children with sickle cell anemia to understand how this disease works. Results: The main topics covered in the story were: Need for absences from school, restrictions on school physical activities, definitions of the disease, crisis, symptoms, and treatment. These subjects were approached interactively with the child, starting from what they already know or thinks about the theme, expanding and correcting when necessary. Trigger questions were used, such as: What is Amanda's illness? What part of the body is it in? What are these pain crises? Among others. The book ends with the possibility of inserting the patient with sickle cell anemia into a routine adapted at school and with tips for parents and teachers, such as: "Children with sickle cell anemia produce more urine, so they must be allowed to leave the room and go to the bathroom when needed. In addition, they should always be encouraged to drink a lot of water ". Along with this, guidance for children's caregivers and a more in-depth explanation about the disease were also added to the end of the book, thinking of older patients who may come into contact with it. Method. During the process to elaborate the book, the first step was to execute a literature survey related to symptomatologies and limitations that children who have sickle cell anemia face. Secondly, due to its importance and impact in children's lives, we chose Schools as the scenario to the book. In the end, we developed the main character: Amanda, who is a black girl. Afterward the conclusion of the book, the content was examined by a team of psychologists and a sickle cell disease specialist doctor. After the suggested adaptations were made, the book was illustrated, cataloged, and printed. Conclusion: the material produced can be used in several segments, as in health and school, informing children, parents, teachers, and health professionals, playfully and clearly. Furthermore of the educational character, the book would be used as a facilitating intermediate material for the effective expression of the children whose sickle cell anemia identified themselves with Amanda character's experience. (Programa Unificado de Bolsas - USP)

IMPACT OF DONOR-SPECIFIC ANTI-HLA ANTIBODIES ON ENGRAFTMENT FAILURE AFTER UNRELATED DONOR HEMATOPOIETIC CELL TRANSPLANTATION

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Graft failure (GF) is one of the major concerns after allogeneic hematopoietic cell transplantation (HCT), and still remains an important cause of morbidity and mortality. Although earlier reports have associated the presence of donor-specific anti-HLA antibodies (DSAs) with increased risk of GF after unrelated (URD) HCT, recent studies have failed to confirm this association. Therefore, to validate DSAs as a predictor of GF in URD setting, we retrospectively evaluated the impact of DSAs on engraftment failure in 303 consecutive patients who underwent URD-HCT from January 2008 to December 2017 at our institution. DSA evaluation was performed with Single Antigen Beads (SAB) panels. The probabilities of neutrophil engraftment (NE), platelet engraftment (PE), and GF were assessed on the basis of the cumulative incidence function and compared among groups with Gray's test. Death or relapse before engraftment or GF were competing events. Fine-Gray competing risk regression models were used to identify the risk factors in the multivariate analysis. The prognostic effect of GF on overall survival was assessed through a Cox regression model, using GF as a time-dependent variable. All statistical analyses were performed with EZR. Overall, eleven patients (3.63%) were DSA-positive, with a median DSA strength of 4681 MFI (range, 1144 to 22039) at URD-HCT. The cumulative incidence of NE at day +28 was 87.1%, with a median engraftment time of 21 days (range, 10 to 42). The cumulative incidence of PE at day +28 was 68%, with a median engraftment time of 24 days (range, 10 to 159). In univariate regression, the presence of DSAs was associated with inferior NE (SHR 0.59; 95%CI: 0.36-0.98; P=0.042). DSAs also adversely influenced PE (SHR 0.61; 95%CI: 0.43-0.87; P=0.007). Multivariate competing risk analysis showed that the presence of DSAs was significantly associated with NE (SHR 0.51; 95%CI: 0.28-0.90; P=0.021) and PE (SHR 0.62; 95%CI: 0.40-0.96; P=0.036). The cumulative incidence of GF for the entire cohort was 10.6% (95%CI:7.4-14.3%). The cumulative incidence of GF in patients with DSAs (36.4%; 95%CI: 10.2-63.9) was significantly higher than that in patients without DSAs (9.6%; 95%CI: 6.6-13.3) (P=0.004). Among the 11 DSA-positive patients, the median DSA strength for patients with GF was 10813 MFI (range, 4681 to 22039) versus 2993 MFI (range, 1144 to 15348) for those who engrafted (P=0.014). In univariate competing risk regression, the presence of DSAs was highly predictive for the occurrence of GF (SHR 4.18; 95%CI: 1.60-10.9; P=0.003). Multivariate analysis demonstrated that the presence of DSAs was independently associated with GF (SHR 5.76; 95%CI: 1.88-17.6; P=0.002). GF as a time-dependent variable was significantly associated with inferior overall survival (HR 6.87; 95%CI: 4.42-10.68; P<0.001). In conclusion, our results corroborate previous studies and validate the presence of DSAs as an important risk factor for engraftment failure after URD-HCT.

KEYWORDS: DSAs, graft failure, unrelated donor

IMPACT OF DONOR-SPECIFIC ANTI-HLA ANTIBODIES ON GRAFT FAILURE AFTER SALVAGE HAPLOIDENTICAL HEMATOPOIETIC CELL TRANSPLANTATION WITH POSTTRANSPLANT CYCLOPHOSPHAMIDE IN PATIENTS WITH NONMALIGNANT DISEASES

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The presence of donor-specific anti-HLA antibodies (DSAs) has been recognized as a major risk factor for graft failure (GF) after haploidentical hematopoietic cell transplantation with posttransplant cyclophosphamide (haplo-PTCy). However, the role of DSAs in second haplo-PTCy for rescuing patients with nonmalignant diseases (NMDs) has not yet been reported. In the present study, we retrospectively analyzed 22 patients with NMDs who underwent salvage haplo-PTCy from January 2008 to December 2017 at our institution. The median time from first transplant to rescue haplo-PTCy was 56 days (range, 37-591 days). All patients were rescued from either primary GF (59.1%) or secondary GF (40.9%). The most frequent NMDs were severe aplastic anemia (36.4%) and Fanconi anemia (31.8%). The median age at the time of the second haplo-PTCy was 9 years (range, 1-26 years), and 95.4% of the patients were under or equal to 18 years. All salvage haplo-PTCy were performed with a different donor from the first transplant. Among all patients studied, 17 (77.3%) had anti-HLA antibodies. Of them 5 (22.7%) had anti-HLA class I, 1 (4.6%) had anti-HLA class II, and 11 (50%) had antibodies against both HLA classes. Six patients (27.3%) were DSA-positive, with a median DSA strength of 4443 MFI (range, 1288-11543) in the first assessment. The median DSA MFI at salvage haplo-PTCy was 1587 (range, 347-7481). Two DSA-positive patients died early at days +3 and +11 and were not evaluated for GF. Overall, five (25%) of the 20 assessable patients experienced GF. Among the 5 patients with GF, 3 had primary GF, one had secondary GF at day +34, and one had secondary poor graft function at day +41. Three of four (75%) DSA-positive patients experienced GF versus 2 of 16 (12.5%) patients without DSAs (P=0.032). Notably, one DSA-positive patient who engrafted was desensitized with rituximab and two sessions of plasma exchange. No other patient-, donor-, or transplant-related variables were associated with engraftment failure (P>0.05). The overall survival (OS) and event-free survival (EFS) of the entire cohort at 1 year were 54.5% (95% CI, 32.1%-72.4%) and 50.0% (95% CI, 28.2%-68.4%), respectively. The median follow-up among the surviving patients was 1399 days (range, 448-2752 days). A trend for lower 1-year OS was observed in patients with DSAs than in patients with no DSAs (33.3% vs. 62.5%; P=0.076; Figure 1A). Furthermore, the 1-year EFS was significantly lower in DSA-positive patients than in those without DSAs (16.7% vs. 62.5%, P=0.002; Figure 1B). None of the other covariates were associated with OS or EFS (P>0.05). In addition, four of 5 patients with GF died within a median time of 62 days after rescue transplant. Thus, GF as a time-dependent variable was significantly associated with inferior OS (HR 5.52; 95% CI:1.18-25.8; P=0.029). In conclusion, this study suggests that the presence of DSAs is associated with deleterious outcomes after salvage haplo-PTCy in patients with NMDs.

THE MULTICENTER EXPERIENCE OF HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) IN PEDIATRIC PATIENTS AND YOUNG ADULTS WITH X -LINKED ADRENOLEUKODYSTROPHY (ADL - X)

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INTRODUCTION: The cerebral form of ADL-X causes demyelination and progressive neurodegeneration. HSCT is the only treatment the promotes disease stabilization and increased survival. Objective: To report the clinical data and outcome of allogeneic HSCT in patients (pts) with ADL-X.Casuistry: 24 boys with ADL-X underwent allogeneic HSCT in three pediatric transplant centers. Method: Retrospective, descriptive, multicenter study, with database and medical records review of pts up to 19 years transplanted between June 2000 and August 2018. The follow up for at least two years. Results: 28 transplants were performed in 24 pts, whose median age was 10 years (4 –19). Almost all patients (21/24) had adrenal insufficiency and Loes Score < 8 before HSCT. Twenty two pts received myeloablative conditioning based on busulfan (BU) or total body irradiation (TBI). Only two patients received reduced intensity regimen with fludarabine, cyclophosphamide and low dose of TBI (200rads). Eleven pts received compatible transplants (Sibling = 4, MUD = 7) and 13 pts received transplants with one or more incompatibilities (another donor related = 2, MMUD = 6, haploidentical = 5). Graft versus host disease (GVHD) prophylaxis was performed with cyclosporine (CSA) and methotrexate (BM n = 21) or corticoid (UCB n = 3), and in haploidentical HSCT with post CY, mycophenolate mofetil and CSA. In 20/24 evaluable pts,the median engraftment neutrophil was 22 days (22-32) and median engraftment platelet was 24 days (12-41). The primary graft failure occurred in 4 pt, 2 of which were MUD transplanted with an incompatibility and 2 were haploidentical. Another pte undergoing haploidentical HSCT showed secondary graft rejection. We submitted to a second HSCT and 3 survived.

Grade II - IV acute GVHD occurred in 4 pts. Chronic GVHD occurred in two patients, both of whom had previously suffered from acute GVHD. GVHD was the cause of death in just one, 2 years after HSCT MUD. The 5-year survival rate was 75%. There was a trend towards better survival among related transplant recipients compared to MUD (100% x 53% respectively, p = 0.048). All haploidentical recipients survived, however 3/5 needed a second HSCT due to rejection. The disease progression occurred in 7 ptes, of which 4 had a Loes Score between 6 - 8, and 3 had a Score ≥ 9.The causes of death were disease progression (n = 2), graft failure (n = 2), severe respiratory failure (n = 1) and severe GVHDc (n =1). Conclusion: Early ADL-X diagnosis is essential for the success of HSCT. Patients with Score Loes <8 undergoing HSCT have a better prognosis with stabilization of disease progression. The better survival in related transplants, can be attributed to the small number of patients. Haploidentical HSCT with post Cy may be an option for pts who do not have compatible donors available and the best conditioning regimen has yet to be defined due to the higher incidence of rejection.

COMPARISON OF OVERALL PREDICTED SURVIVAL BY THE CIBMTR CALCULATOR WITH THE ACTUAL RESULT OF A PHILANTHROPIC BONE MARROW TRANSPLANT CENTER IN SÃO PAULO.

[1]Cinthya Corrêa da Silva, [1]Leonardo Javier Arcuri, [1]Lidiane Soares Sodre da Costa, [1]Mariana Nassif Kerbauy, [1]Cristina Vogel and [1]Nelson Hamerschlak

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Keywords: Overall survival, hematopoietic stem cell transplantation, Cox model, prediction

INTRODUCTION: The use of tools that predict outcomes for patients undergoing hematopoietic stem cell transplantation (HSCT) is established in the medical routine. Registries like the Center International for Bone Marrow Transplantation Research (CIBMTR) provide tools such as the global 1-year survival calculator for patients undergoing HSCT. In order to improve the assertiveness of patient outcomes, as of 2014, a center in São Paulo adopted the use of tool.

OBJECTIVE: To compare the results of the expected overall survival in 1 year after HSCT, using the CIBMTR calculator, with the actual results of a philanthropic hospital in São Paulo.

METHODOLOGY: The expected overall survival (OS) in 1 year was estimated for each of the 51 patients undergoing allogeneic HSCT, from 2014 to 2019, using the CIBMTR calculator. The actual OS was estimated by Kaplan-Meier. Patients were stratified into 2 groups, according to the expected OS using the CIBMTR tool: ≤70% (G1, 19 patients) and > 70% (G2, 32). Cause of death, i.e. non-relapse mortality (NRM), or disease relapse/progression, were analyzed by cumulative incidence curves, with competitive risk. The profile of the patients was reported by number/percentage or mean/SD. The software used for analysis was R (version 4.0.2).

RESULT: With a median follow-up of 3 years, 51 adult patients, 30 (59%) male, were included. The median age was 52 years. The main indication for transplantation was for AML/SMD (23, 45%). There were 17 (33%) sibling, 22 (43%) haploidentical and 12 (24%) unrelated HSCT. The graft was PBSC in 21 (51%), and BM in the others. Expected 1-y OS by the CIBMTR tool was 56% and the actual, 37%. For the G2, the expected 1-y OS was 78% and the real OS was 84%. For every 10 percentage points higher in the SG predicted by the CIBMTR tool, the HR was 0.47 (p <0.001). Survival in G1 was significantly lower than in G2 (p<0.001). There were 21 deaths (13 due to MRT and 8 due to relapse/progression). TRM was 42% in G1 and 13% in G2 (p=0.006). Death from disease relapse/progression in G1 it was 21% and for G2, 3% (p=0.08).

DISCUSSION: The CIBMTR tool accurately predicted 1-y OS for patients with expected OS>70%. However, survival in the group of patients with OS predicted ≤70% was less than expected (37% vs 56%). In this group, NRM was the main cause of death (42%, vs 13% in G2). Mortality from relapse/progression was 21% in G1, against 3% in G2. We found no difference in results by type of donor, conditioning or source of stem cells. We conclude that the actual OS was adequately predicted by the CIBMTR tool in group 2. For those with an expected survival ≤70%, mortality was higher than that predicted by the CIBMTR tool, mainly due to NRM. A future study will focus on analyzing the cause of this discrepancy.

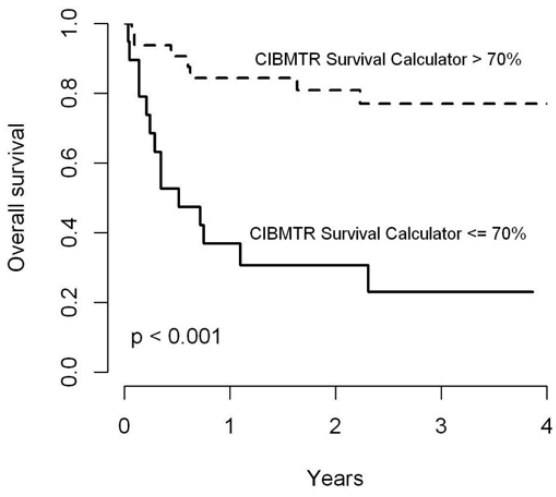
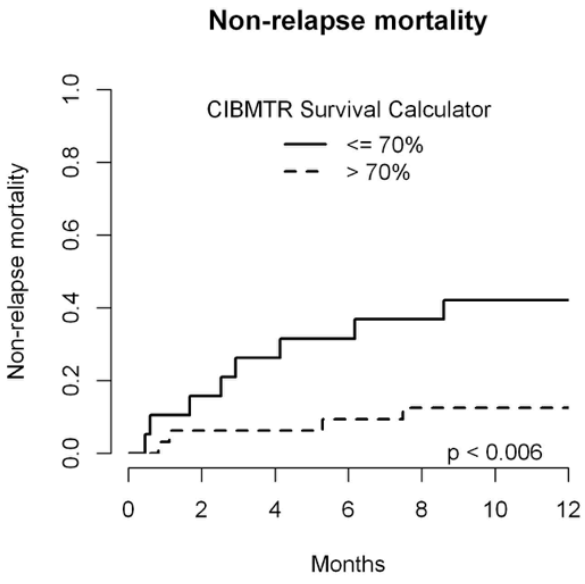
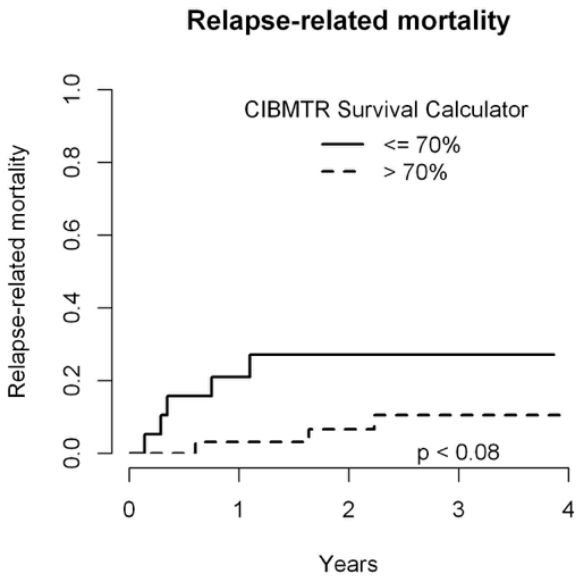


TABLE 1 - Characteristics of patients

	G1	G2	P value
Total	19	32	
Age HSCT			0.006
mean(SD)	58.9 (11.3)	47 (15.9)	
Sex			0.283
F	6 (31.6%)	15 (46.9%)	
M	13 (68.4%)	17 (53.1%)	
Diagnosis			0.958
Lymphoproliferative disease	5 (26.3%)	9 (28.1%)	
SAA	0	1 (3.1%)	
XIAP	0	1 (3.1%)	
Myeloproliferative disease	3 (15.8%)	5 (15.6%)	
Biphenotypic leukemia	2 (10.5%)	1 (3.1%)	
AML/MDS	9 (47.4%)	14 (43.8%)	
Mutation GATA2	0	1 (3.1%)	
Subtype			0.935
Related	6 (31.6%)	11 (34.4%)	
Haploidentical	8 (42.1%)	14 (43.8%)	
Unrelated	5 (26.3%)	7 (21.9%)	
Classification			0.198
Reduced intensity	13 (68.4%)	16 (50%)	
Myeloablative	5 (26.3%)	8 (25%)	
non-myeloablative	1 (5.3%)	8 (25%)	
Stem Cell Source			0.73
PBSC	11 (57.9%)	15 (46.9%)	
BM	8 (42.1%)	16 (50%)	
BM + PBSC	0	1 (3.1%)	





IKAROS EXPRESSION IN THE GRAFT IS ASSOCIATED WITH CHRONIC GRAFT VERSUS HOST DISEASE

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INTRODUCTION: Hematopoietic stem cell transplantation (HSCT) is the only potentially curative treatment for several diseases. Immune reconstitution post HSCT is a complex and extremely variable process. Ikaros transcription factor has an importante role in hematopoiesis of several cell lines, especially in the lymphoid compartment. We hypothesized that Ikaros expression, both in the graft and in the recipient after transplant, might influence immune reconstitution and, consequently, the risk of opportunistic infections, relapse, and graft versus host disease (GVHD).

OBJECTIVES: To correlate Ikaros expression in the graft and in the peripheral blood after neutrophilic recovery in HSCT patients with transplant outcomes.

PATIENTS AND METHODS: 51 patients were included. Median age was 51 years old (19-80), 53% of patients were male, and 57% of them had acute leukemia. Donor were haploidentical in 45% of cases, related identical in 29% and unrelated identical in 26%. Most patients (82%) received reduced-intensity conditioning regimens. Median follow-up was 20 months (10-40 months). Samples were collected from the graft and from the peripheral blood (PB) of the recipient 3 weeks after neutrophilic recovery. Real time polymerase chain reaction (RT-PCR) was performed for analysis of absolute and relative Ikaros expression.

RESULTS: Cumulative incidence (CI) of chronic GVHD and moderate / severe chronic GVHD (according to National Institute of Health - NIH classification) in two years were 49% and 28%, respectively. Higher Ikaros expression in the graft was associated with a significantly higher risk of moderate/severe chronic GVHD (54% vs. 15%, respectively, P=0.01). Besides, higher Ikaros expression in the recipient's PB 21 days after neutrophilic engraftment was also associated with a significantly higher risk of moderate/severe chronic GVHD (65% vs. 11%, respectively, P=0.01). In addition, higher Ikaros expression in the graft was also associated with a higher progression-free survival (93% x 55%, P=0.045). There were no other significant correlation between Ikaros expression and any other analyzed clinical outcome.

CONCLUSIONS: Ikaros expression in the graft and in the PB of the recipient after transplant seems to be correlated with a higher risk of moderate/severe chronic GVHD and might be evaluated in larger and prospective trials as a potential biomarker.

ORAL ABSTRACTS

1. HSCT ACCESS

APPLICATION OF COMPREHENSIVE GERIATRIC ASSESSMENT IN HEMATOPOIETIC STEM CELL TRANSPLANTATION: EXPERIENCE OF THE CENTER.

Natália Costa Bezerra Freire, HUWC, Larissa Maria Gurgel Passos , HUWC, Nicole Pereira Leal, HUWC Karine Sampaio Nunes Barroso, HUWC, João Paulo de Vasconcelos Leitão, HUWC, Beatriz Stela Gomes de Souza Pitombeira, HUWC, Lívia Andrade Gurgel, HUWC, Beatrice Araújo Duarte, Unichristus, Fernando Barroso Duarte, HUWC

The elderly tend to have comorbidities, clinical, cognitive and social conditions which are unfavorable to aggressive treatments such as Hematopoietic Stem Cell Transplantation (HSCT). Thus, evaluating and measuring the fragility of these patients using a practical instrument is necessary to provide an individualized therapeutic plan. The present study aims to perform a comprehensive geriatric evaluation in patients referred to the allogeneic bone marrow pre-transplant clinic of a public hospital in Fortaleza - Ce, from October 2018 to August 2020. The instrument was applied by the team during the consultation, to all patients regardless of age, in order to validate this tool also for patients under 60 years of age, considering the hypothesis that in our country we have patients who, even though they are young, have a profile socio-demographic that may compromise the results of the HSCT, in addition to the finding that age cannot be the sole criterion in deciding on eligibility for HSCT. It consists on a prospective analytical descriptive study. The components of comprehensive geriatric assessment (CGA) include social support, previous hospitalizations, assessment of activities of daily living, cognition, nutrition, medication use, risk of falling, self-rated health, depression and mobility, totaling ten categories, each scoring 0, 0.5 or 1. A total of 86 patients were evaluated, of which 53.5% were male and 46.5% were female, with an average age of 41.5 years (ranging from 16 to 75 years). Regarding pathologies, 58.2% are acute leukemias, followed by chronic myeloid leukemia (12.8%), aplastic anemia (9.3%), myelodysplastic syndrome (9.3%), among others (10.4%). Of the 86 patients, 44 (51.2%) underwent allogeneic transplantation. The general population had an average CGA of 2.4 (ranging from 0 to 5 points). The least affected domains were also social support and functionality (4.7%), while the most affected were the history of previous hospitalizations and self-rated health (81.4%). If we analyze the CGA score considering the age group, we have for the elderly population (≥ 60 years), which represents 11.6% of the sample, an average CGA of 2.8, while for young people we have an average CGA of 2,3 with p 0,165. We did not evidence a large discrepancy in scores between young and elderly, which suggests that in the Northeast region the application of CGA for patients under 60 years old may be a factor that collaborates with the definition of eligibility for HSCT. Although we do not have a robust sample and it is a single center, we believe that the CGA can assist in the process of selection and decision making regarding transplantation. It must be carried out in conjunction with other objective data such as status performance and the Hematopoietic Cell Transplantation-Comorbidity Index (HCT-CI), with the interdisciplinary assessment. We are still in the process guidance and design of appropriate assessment instruments for our population profile.

HEMATOPOETIC STEM CELL TRANSPLANTATION IN THE ELDERLY: AGE DOES NOT INDICATE WORSE OUTCOMES

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INTRODUCTION: Hematopoetic Stem Cell Transplantation (SCT) is an important tool in the fight against some onco-hematological, autoimmune and genetic diseases. In recent years, its achievement has expanded, especially among the elderly population, which is important, since this group has a high risk for the development of these pathologies.

STUDY OBJECTIVE: To evaluate SCT related morbidity and mortality among the elderly.

METHODOLOGY: Retrospective cohort study among patients submitted to SCT in a Brazilian university hospital from July 2010 to July 2017. All patients who were 60 years or older were considered as elderly who were 60 years old or older until the day of hematopoietic stem cell infusion. Demographic data, performance status (ECOG scale) and analysis of the transplant-specific comorbidity index (HCT-CI) were evaluated. Outcomes were: mortality in D+100, presence of mucositis, neutropenic fever, development of sinusoidal obstruction syndrome (SOS) by EBMT criterion. The study was approved by the institutional review board.

RESULTS: A total of 197 patients were studied, 33 (16.8%) were elderly. The maximum age among the patients studied was 69 years. Among the non-elderly group, age ranged from 14 to 59 years (median of 41 years). Males were more frequent among the elderly population (72.7% versus 52.4%; p= 0.032). One hundred and seventy-five (88.8%) were submitted to autologous MOT (all elderly were in this group). The most common indication among the elderly was Multiple Myeloma (n= 28; 84.8%), followed by Non-Hodgkin Lymphoma (n= 5; 15.2%). Among young people, Multiple Myeloma was also the most frequent (n= 69; 42.1%), followed by Hodgkin's Lymphoma (n= 34; 20.7%); Non-Hodgkin lymphoma (n= 25; 15.2%) and Acute Leukemias (n= 17; 10.4%). Hypertension (39.4% x 17.7%; p= 0.005), heart valve disease (27.3% x 5.5%; p< 0.001), renal dysfunction (12.1% x 1.2%; p= 0.008) and other neoplasms (12.1% x 1.2%; p= 0.008) were more frequent among the elderly and obesity among young people (19.0% x 6.1%; p= 0.025). The elderly had a higher frequency of high-risk HCT-CI (36.4% x 9.1%; p<0.001). There was no difference in mortality in D+100 among young and elderly (9.8% x 12.1%; p= 0.751) and HCT-CI could not predict mortality (none of the patients with high-risk score died). Among the elderly who died up to D+100 (n= 4, 12.1%) none had ECOG 0. There was also no difference, respectively, between the elderly and young, regarding the development of mucositis (75.8% x 71.2%; p=0.5), febrile neutropenia (84.8% x 88.4%; p= 0.57) and SOS (0% x 4.3%; p= 0.60).

CONCLUSIONS: Since it is well selected, elderly under the age of 70 does not seem to have greater toxicities associated with transplantation. This finding confirms previous reports and encourages bone marrow transplant centers to expand their ages limits for performing the procedure.

MAP OF BMT IN BRAZIL, PUBLIC ACCESS PANEL TO HEMATOPOIETIC STEM CELL TRANSPLANT DATA

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INTRODUCTION: Brazil has a vast bone marrow transplant program with more than 126 teams and 86 Transplant Centres, recognised by the Ministry of Health. The data and outcomes of these transplants are not organised and available for public knowledge. The only current source of information is the RBT, that publishes the number of procedures per state. The accessibility of this data is fundamental, for patients and general public information and for health care and public administration.

OBJECTIVE: Creation of a public database to aid patients, family members and health care professionals to find information on allogenic Hematopoietic Stem Cell Transplants (HSCT) performed in Brazil.

MATERIALS AND METHODS: The team that developed the project consisted of 3 medical specialists, 3 systems analysts and a computer technician with experience in data reporting in HSCT, whom have met every other week during six months to prepare the panel.

STAGES OF DEVELOPMENT:1: Choice of Indicators and outcomes in HSCT (Table 1); 2: Mapping of the tools used in each hospital for data collection; 3: Data processing (Figure 1) to accept input by the following tools: e-DBtC, Access, RedCap and manual spreadsheet with defined fields; 4: Insertion of statistical calculations for outcomes; 5: creation of the Virtual Analytics (VA) platform, which receives the data sent by transplant centers in the 4 forms of data entry mentioned above, processes quality of information, gathers the data, and generates the indicators that are presented graphically / analytically; 6: Development of the layout of the platform, graphs, tables, nomenclature; 7: Qualification of information and separation in the general public and health professionals; 8: receiving and confirming data forwarded by hospitals; 9: Insertion of data on the platform; 10: Publication of the website.

RESULTS: Of the 31 HSCT centers participating in the project, 29 (93.5%) sent data, 17% used the DBtC as source, 21% Access, 3% RedCap and 59% manual method. The reporting period was from August 2019 to August 2020. We gathered data from 804 transplants, which were exported and made available for public online access. An encrypted code was generated to ensure the anonymity of the information.

The Map data are arranged in graphs and tables, in an easy and accessible way in Portuguese, with the possibility of using various filters so patients can customize their search. The information is arranged according to the titles in Table 2. Figure 2 shows the main screen of the website.

CONCLUSION: In the MAP of Transplants information from more than 60% of allogenic transplants performed in the country was gathered. Twenty-nine centers participated (Table 4). We aspire to find society and governmental support so this initiative can extend to other services, emphasizing great accomplishment of the Brazilian transplant community.

OUTPATIENT ALLOGENEIC BONE MARROW TRANSPLANTATION: EXPERIENCE OF A BRAZILIAN INSTITUTION

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INTRODUCTION: Outpatient (OP) hematopoietic stem cell transplantation (HSCT) has predominantly been reserved for autologous HSCT, particularly for myeloma patients. More recently, several centers have also published their data regarding OP allogeneic (allo) HSCT using reduced intensity/nonmyeloablative and myeloablative regimens demonstrating safety and feasibility.

OBJECTIVES: We report our retrospective single-centre experience with allo HCST in the OP setting. The purpose of our analysis was to determine the feasibility of this strategy analyzing length of stay (LOS) previous to first discharge, neutrophilic engrafment and during possible new admissions, percentage of patients that were readmitted, reasons for readmissions and non-relapse related mortality (NRM) at 30 and 100 days.

PATIENT AND METHODS: We retrospectively reviewed all electronic medical records of patients who were submitted to allo HSCT after January 2019 in an OP basis, which was defined as early discharge before neutrophilic engrafment. All patients who met the following eligibility criteria were offered the possibility of OP allo: availability of caregiver 24 hours a day, residing 1 hour distance from the hospital, no active infection requiring IV medication at time of discharge and adequate comprehension and cognitive level of the patient and/or caregiver.

RESULTS: Fifty-one patients were evaluated and 35 patients (67%) were treated in the OP setting with an early discharge. Reasons for not participating in the program were: active infections in 11 (69%) and social limitations in 5 (35%). Median age was 38 years, 18 (51%) were male, 6 (17%) were older than 60 years, and all but one was submitted to reduced intensity conditioning regimens. Twenty-nine (83%) had hematological malignancies. Median number of days previous to discharge was 15 and median time between day 0 and discharge was 7 days. Twenty-three (66%) patients were readmitted during the first 100 days after HSCT and most patients (74%) were readmitted just once. Twenty-two patients (95%) had a first readmission during neutropenia due to febrile neutropenia with 17 (74%) having documented bacterial infections, and in most cases (52%) LOS was ≤ 5 days. Three patients (13%) were transferred to ICU during the readmission but not on arrival. Main reason for readmission after neutrophil engraftment was viral infection in 42% of cases. Three deaths were reported before D100, due to relapse in 1 case and fungal infection in 2 patients with graft failure. NRM was of 0% at 30 days and 6% at 100 days.

DISCUSSION: Here we report that OP allogeneic HSCT is feasible and safe in a public transplant center. Performing HSCT in the OP setting provides several advantages to patients, including independency, decreased risk of nosocomial infections, and cost savings. OP HSCT also provides advantages to the transplant center, including lower use of resources and financial benefit.

KEYWORDS: outpatient HSCT, bone marrow transplant, feasibility

PHARMACOKINETICALLY-GUIDED BUSULFAN-BASED MYELOABLATIVE VERSUS REDUCED-INTENSITY CONDITIONING REGIMEN

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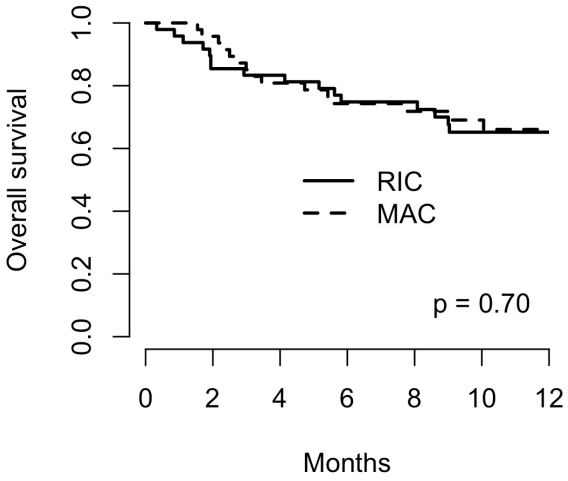
INTRODUCTION: Busulfan(Bu) is a widely used agent in hematopoietic cell transplantation(HCT). Versatile, Bu can be the backbone of both myeloablative(MAC) and reduced-intensity(RIC) regimens. The objective of this study is to compare pharmacokinetically(PK)-guided 4-days Bu-based MAC versus RIC conditioning regimens.

PATIENTS AND METHODS: This is a single-center retrospective study that included 96 patients who underwent HCT between 2012 and 2020. Patients received PK-guided Bu for 4 days. We considered MAC regimen those with a mean daily AUC≥4800. The others were considered RIC. Median age was 39 y/o(IQR: 7.3-59), and 50% were male. Most common diagnoses were acute myeloid leukemia(21) and myelodysplastic syndrome(15); 27 had non-malignant diseases. 48 patients received MAC(50%) and 48, RIC regimens(50%). HCT was performed from matched-sibling(27), single allele mismatched sibling(1), haploidentical(12) or unrelated donor(URD, 56). Of the URD, 44 were 10x10 HLA-matched, 8 were HLA 9x10, and 4 were SCUP. Graft source was bone marrow(62%), peripheral blood stem cells(33%) or umbilical cord blood(5%). Both groups(MAC and RIC) were well balanced.

Overall survival(OS) curves were compared with the logrank test and transplant-related mortality(TRM), with the Gray test. Sinusoidal obstruction syndrome(SOS) analysis was performed with logistic regression. All analyses were performed with R, version 3.6.1.

RESULTS: With a median follow-up of 1.3 years, 1y OS was 65% for RIC and 66% for MAC (p=0.70). OS was significantly lower for URD(HR=2.41, p=0.04, compared with sibling donor) in multivariable analysis. Six patients(13%) in the MAC and 6(13%) in the RIC group had SOS. Children(<18 y/o) was a risk factor in multivariable analysis(OR=5.28, p=0.005), while alternative donor(haploidentical or URD) was protective(OR=0.19, p=0.01). MAC regimen was not associated with SOS(OR=1.10, p=0.85). One-year TRM was 28% with RIC and 32% with MAC regimens(p=0.98). In multivariable analysis, age > 40 y/o(HR=2.51, p=0.03) and URD(HR=4.18, p=0.01) were risk factors for TRM. MAC regimen was not associated with TRM(HR=0.97, p=0.94). Cumulative incidences of grades II-IV aGVHD were 50% and 51% for RIC and MAC, respectively, and cGVHD were 7% and 12%.

DISCUSSION: Our results show that PK-guided Bu-based MAC regimens do not increase toxicity, compared with RIC regimens. 1y OS, 1y TRM and SOS were not different between the two groups. Also, patterns of GVHD were not different. To our surprise, we found a lower risk of SOS in HCT from alternative donors. The only difference between sibling and alternative donor HCT is the more effective GVHD prophylaxis in the latter, ATG- or PTCy-based, which has not been reported to influence SOS risk. The relatively short follow-up hampered relapse analysis. In summary, the toxicity of Bu-based PK-guided MAC is comparable to Bu-based PK-guided RIC. The role of ATG- and PTCy-based GVHD prophylaxis in SOS risk should be further studied.



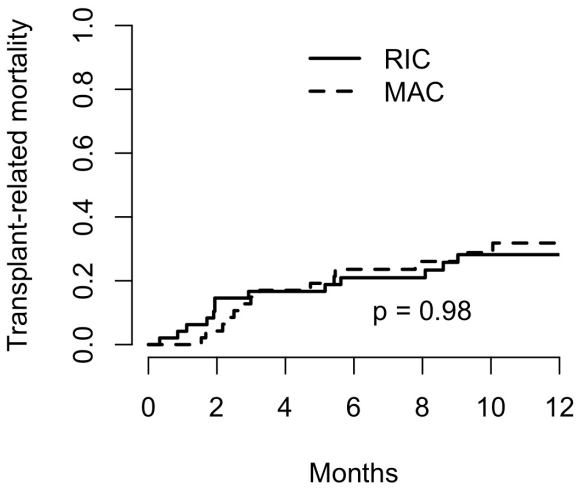


TABLE 1 - Patients' characteristics

	RIC	MAC	P value
Total	48	48	
Age (median/IQR)	42 (5.8,63)	38.8 (7.8,53.1)	0.261
Gender			0.683
F	25 (52.1%)	23 (47.9%)	
M	23 (47.9%)	25 (52.1%)	
Karnofsky (median/IQR)	100% (90,100%)	100% (90,100%)	0.277
Non-malignant	16 (33.3%)	11 (22.9%)	0.256
Type of transplant			0.117
Related	15 (31.2%)	13 (27.1%)	
Haploidentical	9 (18.8%)	3 (6.2%)	
URD	24 (50%)	32 (66.7%)	
Graft			0.432
PBSC	16 (33.3%)	16 (33.3%)	
BM	31 (64.6%)	28 (58.3%)	
UCB	1 (2.1%)	4 (8.3%)	

SAFETY AND FEASIBILITY OF OUTPATIENT AUTOLOGOUS STEM CELL TRANSPLANTATION

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INTRODUCTION: High-dose chemotherapy followed by hematopoietic stem cell rescue or autologous hematopoietic stem cell transplantation (auto-HSCT) is an effective therapy for patients with multiple myeloma (MM) and lymphoma. In the past, auto-HSCT was exclusively performed inpatient due to logistic issues and concern about the infectious risk and patients were discharged only a few days after neutrophil recovery. Currently, with a broader availability of broad-spectrum antibiotics, more potent and long-lasting antiemetics, less toxic conditioning regimens, and a careful patient selection, auto-HSCT became viable in the outpatient setting. Outpatient auto-HSCT are a potentially more comfortable options, associated with a shorter hospital stay and shorter exposition to other patients, reducing the risk of nosocomial infections, costs and resources utilization.

OBJECTIVES: To evaluate safety and feasibility of outpatient auto-HSCT.

PATIENTS AND METHODS: This was a retrospective analysis of patients who underwent outpatient auto-HSCT, which was defined as early discharge before neutrophilic engraftment, for myeloma or lymphoma between November 2014 and August 2020 in two transplant centers in Brazil. All patients who met the following eligibility criteria were offered the possibility of outpatient auto-HSCT: availability of caregiver 24 hours a day, residing 1-hour distance from the hospital, ECOG<3, no active infection requiring IV medication at time of discharge, and adequate comprehension and cognitive level of the patient and/or caregiver. Mobilization was performed in the outpatient setting and stem cell collection, conditioning regimen and stem cell infusion were performed inpatient. Patients were discharged at day+1. In the posttransplant outpatient phase, patients received day-hospital care by the multiprofessional team. Conditioning regimen was melphalan (140-200 mg/m2) for plasma cell neoplasms and LEAM (lomustine, etoposide, cytarabine and melphalan) for lymphomas.

RESULTS: Forty-seven patients were included: 79% had MM, 11% Hodgkin lymphoma, 6% non-Hodgkin lymphoma and 4% other plasma cell dyscrasias (amyloidosis and POEMS syndrome). All patients received mobilized peripheral blood stem cells with a median CD34+ cells count of 3.3 X 10^6/Kg (range 1.4-33). Median length of stay at first admission was 5 days (range 4-21) and 51% of patients needed to be readmitted because of febrile neutropenia in 79% and mucositis in 21%. Total hospital stay time was 11 days (range 4-36). There were no graft failures and median time to neutrophil engraftment was 10 days (range 6-39). Non-relapse mortality was 0% at 30 days and 3% at 100 days.

CONCLUSION: Outpatient HSCT was feasible and safe for selected patients and this strategy provides several advantages to patients, including independency, decreased risk of nosocomial infections, and cost savings, especially important for public centers in Brazil.

SAFETY OF NON-CRYOPRESERVED OF AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR MULTIPLE MYELOMA

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BACKGROUND: Autologous hematopoietic stem cell transplantation (auto-HSCT) is the standard of care for eligible patients with newly diagnosed multiple myeloma. The usual auto-HSCT process starts with hematopoietic stem cell (HSC) mobilization, collection by apheresis, and HSC cryopreservation. However, infusion of refrigerated HSC within 48h to 72h after collection showed to be a viable, safe, and less costly strategy without compromising the transplant outcomes.

OBJECTIVE: To evaluate the safety and feasibility of auto-HSCT for MM with the infusion of non-cryopreserved HSC in three hematopoietic stem cell transplantation centers in Brazil.

METHODS: Patients with multiple myeloma who underwent auto-HSCT between November 2014 and August 2020 were included in our analysis. All patients were mobilized with G-CSF with or without chemotherapy and submitted to HSC harvest by apheresis. All apheresis products were stored at 4° C for up to 48 hours. The day after collection, the patients received melphalan (140-200 mg/m2) in one day and the next day HSC were reinfused.

RESULTS: Seventy non-cryopreserved auto-HSCT were performed. The median age was 57 (30-74) years, and 60% were male. Median number of CD34+ cells infused was 4.26 (1.04 to 36.30) x10ˆ6/kg. Median neutrophil engrafting time was10 days (6-14). There were no cases of graft failure. Only one death occurred in the first 100 days after auto HSCT. Non-relapsed mortality was 0% at 30 days and 2% at 100 days.

CONCLUSIONS: Non-cryopreserved auto-TCTH was a feasible, safe, and less costly strategy, since there is no need for cryopreservation and potentially shorter engraftment time, as compared to auto-HSCT cryopreserved cells. Prospective studies are needed to confirm our findings.

THE IMPACT OF POSTTRANSPLANT AVAILABILITY OF NOVEL DRUGS ON OVERALL SURVIVAL OF MULTIPLE MYELOMA PATIENTS TREATED WITH AUTOLOGOUS STEM-CELL TRANSPLANTATION: A REAL-WORLD STUDY

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INTRODUCTION: MM is an incurable hematologic malignancy. However, many novel drugs (bortezomib, lenalidomide, carfilzomib, daratumumab, elotuzumab and ixazomib) have recently been approved in Brazil for this disease. Pivotal trials with these drugs were designed to show benefit in progression-free survival, and not in overall survival, and none of these drugs has been incorporated in Brazilian public health care system.

HYPOTHESIS: The availability of novel drugs would reduce the risk of death.

METHODS: This is a real-world, unicenter analysis that included 160 patients with MM treated with first autologous stem-cell transplantation (HSCT) between 1994 and 2020. Posttransplant availability of novel drugs was treated as a time-dependent covariate and analyzed by Cox model. The analysis was controlled for the International Staging System (ISS) and for age. Missing ISS (37 patients) was included as a different category. Primary outcome was overall survival (OS).

RESULTS: With a median follow-up of 7 years, we included 160 patients with multiple myeloma, ISS-I (37%), ISS-II (22%), ISS-III (18%) or unknown (23%). Patients with access to 2 or more novel drugs were followed for 470 person-years, while the remainders, for 483 person-years. Mean age was 57.6 y/o (SD: 8.4). There were 58 deaths, and 5-y OS was 77% (median survival: 10.4 years), being 82% for ISS-I, 84% for ISS-II and 62% for ISS-III (p=0.05). In multivariable analysis, age (HR=1.03, p=0.04) and ISS-III (HR=2.57, p=0.005) were risk factors for death, while the availability of 2 or more novel drugs was protective (HR=0.52, p=0.02).

Discussion:

Our results show that the availability of 2 or more novel drugs increases overall survival. This is an important finding, since the pivotal trials were designed to show advantages in progression-free survival and, once achieved, the experimental drug was usually offered to the control group. We included the availability of novel drugs as a time-dependent covariate, and the interpretation of our results is that patients alive when two novel drugs were available had benefit in overall survival. This time-dependent covariate allows a patient to be included as not having access to novel treatment until a certain time, and thereafter be included as having access. Our study has two weaknesses. Non-contemporaneous control bias is a possibility. However, there has been no major change in supportive care for MM patients and we believe that the probability of this bias is low. Another weakness is that we don't have the information if patients with access to 2 or more novel drugs actually received this treatment. It seems unlikely since multiple myeloma is an incurable disease and since this study was conducted in a large private hospital. In conclusion, the availability of two or more novel drugs for multiple myeloma improves survival. Based on our results, the incorporation of these novel drugs in public health care system should be strongly discussed.

2. AUTOLOGOUS HSCT

AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION DECREASES ENDOTHELIAL ACTIVATION AND PROMOTES VASCULAR REMODELING IN SYSTEMIC SCLEROSIS PATIENTS

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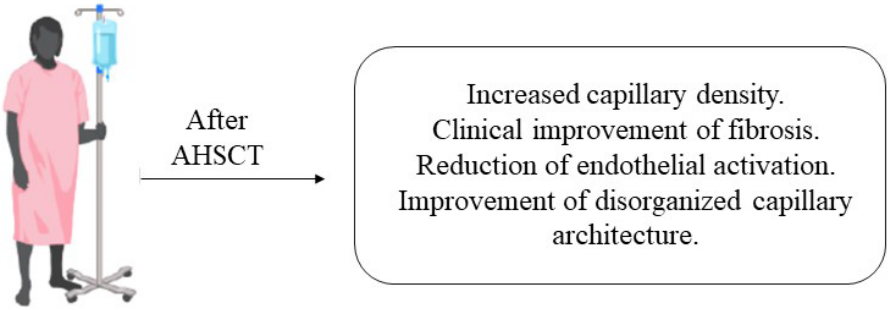
Systemic sclerosis (SSc) is an autoimmune disease characterized by vascular damage, immunological abnormalities, and fibrosis of the skin and internal organs. Injury and apoptosis of endothelial cells are initial events in the pathogenesis of SSc. Over time, these changes induce physiological and morphological abnormalities that lead to clinical manifestations of the disease. For patients with severe and progressive SSc, Autologous Hematopoietic Stem Cell Transplantation (AHSCT) has emerged as a therapeutic option. Randomized studies have shown improved disease control in SSc patients treated with AHSCT, but little is known about the impact of the procedure on SSc-associated vasculopathy. In this study, we aimed to compare levels of biomarkers that reflect endothelial damage, before and after AHSCT. Twenty-seven SSc patients were retrospectively evaluated for histological biomarkers of endothelial damage and for clinical outcomes, before and after AHSCT. Quantification of VEGF-A, E-selectin, and Endothelin-1 serum biomarkers was available in ten of these patients. Skin biopsies were immunostained for expression of adhesion molecules (CD31, VE-cadherin), endothelial activation (e-selectin), angiogenic mediators (ANG1, ANG2, TIE, VEGFA, VEGFR2), and vasoconstrictor (Endothelin-1), subsequently analyzed by the image J software. In ten patients, data on microvascular morphology, assessed by naifoild capillaroscopy, were available for the following variables: number of enlarged and giant,, avascular score, number of microhemorrhages, and capillary loops. Most participants were female (74%) with mean (standard deviation, SD) age of 36.1 (10) years. Clinical evaluation of fibrosis, assessed by Rodnan's score, improved at 6 and 12 months compared to baseline ($p<0.0001$). The histological markers ANG1 and E-selectin decreased after AHSCT when compared to baseline ($p<0.001$ and $p<0.0001$, respectively). The levels of serum markers did not change after AHSCT. We found a positive correlation between E-selectin and clinical fibrosis assessed by Rodnan's score ($p=0.0003$; $r=0.5024$). Nailfold capillaroscopy evaluations showed an increase in capillary loops at 6 months ($p<0.01$) and reduced number of giant capillaries at 6 and 12 months ($p<0.05$) after AHSCT. Our study shows that AHSCT reverses the abnormal microvascular morphology and decreases the cutaneous expression of the marker of endothelial activation, E-selectin, in SSc patients. We thereby show that AHSCT positively affects the endothelial compartment, partially reversing the vascular damage (figure). These data suggest that AHSCT may have a therapeutic effect on SSc pathogenic pathways other than fibrosis and inflammation.



AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION WITHOUT CRYOPRESERVATION IN PATIENTS WITH MULTIPLE MYELOMA: EXPERIENCE OF A SINGLE CENTER

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INTRODUCTION: Multiple myeloma (MM) is one of the most prevalent hematological cancers and still virtually incurable. The last decade has witnessed an unprecedented expansion of the therapeutic arsenal for the treatment of patients with MM. The incorporation of new drugs has enabled significant gains in terms of progression-free survival and overall survival. Even so, first-line treatment consists of chemotherapy and autologous hematopoietic stem cell transplantation (AHSCT) for eligible patients. In order to reduce the costs inherent to hematopoietic stem cell cryopreservation and not to exposure patients to the toxic effects of dimethyl sulfoxide, Oncological Treatment Center and Hematology and Hemotherapy Center of Southern Brazil standardized non-cryopreserved AHSCT in MM patients since November 2018.

OBJECTIVES: To analyze the experience of non-cryopreserved AHSCT in MM patients in our Center.

METHODS: We conducted a retrospective study evaluating the first year of non-cryopreserved AHSCT at a Transplant Center in Southern Brazil. Patients with the diagnosis of MM, aged 15 years or over, performing the first transplant were selected. Filgrastim was used for mobilization procedures. Poor mobilizers also received Plerixafor. Hematopoietic stem cells were collected by Spectra Optia Apheresis System (Terumo). The apheresis product was kept at 2-6ºC, in a maximum concentration of $2x10^8$ total nucleated cells/ml and reinfused up to 48 hours after collection. $CD34^+$ cell viability was measured by 7-AAD cell staining immunophenotypic analysis, through FACS Canto II cytometer (BD Biosciences), in the first 24 hours after collection and immediately before reinfusion. Patients were conditioned with Melphalan 200mg/m^2, at a single dose, 24 hours before reinfusion, except those with creatinine clearance below 60ml/min/1,73m^2, which received 140mg/m^2.

Results: Forty-six eligible MM patients transplanted between November 2018 and December 2019, with an average age of 57 years, 41% male, 74% Durie-Salmon staging system III, were studied. Median $CD34^+$ cell viability was 99,75% after apheresis collection and 98,25% immediately before infusion. Median $CD34^+$ cells infused was $5x10^6$/kg (IQR, 3.37-$7.2x10^6$). All patients engrafted, except one, with a median of 10 (IQR, 10-11) and 11 (IQR, 10-11) days for neutrophilic and platetet engrafment, respectively. The incidence of World Health Organization grades 3 and 4 mucositis was 22%. Patients stayed hospitalized for a median of 17 days (IQR, 16-19). The 100-day transplant related mortality was 6,5%. ***Conclusion:*** Our results corroborate the safety and efficacy of non-cryopreserved AHSCT in MM patients and encourage the preferential use of this less laborious and time consuming technique.

BUEAM AS CONDITIONING FOR AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PATIENTS WITH LYMPHOMA

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INTRODUCTION: High-dose chemotherapy followed by autologous stem-cell transplantation (ASCT) is an effective rescue therapy for patients with refractory lymphomas. The most frequent conditioning regimen for this situation is a combination of carmustine, etoposide, cytarabine and melphalan, a scheme known as BEAM. However, the availability of carmustine for its use in Brazil is very restricted nowadays. Thus, it is necessary to develop and study alternative conditioning regimens. In this sense, regimens that include only busulfan and melphalan (BuMel), or their association with other schemes, have been an alternative proposed by some international centers.

OBJECTIVE: The purpose of this report was to describe the experience of the Hematology and Bone Marrow Transplantation Department of Hospital de Clínicas de Porto-Alegre with the use of BuEAM as an alternative conditioning regime for ASCT for patients with lymphomas, in the context of the Sistema Único de Saúde (SUS) - the public health system in brazil.

CASUISTRY: all patients with lymphomas who underwent ASCT and used BuEAM as conditioning were included. Methods: This was a retrospective cohort study with all patients who underwent ASCT between 2014 and 2019 and used the above-described conditioning scheme.

RESULTS: During the analyzed period, 28 ASCT were performed, 17 (60.7%) in male patients. The mean age at ASCT was 40.7 years, ranging from 20 to 62 years. Most patients (17 - 60.7%) had Hodgkin's lymphoma as the underlying disease, followed by 7 (25%) patients with diffuse large B-cell lymphoma, 2 (7.1%) patients with mantle cell lymphoma, in addition to 1 (3.6%) patient with Follicular Lymphoma and 1 (3.6%) patient with Lymphoblastic Lymphoma. Neutrophilic engraftment occurred after an average of 13.07 days. Regarding early complications related to ASCT, all patients had febrile neutropenia. Two (7.1%) had catheter-related venous thrombosis and 1 (3.5%) patient had acute renal failure. After a median follow-up of 21.46 months, 2 (7.1%) patients died and 6 (21.4%) patients relapsed from the neoplastic disease. Relapse occurred at a median of 19.4 months after transplantation. In relation to patients who died, the median time between ASCT and death was 50.9 months. Regarding the patients who survived, the average time elapsed since the transplant was 21.46 months, with a minimum of 6.24 and a maximum of 67.71 months. Conclusion: This descriptive cohort points to a possible safety and efficacy in the use of this conditioning scheme, in line with current needs considering the scarcity of certain drugs, like carmustine. In comparison with the BuMel regimen, the inclusion of etoposide and cytarabine proved to be effective and superior considering the overall survival and progression-free survival. Despite a small sample, this study did not show any transplant-related mortality in 2 years.

EVALUATION OF THE INFLUENCE OF CHARACTERISTICS OF HEMATOPOIETIC PROGENITOR CELL UNITS FROM MOBILIZED PERIPHERAL BLOOD IN THE OUTCOME OF BONE MARROW TRANSPLANTATION

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INTRODUCTION: Some variables can affect the functionality of hematopoietic progenitor cells (HPC) and, consequently, the kinetics of hematopoietic recovery after bone marrow transplantation. The aim was to evaluate the influence of characteristics of the cryopreserved HPC units from mobilized peripheral blood on the outcome of autologous transplantation.

METHODS: Data from patients with cryopreserved HCP units from 02/2014 to 12/2019 were retrospectively analyzed. The medical records were reviewed to obtain the following information: sex, age, diagnosis, preapheresis CD34+ count, composition of the cryoprotectant solution (solution 1: DMSO5% HES6% ALBUMINA3% ACD5%; or solution 2: DMSO10 % ALBUMINA4% ACD5%), storage duration, nucleated cells concentration per cryobag, infused CD34+ cell dose, post-thawing viability (tripan blue), conditioning regime and transplant outcome (hematopoietic recovery and time of hospitalization). Continuous variables were expressed as median ± interquartile range and categorical variables as percentages. Multiple linear regression was used to determine the independent effect of each covariate on outcomes. Binary logistic regression was used to analyze the covariables associated with delayed engraftment (> 14 days) and delayed hospitalization [> 18 days (75th percentile)].

RESULTS: the study included 476 patients (55.3% male) aged 4 – 74 years (53 ± 19 years). The most common diagnosis was multiple myeloma (n = 298; 62.6%), followed by lymphoma (n = 149; 31.3%). The median time to WBC, neutrophil and, platelet engraftment was 11 ± 2 days and the time of hospitalization after transplantation was 15 ± 6 days. The linear regression model for time to neutrophil engraftment maintained the CD34+ cell dose and the composition of the cryoprotectant solution (Table 1). The same variables were maintained in models for time to WBC and platelet engraftment. The linear regression model for time of hospitalization maintained the nucleated cells concentration per cryobag (coefficient = 0.010, 95% CI: 0.003 to 0.0017; P = 0.007). Patients who had HPC cryopreserved using solution 2 showed 6 times higher risk (OR = 6.6; 95% CI: 2.2–20.4; P = 0.001) of delayed neutrophil engraftment and 2 times higher (OR = 2.1; 95% CI: 1.3– 3.4; P = 0.002) of delayed hospitalization when compared with patients who had HPC cryopreserved with solution 1.

CONCLUSION: the CD34+ cell dose, the composition of the cryoprotectant solution, and nucleated cells concentration significantly impact the kinetics of hematological recovery and the time of hospitalization after autologous transplantation.

TABLE 1 – Evaluation of the influence of laboratory procedures on time to neutrophil and platelet engraftment after autologous PBSC transplantation

	Time to neutrophil engraftment			
	Univariate analysis		Multivariate analysis	
Variables	Regression Coefficient (95% CI)*	*P* value	Regression Coefficient (95% CI)+	*P* value
Age (years)	-0.004 (-0.016 to 0.008)	0.543		
Sex	0.006 (-0.354 to 0.365)	0.976		
Diagnosis	0.014 (-0.134 to 0.161)	0.856		
Preapheresis CD34+ count (mm^3)	-0.005 (-0.008 to -0.002)	**0.001**		
Time from collection to processing (h)	-0.045 (-0.432 to 0.343)	0.821		
Cell concentration per cryobag (x 10^8 NC/mL)	0.002 (0.001 to 0.004)	**0.003**		
Composition of the cryoprotectant solution (1 or 2)	0.892 (0.477 to 1.307)	**<0.001**	0.949 (0.541 to 1.357)	**<0.001**
Post-thawing cell viability (%)	-0.022 (-0.038 to -0.006)	**0.006**		
Time from freezing and release for transplant (days)	-0.001 (-0.004 to 0.001)	0.273		
Conditioning regimen	-0.002 (-0.058 to 0.055)	0.951		
Infused CD34+ cell dose (x10^6/Kg)	-0.112 (-0.182 to -0.063)	**0.001**	-0.131 (-0.190 to -0.072)	**<0.001**

*Regression coefficient (β) were calculated using simple linear regression model (β); +Regression coefficient (β) were calculated using a multiple linear regression model. Bold values denote statistical significance at the $p < 0.05$ level. CI = confidence interval; h = hour

3. APLASIA

ACUTE KIDNEY INJURY AND HYPERTENSION FOLLOWING HSCT IN FANCONI ANEMIA PATIENTS

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INTRODUCTION: Fanconi Anemia (FA) is a rare disease characterized by progressive bone marrow failure, cancer predisposition and multiple systemic malformations, including congenital abnormalities of kidney and urinary tract (CAKUT). Hematopoietic stem cell transplantation (HSCT), the only curative treatment for its hematological complications, may be associated with acute kidney injury (AKI) and arterial hypertension (HTN). Objective: To evaluate the incidence and risk factors, especially the presence of CAKUT, associated with AKI and HTN after HSCT in FA patients.

PATIENTS AND METHOD: The present retrospective study analyzed a cohort of 107 patients with FA, submitted to HSCT between 2009 and 2017. The incidence of AKI and HAS, as well as associated risk factors, were investigated in the first100 days after HSCT and up to 2 years of follow-up. Fisher's exact test or adjusted univariate logistic regression models were used to analyze risk factors. The estimated association measures were odds ratio (OR) and hazard ratio (HR), for which 95% confidence intervals were presented. $P<0.05$ values indicated statistical significance.

RESULTS: AKI incidence was 18.7%, mostly in early stages. The main risk factors for AKI were age older than 11 years (OR-3.53), infection and the concomitant use of ≥ 5 nephrotoxic medications (OR=3.53; p=0.015), particularly amphotericin B (OR=3.37; p=0.083) and angiotensin converting enzyme inhibitors (OR=3.03; p=0.029). HTN was found in 72% of the patients within the first 100 days, most of them (62.3%) stage 2 and was associated with cyclosporine therapy. CAKUT were present in 33.7% of the patients and were associated with both HTN (86%) and lower kidney function, although no association with AKI was found.

CONCLUSIONS: The low AKI incidence found may be associated with the reduced conditioning regimen used for these patients. The episodes were transient and renal function was restored. The incidence of HTN was high, and its resolution was associated with the suspension of cyclosporine. Patients with CAKUT had a higher incidence of HTN and lower glomerular filtration rate at all study points, suggesting greater susceptibility to the development of chronic kidney disease. This study points out the need for strategies to preserve and/or improve kidney function in these patients, including detailed anatomical and functional urinary tract evaluation, strict surveillance of the use of nephrotoxic medications and continuous monitoring of blood pressure.

ASSOCIATION OF HLA-A*30 AND HLA-B*14 WITH APLASTIC ANEMIA IN PATIENTS FROM THE STATE OF PARÁ IN BRAZIL

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INTRODUCTION. Since the HLA region is extremely dense and polymorphic, allelic variations in its genes can trigger important protein functional changes, as these polymorphisms can modify the immune response and therefore make individuals susceptible to disease.

OBJECTIVES. This work aimed to evaluate the possible association of HLA alleles typified in patients with an indication for bone marrow transplantation with information on their basic pathologies with candidates for bone marrow donation. Casuistry. This was a retrospective study carried out on individuals from the state of Pará (Brazil). With an initial casuistic of 96 patients with base diseases, variants of HLA-A, -B, and -DRB1 were evaluated and compared with a control group of 100 candidates for bone marrow donation. From a total of 96 patients, three of these were not from Pará and 18 were with diseases not evaluated in this study.

METHODOLOGY. A case-control study was carried out using typing data obtained by Fusion v. 3.5.6 and sociodemographic data obtained by Neovita v. 2.01.29. The diseases chosen for analysis were aplastic anemia (AA), sickle cell anemia (SCA), and acute leukemia of the myeloid, lymphoid and ICD10-C95.0 types. Statistical analyses were performed using the chi-squared test (or Fisher's exact test) with Yates correction in OpenEpi v.3.01 software. For all tests, it was considered significant $P<0.05$ and it was made Bonferroni test correction.

RESULTS. The most frequent alleles between controls were HLA-A: -A*02 (26.0%), -A*24 (11.5%) and -A*68 (9.5%); HLA-B: -B*35 (14.5%), -B*40 (10.5%) and -B*44 (10.5%); HLA-DRB1: -DRB1*04 (15.5%), -DRB1*11 (11.0%) and -DRB1*07 (10.5%). The most frequent alleles in AA were HLA-A: -A*02 (33.3%), -A*30 (16.7%), and -A*03 (9.5%); HLA-B: -B*14 (26.2%), -B*18 (9.5%), -B*44 (9.5%); HLA-DRB1: -DRB1*11 (16.7%), -DRB1*13 (16.7%) and -DRB1*01 (14.3%). The variants HLA-A*30 (OR=5.514; CI= 1.821-16.69; P=0.0031) and HLA-B*14 (OR=7.53; CI= 2.886-19.65; P<0.0001) were statistically significant when associated with AA when compared to controls, even after Bonferroni (Pc=0.04 and Pc=0.0002, respectively). The other alleles of this study were not associated with AA or other diseases. It is worth mentioning that men were more frequent in AA (76.0%) than women, and AA patients has an average age of 25.9 years. Most individuals did not self-declare their ethnic group (52.5%), although this is followed by Pardo (38%) and Caucasians (9.5%). Therefore, although other studies also found an association of these alleles with AA, more studies should be conducted with a larger sample population data to confirm these findings.

CONCLUSIONS. In this study, HLA-A*30 and HLA-B*14 alleles were significantly associated with increased risk for aplastic anemia, although new studies are needed to confirm these findings.

MIXED CHIMERA IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR SEVERE APLASTIC ANEMIA: A NECESSARILY BAD FINDING?

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INTRODUCTION: the presence of mixed chimera (MC) in the follow-up of patients undergoing allogeneic hematopoietic stem cell transplantation (HSCT) due to severe aplastic anemia (SAA) is not uncommon. However, the impact of MC in this context is not completely known. Studies indicate that the presence of MC may negatively impact transplant outcomes, leading to high rejection rates, while others point to a possible benefit due to lower rates of graft-versus-host disease (GVHD).

OBJECTIVE: to evaluate the impact of different chimerism patterns on rejection, cytopenia and GVHD rates in patients undergoing HSCT by SAA.

CASUISTRY: all patients who were submitted to HSCT by SAA from 2011 to 2017 at our institution were considered eligible and excluded patients who did not have at least 2 chimerism analyses, submitted to syngenic transplantation and those in which data from the medical records were insufficient for analysis.

METHOD: retrospective analysis through electronic medical records. Chimerisms were evaluated by STR in mononuclear cells. More than 95% of donor cells was considered complete chimerism (CC); MC between 5% and 95%.

STATISTICAL ANALYSIS: the characteristics between the groups were compared using t- student test, Mann-whitney and Fisher's exact tests according to the sample normality.

RESULTS: 40 patients underwent HSCT in the period, 22 patients were evaluated. Nine patients presented MC at some moment; 13 patients presented CC throughout the period. There was no difference in the pre HSCT characteristics: type of transplant, conditioning regimen, prophylaxis for GVHD and cells infused between the CC and MC groups. There was no difference in incidence of GVHD, cytopenias and secondary graft failure and GVHD-free survival (Table 1). There was no difference in overall survival, graft failure-free survival, cytopenia-free survival, and GVHD-free survival (Figure 1). Conclusions: there was no difference between main clinical outcomes between CC and MC groups in this study. Larger studies are necessary for a more accurate evaluation in this context. However, the presence of MC does not necessarily imply a negative impact. The analysis of the kinetics of chimerism and other parameters such as the presence of cytopenias may help in the management of these cases.

TABLE 1: clinical outcomes of transplantation according to the chimerism pattern.

		Chimera		
Variable	Sample (n=22)	Complete (No.13)	Mixed (No.9)	p*
GVHD	6 (30%)	3 (27%)	3 (33%)	1.00
Secondary graft failure	4 (18%)	2 (15%)	2 (22%)	1.00
Cytopenias	9 (41%)	4 (31%)	5 (56%)	0.38
CMV reactivation	11 (50%)	7 (54%)	4 (44%)	1.00

(*) Fisher exact test probability

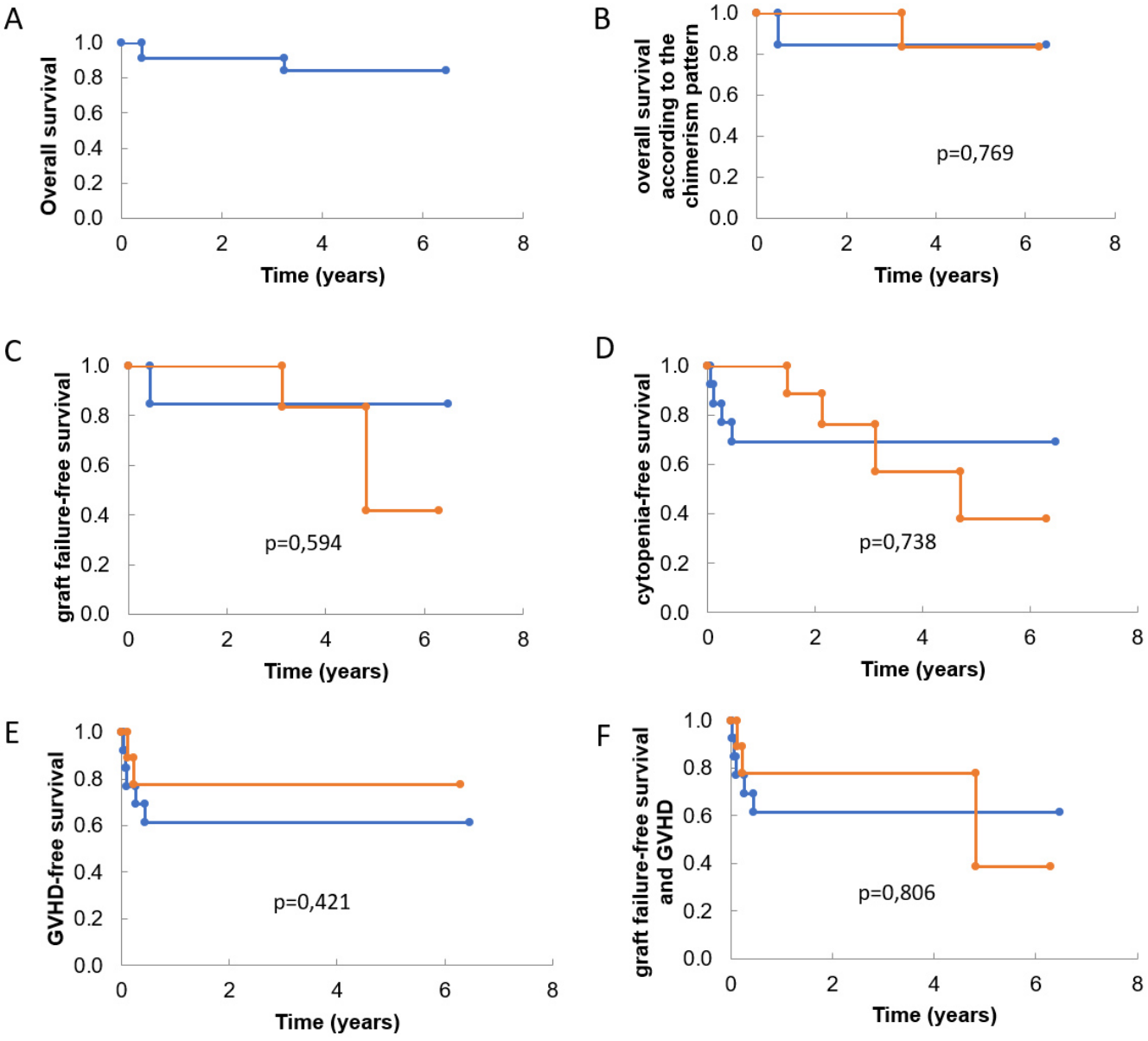

FIGURE 1 - Survival curves according to chimerism patterns

A – All cohort OS; B - Overall survival; C: graft failure-free survival; D - cytopenia-free survival; E - GVHD-free survival; F - survival free of graft failure and GVHD (composite outcome).

OCULAR MANIFESTATIONS IN PATIENTS WITH FANCONI ANEMIA WHO RECEIVE OR NOT A HEMATOPOIETIC STEM-CELL TRANSPLANT

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INTRODUCTION: Fanconi Anemia (AF) is a rare autosomal recessive disease, usually inherited, that is characterized by congenital malformations, bone marrow failure, and susceptibility to cancer. In addition, there are several implications for eye health.

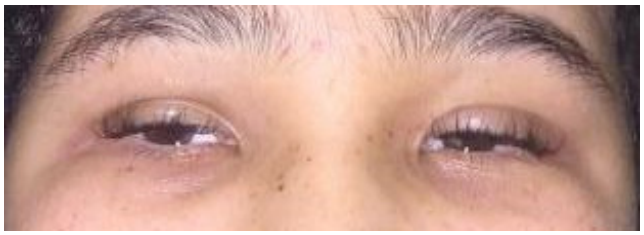
OBJECTIVES: To describe the prevalence of ophthalmic conditions in patients(pts) with FA submitted or not to a hematopoietic cell transplantation (HCT) and relate these conditions to the genetic subtypes of the disease.

MATERIALS AND METHODS: Prospective, observational and cross-sectional study in 106 FA pts under follow-up in a single service between 11/2014 and 08/2017. Each participant was submitted to a complete ophthalmological evaluation and ocular ultrasound.

RESULTS: The median age was 13 years (range: 6 months to 43 years). Visual acuity was 20/60 or greater in 97 pts (91.5%). Refractive errors occurred in 68 pts, with astigmatism being the most common refractive error. Microphthalmia was the most common ophthalmic abnormality (80 pts - 95.2%). In addition, a reduction in anthropometric measures was observed, including palpebral fissure length (78 pts - 76.5%), microcornea (48 pts - 46.6%) and palpebral ptosis (31 pts - 29.2%). Of particular interest is that this study detected a new ophthalmological condition in FA pts, namely the presence of epiretinal tissue on the optic disc (15 pts - 14.1%). The ocular manifestations found in pts who did not receive HCT were caruncular nevi (1 patient - 0.9%), developmental cataract (1 patient - 0.9%), open-angle glaucoma (1 patient - 0.9%) , limbo neovascularization (6 pts - 13.9%), retinal vascular thinning (1 patient - 0.9%), retinal microhemorrhages (1 patient - 0.9%) and macular hemorrhage (1 patient - 0.9%) . The ocular manifestations found in pts who received HSCT were limbal neovascularization (27 pts - 25.5%), developmental cataracts (4 pts - 3.8%), retinal vascular thinning (2 pts - 1.9%), ocular GVHD of the anterior segment (32 pts - 30.1%) and ocular GVHD of the posterior segment due to CMV retinitis (1 patient - 0.9%) and retinal detachment (2 pts - 1.9%). In the study, the FANCA subtype (52 pts - 49.1%) was more prevalent over the other subtypes (FANCG, FANCE and FANCC). In the sample of pts with FANCA who underwent ocular ultrasound (43 pts - 40.6%) were found to have microphthalmia (42 pts - 97.7%).

CONCLUSION: Patients with FA can present with microphthalmia, microcornea, ptosis, cataract, glaucoma, limbo neovascularization and vascular retinopathy. In addition to these conditions, patients with FA submitted to a HSCT can present ocular GVHD of the anterior and posterior segment. In this study, the FANCA subtype was more prevalent over the other subtypes (FANCG, FANCE and FANCC). In order to provide these individuals with a dignified quality of life, careful and regular ophthalmological examinations are essential to diagnose these conditions.

KEYWORDS: Fanconi Anemia. Ocular manifestations. Genetic subtypes.



Legend: pacient with FA and reduced of anthropometric measurements, palpebral ptosis and microcornea.

4. MYELODYSPLASIA

HEMATOPOIETIC CELL TRANSPLANTATION FOR 40 CHILDRENS WITH MYELODYSPLASTIC SYNDROME AND JUVENILE MYELOMONOCYTIC LEUKEMIA

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INTRODUCTION: Juvenile Myelomonocytic Leukemia (JMML) and Myelodysplastic Syndrome (MDS) are rare diseases in pediatrics. Progression to AML can occur in both MDS and JMML and is associated with a decrease in survival which is also observed in patients(pts) diagnosed with secondary AML (AML/MDS). The only curative treatment is Hematopoietic Stem Cell Transplantation (HSCT). The main cause of mortality in these pts is post-HSCT recurrence.

OBJECTIVE: To evaluate the outcomes after HSCT in 40 children and adolescents diagnosed with MDS, LMMJ and AML / MDS.

MATERIAL AND METHODS: Retrospective analysis of 40 patients undergoing HSCT in three pediatric centers from 1988 to 2017, with a median age of 3.3 years (three months to 13.7 years). The diagnoses were: JMML (n = 19), Refractory Cytopenia of Childhood (RC) (n = 13), MDS with Excess Blasts (MDS-EB) (n = 1) and AML / MDS (n = 7). Donors were: matched related (n = 20), unrelated (n = 17); haploidentical (n = 2) and mismatched related (n= 1). Bone marrow (BM) was the stem cell source in 27pts, cord blood (CB)in 12 pts and peripheral blood (PB) in 1 patient. The conditioning regimens were: Busulfan (BU) -cyclophosphamide (CFA) -melfalan (MEL) (n = 15), BU-fludarabine-MEL (n = 03), BU-CFA (n = 14), schemes with TBI (n = 6) and other schemes (n = 2).

RESULTS: Primary graft failure occurred in six pts (BM = 3; CB = 2 and PB = 1) and 4 pts were rescued with a 2nd HSCT. Two pts failure again to engraft and others two successfully achieves donor cell engraftment and stay alive. The cumulative incidence (CI) of acute graft versus host disease (GVHD) was 37.5% at 100 days and was not related to mortality. The CI of chronic GVHD at 2 years was 15%. Seven pts relapsed post-HSCT with a CI of relapse at 1 year of 15% (JMML: 26% and MDS and LMA/MDS: 4,8%; p = 0.308 Gray test). The main causes of death were: graft failure (n = 3); veno-occlusive disease (n = 1), encephalopathy and cytomegalovirus infection (n = 1), recurrence/progression (n = 8) and late infection (n = 1). 26 pts are alive with a median follow-up of 8.7 years (0.1-24 years). The overall survival at 1 and 5 years was: 78.9% and 68%, for JMML and 71.4% and 61.1% for MDS and MDS / AML. Disease-free survival at 01 and 05 years was 63,2% for pts with JMML (all relapse occur in the first year) and 66.7% and 55.9% for pts with MDS and MDS/AML. The source of stem cells had no impact on survival in any of the diseases.

CONCLUSIONS: In a long term follow up, the survival rate after HSCT was greater than 60%. Recurrence remains the main cause of mortality in these patients, followed closely by post-HSCT complications. Therefore, the development of an effective pre-HSCT therapeutic strategy and identifying factors that can decrease post-HSCT complications are the keys to improve survival in these patients.

INFLUENCE OF AGE IN THE PREDICTORS OF ACUTE GVHD, CHRONIC GVHD AND DEATH IN HEMATOPOIETIC STEM CELL TRANSPLANTATION

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BACKGROUND: Older patients have become increasingly eligible for allogeneic hematopoietic cell transplantation (HSCT). The patient's age may be a relevant factor in the response to HSCT in myelodysplastic syndrome (MDS).

OBJECTIVE: To assess the influence of age on HSCT results in SMD.

METHODS: We analyzed 283 patients from the Latin American HSCT registry from 1988-2020 stratified according to age. The statistics were performed in SPSSv.23.1, considering significant $p<0.05$.

RESULTS: In the group aged < 60 years (n=255, 90%), there was predominance of males (55%) and a median age of 38 years (1-59). According to the Prognosis Scoring System (IPSS-R), they were 12.6% low/ very low, 22.4% intermediate, 25.4% high/ very high risk. 39.6% did not have the IPSS-R due to a lack of data, such as cytogenetics. About 59.2% were treated pre-HSCT. Myeloablative conditioning (MAC) (85%) was prevalent, followed by reduced/ non-myeloablative intensity (RIC) (15%). The cell sources used were bone marrow (BM) (54.5%), peripheral blood (PB) (43.2%) and umbilical cord (2.3%). The type of donor was 74.1% related, 21.6% unrelated, and 4.3% haploidentical. Among post-HSCT complications there were 39.6% acute GVHD, 31.8% chronic GVHD, 42.7% deaths. In the group ≥ 60 years (n=28, 10%) there was a predominance of males (53.6%) with a median age of 63.5 years (60-76). In the IPSS-R, 3.6% low, 28.6% intermediate, 42.8% high/ very high risk.

About 25% did not have IPSS-R. 89.3% were treated pre-HSCT. Unlike the group < 60 years old, RIC (85.7%) was prevalent, followed by MAC (14.3%) in the group ≥ 60 years. The cell source used were BM (42.8%) and PB (57.2%). The type of donor were 57.2% related, 21.4% unrelated, 21.4% haploidentical. Among post-HSCT complications there were 14.3% acute GVHD, 7.1% chronic GVHD, 42.8% deaths. In the univariate analysis, there was no significant difference between the groups < 60 years and ≥ 60 years in terms of death (p=1), but there was an association with acute GVHD (p=0.0074) and chronic GVHD (p=0.0044). In the multivariate analysis, there was also no significant difference between the groups < 60 years and ≥ 60 years for the risk of death (OR:0.995; 95%CI: 0.452 – 2.190; p=0.991). Patients ≥ 60 years of age were 74.6% less likely to have acute GVHD than patients < 60 years of age (OR:0.254; 95%CI: 0.086-0.754; p=0.014). Patients aged ≥ 60 years were also 83.5% less likely to acquire chronic GVHD than those aged < 60 years (OR:0.165; 95%CI:0.038-0.713; p=0.016). Regarding overall survival (OS), in the group < 60 and ≥ 60 years there was no significant difference in the 5-year follow-up with median rates of 49.5% vs 49.1%, respectively (p=0.356). There was also no difference in OS when stratified at < 55 (n=227) and ≥ 55 (n=56) years with median rates of 49.9% vs 47.9%, respectively (p=0.123).

CONCLUSIONS: Age did not directly influence the mortality of the studied population, but it significantly influenced the development of acute GVHD and chronic GVHD post-HSCT.

FIGURE 1 - Overall survival according to age in a 5-years follow-up. A - Overall survival aged less than 55 years and greater or equal than to 55 years; B - Overall survival aged less than 60 years and greater or equal than to 60 years.

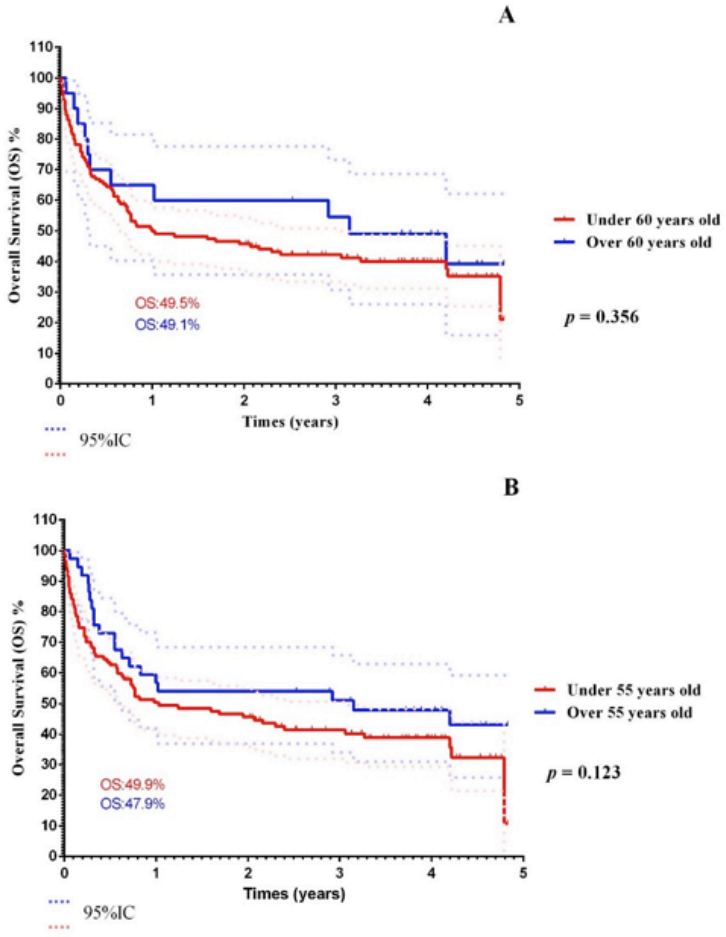

TABLE 1 - Characteristics of the study patients according to age category.

VARIABLES	Patient's age at HSCT (n = 283)	
	< 60 years	≥ 60 years
	n (%)	n (%)
Number of patients	255 (90%)	28 (10%)
Gender		
Female	115 (45%)	13 (46.4%)
Male	140 (55%)	15 (53.6%)
IPSS-R		
Very low risk / low risk	32 (12.5%)	1 (3.6%)
Intermediate	57 (22.4%)	8 (28.6%)
Very high risk / high risk	65 (25.5%)	12 (42.8%)
No data	101 (39.6%)	7 (25%)
Donor type		
Related Donor	189 (74.1%)	16 (57.2%)
Unrelated donor	55 (21.6%)	6 (21.4%)
Haploidentical Donor	11 (4.3%)	6 (21.4%)
Year of HSCT in period		
1989 - 1993	7 (2.7%)	0 (0%)
1994-1998	17 (6.6%)	0 (0%)
1999-2003	21 (8.2%)	0 (0%)
2004-2008	34 (13.3%)	2 (7.2%)
2009-2013	68 (26.6%)	6 (21.4%)
2014-2020	108 (42.3%)	20 (71.4%)
Conditioning regime		
Myeloablative	217 (85%)	4 (14.3%)
Reduced Intensity / Non-myeloablative	38 (15%)	24 (85.7%)
Cell source		
Bone marrow	139 (54.5%)	12 (42.8%)
Peripheral blood	110 (43.2%)	16 (57.2%)

umbilical cord	6 (2.3%)	0 (0%)
Diagnosis time to HSCT (months)		
≤ 2 years	207 (81.2%)	19 (67.8%)
> 2 years	48 (18.8%)	9 (32.1%)
Cytogenetics		
Normal	75 (29.4%)	8 (28.6%)
Changed	74 (29%)	15 (53.6%)
No data	106 (41.6%)	5 (17.8%)
Pre-HSCT Treatments		
YES	151 (59.2%)	25 (89.3%)
NO	104 (40.8%)	3 (10.7%)
Type of pre-HSCT treatment	(n=151)	(n=25)
Chemotherapy	107 (70.8%)	10 (40%)
Hypoethylating	33 (21.8%)	15 (60%)
Chemotherapy + Hypomethylating	11 (7.4%)	0 (0%)
Main post-HSCT complications		
Acute GVDH	101 (39.6%)	4 (14.3%)
Chronic GVDH	81 (31.8%)	2 (7.1%)
Rejection	12 (4.7%)	2 (7.1%)
Death	109 (42.7%)	12 (42.8%)

UPDATE OF RESULTS OF THE LATIN AMERICAN BONE MARROW TRANSPLANT REGISTRY: INFLUENCE OF TREATMENT PRIOR TO ALLOGENEIC TRANSPLANTATION OF HEMATOPOIETIC STEM CELL IN PATIENTS WITH MYELODYSPLASTIC SYNDROME

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BACKGROUND: The role of bridging therapy with intensive chemotherapy and/or hypomethylating agents followed by HSCT has been suggested, but there is some controversy regarding the influence of treatment response on transplant outcomes.

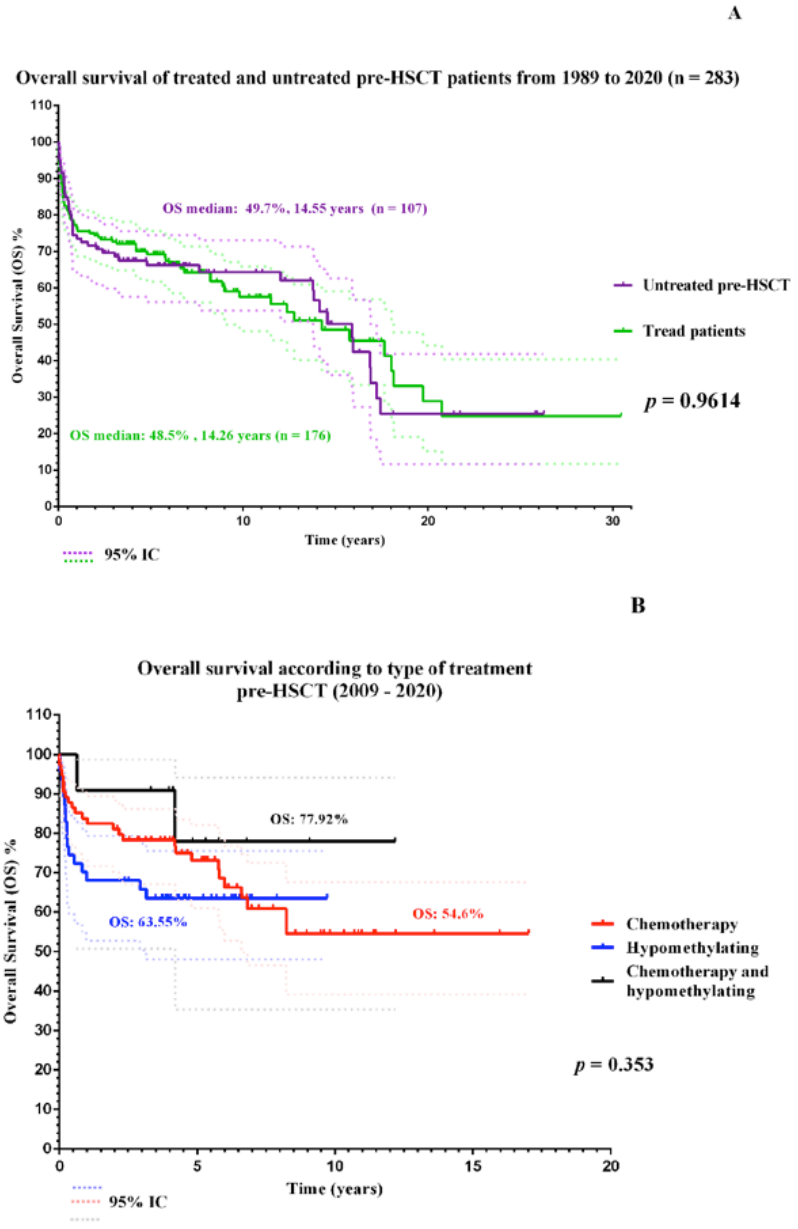
OBJECTIVE: To evaluate the influence of pre-HSCT treatment on MDS.

METHODS: We analyzed 283 adult and pediatric patients from the bone marrow transplant registry at 17 centers in Latin America in 1988 to 2020. Overall survival was defined as the time between the date of initiation of pre-HSCT treatment and death or last follow-up. Statistical tests were performed using the software SPSS v.24 and GraphPad Prism v.5 considering $p < 0.05$ statistically significant

RESULTS: The median age was 46 years (1-79). Of the 283 patients, 176 (62.2%) were treated pre-HSCT, and 107 (37.8%) received no previous treatment. Of the treated patients, 117 (66.5%) received chemotherapy, 48 (27.3%) hypomethylating drugs, and 11 (6.2%) received both therapies pre-HSCT. In according to the IPSS-R in the group that received chemotherapy showed 1.6% of low risk, 20.5% of intermediate-risk, 30.7% of high/very high risk and 32.5% had no data. Among those undergoing hypomethylating, 2% were very low risk, 18.8% were intermediate risk, 31.2% were high/very high risk, and 70.8% had no data. In the group receiving both therapies (hypomethylating drugs and chemotherapy), there was 9% of very low risk, 36.4% of intermediate-risk, 27.3% of high/very high risk, and 27.3% had no data. Intravenous chemotherapy was prevalent (58.5%),

followed by oral chemotherapy (13%). About 75% were myeloablative conditioning regimen whereas the 25% reduced intensity/ non-myeloablative regimen. In patients using hypomethylants, azacitidine was the most commonly used hypomethylating agent (84.2%), followed by decitabine (12.3%). In the group where both therapies were used before HSCT [11/176 (6.2%)], nine had a normal karyotype (81.8%), one patient had chromosome 8 trisomy (9.1%), and had a complex karyotype (9.1%). When comparing pre-HSCT treated and untreated patients, there was no statistical difference in overall survival (68.25% vs 66.76%; p=0.9614). The multivariate analysis also showed no difference in patients' death outcomes when using or not using treatment prior to transplantation (OR:0.87, 95%CI, 0.54–1.41; p=0.577). The overall survival of patients regarding the type of previous treatment was evaluated from 2009-2019 because the use of both therapies (hypomethylating and chemotherapy) started in the studied population from 2009. The overall survival analysis showed that there was no statistical difference between the type of pre-HSCT treatment (p=0.353).

CONCLUSION: The absence of pre-HSCT treatment did not influence the survival of patients with MDS in relation to previous treatments.



Note: Abbreviations: Haematopoietic stem cell transplantation (HSCT); OS - Overall Survival; Absolute number of patients (n); Considered significant $p < 0.005$.

FIGURE 1- A - Overall survival of treated (n = 176) and untreated (n = 107) pre-HSCT patients. B - Overall patient survival according to pre-HSCT treatment (2009 – 2020) (n=132).

TABLE 1- Characteristics of the assessed patients.

	1989 – 2020 (n = 283)		2009 -2020 (n=202)		Total
	Yes	No	Yes	No	
	176 (62.2%)	107 (37.8%)	132 (65.3%)	70 (34.6%)	283 (100%)
Gender					
Female	80 (45.5%)	48 (44.8%)	63 (47.7%)	31 (43.6%)	128 (45.2%)
Male	96 (54.5%)	59 (55.2%)	69 (52.3%)	39 (55.7%)	155 (54.3%)
Age, years					
Median	46	43	46	48	46
Interval	(1 – 79)	(3 – 71)	(1 – 79)	(1 – 67)	(1 – 79)
Type of donor					
Related	115 (65.3%)	90 (84%)	82 (62.1%)	57 (81.4%)	205 (72.5%)
Unrelated	47 (26.7%)	14 (13%)	36 (27.3%)	10 (14.3%)	61 (21.5%)
Haploidentical	14 (8%)	3 (3%)	14 (10.6%)	3 (4.3%)	17 (6%)
Type of cell source					
Peripheral blood	77 (43.8%)	49 (45.8%)	65 (49.2%)	36 (51.4%)	126 (44.5%)
Bone marrow	94 (53.4%)	57 (53.3%)	64 (48.5%)	34 (48.6%)	151 (53.3%)
Cord blood	5 (2.8%)	1 (0.9%)	3 (2.3%)	0 (0%)	6 (2.2%)
IPSS-R					
Very high risk	13 (7.4%)	2 (1.9%)	11 (8.3%)	1 (1.4%)	15 (5.3%)
High risk	41 (23.3%)	21 (19.6%)	26 (19.6%)	13 (18.6%)	62 (21.9%)
Intermediate	37 (21%)	28 (26.2%)	30 (22.7%)	21 (30%)	65 (23%)
Low risk	19 (10.8%)	12 (11.2%)	12 (9%)	7 (10%)	31 (11%)
Very low risk	2 (1.1%)	0 (0%)	2 (1.5%)	0 (0%)	2 (0.7%)
No record	64 (36.4%)	44 (41.1%)	51 (38.6%)	28 (40%)	108 (38.1%)
Type of conditioning					
Myeloablative	132 (75%)	89 (83.2%)	92 (69.7%)	56 (80%)	221 (78%)
Reduced intensity /non-myeloablative	44 (25%)	18 (16.8%)	40 (30.3%)	14 (20%)	62 (22%)

Note: Values are n (%) unless otherwise defined. Abbreviations: IPSS-R - Revised International Prognostic Scoring System; HSCT - Haematopoietic stem cell transplantation; n - Absolute number of patients.

UPDATE OF RESULTS OF THE LATIN AMERICAN BONE MARROW TRANSPLANT REGISTRY: PREDICTORS OF ACUTE GVHD, CHRONIC GVHD AND DEATH ON HEMATOPOIETIC STEM CELL TRANSPLANTATION IN MYELODYSPLASTIC SYNDROME

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BACKGROUND: Hematopoietic stem cell transplantation (HSCT) is the only curative strategy for patients with myelodysplastic syndromes (MDS). Several factors can interfere with the response to HSCT in MDS.

OBJECTIVE: To evaluate the effect of cell source, type of conditioning and type of donor on HSCT in SMD in Latin America.

Methods: We analyzed data from 283 patients with MDS from the transplant registry of seventeen centers in Latin America from 1989 to 2020. Statistics were performed using SPSSv.23.1, considering a significant $p<0.05$. Results: There was a predominance of males (54.8%) and whites (85.5%). The median age was 46 years (1-79). According to the Prognosis Scoring System (IPSS-R), there was 0.7% very low risk, 10.9% low risk, 23% intermediate risk, 21.9% high risk and 5.3% very high risk. About 38.2% of patients could not be classified in the IPSS-R due to lack of data. In myeloablative conditioning (MAC) (78%), the regimens were bulsulfan/ fludarabine (43.43%), bulsulfan / cyclophosphamide (34.5%) and regimes with total body irradiation (8.9%). In reduced intensity/ non-myeloablative regimen (RIC) (22%) were bulsulfan/ fludarabine (45.5%), fludarabine/ melphalan (45.5%) and regimens based on total body irradiation (7.2%). The cell source was bone marrow (BM) (53.3%), peripheral blood (BP) (44.5%) and umbilical cord blood (2.2%). The main post-HSCT complications included acute (37.1%) and chronic (29.3%) graft versus host (GVHD) disease. Regarding the possible predictors of acute, chronic GVHD and

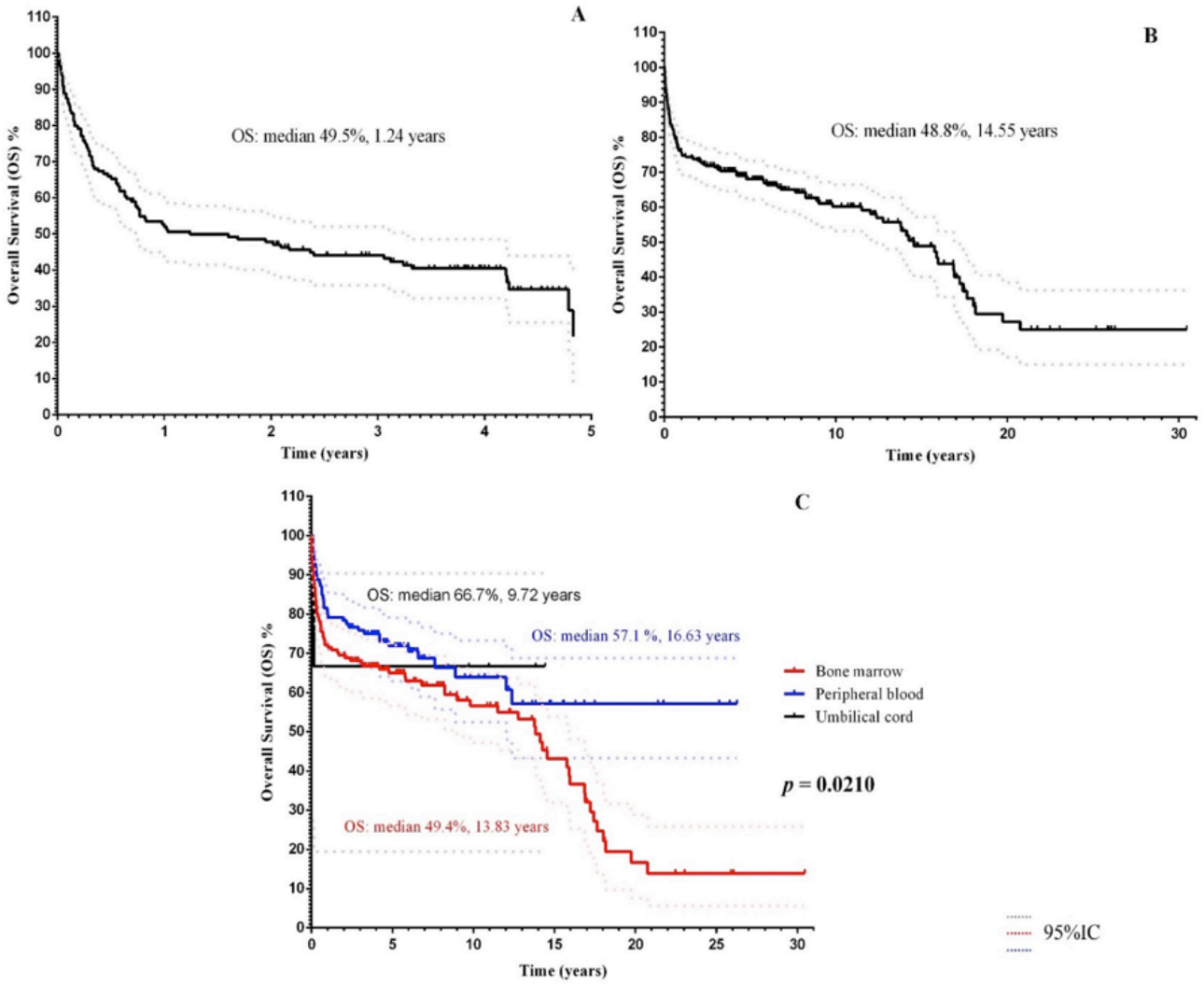
death, there was an association between the cell source and the death outcome (p=0.0015). In addition, there was an association between acute GVHD and conditioning regime (p=0.0173). There was also an association between chronic GVHD and the conditioning regime (p = 0.0268), between related and unrelated donors (p=0.0395) and between related and haploidentical donors (p=0.0145). In the multivariate analysis, despite the significant association in the univariate with RIC as a protective factor in relation to MAC, conditioning did not influence the outcome of death (p=0.519), acute GVHD (p=0.061) and chronic GVHD (p=0.073). The type of donor did not influence the outcome of acute GVHD and death, but the unrelated donor was 2.12 times more likely to have chronic GVHD than the related (OR:2.12, 95%CI:1.06-4.24, p=0.034). cell source was a significant predictor of death and acute GVHD. BM had 2.21 times more chance of death than PB (OR:2.21; 95%CI: 1.341-3.66; p=0.002). The median overall survival according to the cell source was 49.4%, 95%CI: 43.6-52.2; 13.83 years in BM vs 57.1%, 95%CI: 53.7-68.01; 16.63 years in PB vs 66.7%, 95%CI: 66.67-100; 9.7 years in the umbilical cord (p=0.021). The overall survival at 5 years of follow-up was 49.5%.

CONCLUSIONS: HSCT can be influenced by the type of conditioning, cell source and type of donor adopted.

CONFLICTS OF INTEREST: None.

KEY-WORDS: Myelodysplastic Syndromes. Allogeneic Hematopoietic Stem Cell Transplantation. overall survival.

FIGURE 1. Overall survival of the studied patients. A - Overall survival at 5 years of follow-up. B - Overall survival at 30 years of follow-up. C - Overall survival according to the cell source used for HSCT.



5. HAPLOIDENTICAL HSCT

EVALUATION OF THE OUTCOME OF HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANTATION USING KIRMISMATCH DONORS: EXPERIENCE OF A PEDIATRIC UNIT

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INTRODUCTION: Haploidentical hematopoietic stem cell transplantation (haplo-HSCT) is emerging as an alternative and curative option for children with hematological diseases. Studies show that killer immunoglobulin-like mismatch between donor and receptor (KIR) potentiates the effect of graft versus leukemia, reducing relapses. Thus, this factor can help in choosing the best haploidentical donor to improve the effectiveness of this modality.

OBJETIVES: To describe the experience and compare the results obtained in patients undergoing haplo-HSCT using a kirmismatch (G1) and kir-match (G2) donor.

METHODS: Retrospective cohort study of patients undergoing haplo-HSCT in a pediatric center.

RESULTS: From January 2019 to July 2020, 27 haplo-HSCT were performed – 7% of these patients were undergoing the second HSCT due relapse. 63% were male and the median age of 9 years. There was a predominance of ALL (52%), AML (30%), MDS (11%) and lymphomas (7%). Most patients were in CR2 (45%), followed by CR1 (22%), active / refractory disease (22%) and CR3 + (11%). Myeloablative conditioning was used in 85%. As for donors, 70% were male and the median age was 37 years. Fifty-six percent used bone marrow (BM) as graft and 44% peripheral blood (PB). G1 corresponded to 48% and G2 52%. There were no primary or secondary graft failure in both groups. There was more aGVHD in G2 (G1: 50% and G2: 83%) and more cGVHD in G1 (G1: 33% and G2: 25%) ($p = 0.19$ and $p = 1.00$, respectively). No grade IV aGVHD was observed (G1: 83% grade I and 17% grade III; G2: 100% grade I) ($p = 0.36$). The severity of cGVHD, G1 presented 33% for each category (mild, moderate and severe) and in G2 100% was mild ($p = 0.82$). There was no statistical difference ($p = 1.00$) for recurrence, G1 25% (median 90 days after HSCT) and G2 17% (median 111 days). However, there was no recurrence when PB was used in G1 ($p = 0.002$) and when the patient presented cGVHD both in G1 and G2 ($p = 0.021$). In addition, 69% of patients are alive in G1 and 79% in G2 ($p = 0.68$). Among the causes of death, recurrence in G1 was the main cause (50%), TRM (25%) and infection (25%), and in G2 67% due to TRM and 33% recurrence ($p = 0.64$). At D + 100, OS was 92% in G1 and 86% in G2 ($p = 0.77$), and EFS was 78% (G1) and 86% (G2) ($p = 0.75$). However, there was a significant reduction in these rates in G1 from D + 200, with OS 68% (G1) and 86% (G2) and EFS of 58% (G1) and 69% (G2).

CONCLUSIONS: There was no statistically significant difference between the groups in the outcome of HSCTs, except for a lower recurrence rate when PB was used in G1 and when cGVHD occurred in both groups. G1 showed a lower rate of EFS and a higher occurrence of death from recurrence, contradicting the initial hypothesis of this analysis. However, the small sample and follow-up time of patients are limitations of the analysis.

KEYWORDS: Hematopoietic Stem Cell Transplantation. Haploidentical Transplantation. Natural Killing Cells. Pediatrics.

HAPLOIDENTICAL HEMATOPOIETIC CELL TRANSPLANTATION YIELDS SUPERIOR OUTCOMES COMPARED WITH UNRELATED DONOR TRANSPLANTATION IN THE REDUCED-INTENSITY CONDITIONING REGIMEN SETTING

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INTRODUCTION: Matched-sibling donor(SIB) is the gold standard for hematopoietic cell transplantation(HCT), but only 30% of the patients will have such donor. Unrelated donor(URD) HCT is an established procedure, with more than 30 years of worldwide experience, while haploidentical transplantation(Haplo) with posttransplant cyclophosphamide(PTCy) is a relatively new approach. The objective of this study is to compare the outcomes of SIB, URD and Haplo HCT in the setting of reduced-intensity conditioning(RIC).

PATIENTS AND METHODS: This is a single center study that included 105 patients who underwent HCT from 2012 to 2020. All patients received RIC regimens, Fludarabine-Melphalan(FluMel) -based or pharmacokinetically(PK)-guided busulfan(Bu)-based. Median age was 55 y/o(22 were <18 y/o) and 53 were male. Most frequent diagnosis was acute lymphoblastic leukemia(18), followed by myelodysplastic syndrome(14) and acute myeloid leukemia(12); 30 patients had non-malignant diseases. Donor was SIB(28), matched URD(35), mismatched URD(7) or Haplo(35). All Haplo patients received PT-Cy-based GVHD prophylaxis. Graft source was bone marrow(67) or mobilized peripheral blood(38). Fifty-nine patients received Bu-based RIC and 46 received FluMel-based RIC.

RESULTS: With median follow-up of 1.5 years, 1-y overall survival(OS) was 61%(95CI 52-71%). In multivariate analysis(controlled for age and gender), risk factors for death were URD(HR=2.29, p=0.04, compared with Haplo) and FluMel-based RIC(HR=2.59, p=0.006, compared with Bu-based RIC). Transplant-related mortality(TRM) was 30%, and it was higher for URD(HR=3.57, P=0.004, compared with Haplo) and for FluMel-based RIC(HR=3.09, p=0.007). Incidence of grades II-IV and III-IV acute GVHD(aGVHD) were 48 and 19%, respectively. Non-malignant disease was protective for grades II-IV aGVHD(HR=0.39, p=0.03). Risk factors for grades III-IV aGVHD were URD(HR=6.47, p=0.009, compared with Haplo) and FluMel-based RIC(HR=3.32, p=0.02), while there was a trend for protection for non-malignant diseases(HR=0.16, p=0.08). One-year chronic GVHD(cGVHD) was 17%. We haven't found any risk factor for cGVHD.

DISCUSSION: Our results show that PK-guided Bu-based RIC yields more favourable survival and TRM, compared with FluMel-based RIC. Also, results of haploidentical HCT were superior to URD HCT in the RIC setting, mainly due to lower TRM. Few studies have compared URD with Haplo in the RIC and lymphoma settings. In addition, both URD and FluMel-based RIC had higher rates of grades III-IV acute GVHD. PK-guided Bu-based conditioning regimens are able to provide a more predictable toxicity profile, which can partially explain the lower TRM compared with FluMel-based regimens. Higher gastrointestinal toxicity of FluMel-based may also explain the higher aGVHD rate. In summary, our results suggest that Haplo could be preferred over URD in the RIC setting and that PK-Bu-based RIC regimen may yield superior results compared with FluMel-based RIC

PTCY-BASED HAPLOIDENTICAL VERSUS ATG- OR PTCY-BASED UNRELATED DONOR TRANSPLANTATION: A SINGLE-CENTER ANALYSIS USING PROPENSITY SCORE MATCHING

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INTRODUCTION: HLA-matched sibling remains the gold standard donor for hematopoietic stem cell transplantation(HSCT). However, only about 30% of the patients will have such a donor, and the majority of the patients will need an alternative donor.

OBJECTIVE: The primary objective of this study is to compare transplants of haploidentical donor with posttransplant-cyclophosphamide(PTCy) and unrelated donor(URD) with ATG using propensity score matching. Secondary objective was to search for risk factors for major outcomes in HSCT.

METHODS: We performed a propensity score 1:2 rate matching with caliper in 34 haploidentical and 70 URD. Due to caliper, not every case will have 2 matching controls, and cases can be dropped. These two groups were compared with the logrank or Gray's test. After matching, 33 haploidentical and 50 URD transplants were included. Cox multivariable analyses were performed using the whole set of patients(104 patients).

RESULTS: Median age was 19 y/o, 72% were male, 15% had non-malignant disease, and 72% of the URD were 8/8 HLA-matched. The two groups were well-balanced, except for conditioning regimen(84% MAC in URD versus 61% in haploidentical). Two-years overall survival was 56% for haploidentical and 59% for URD transplants(p=1.00). Grades II-IV and III-IV aGVHD, and cGVHD were 28%, 12% and 30% for the haploidentical group, and 42%, 10% and 18% for the URD(p=0.21, 0.73 and 0.50, respectively). Transplant-related mortality was 30% and 25% for haploidentical and URD, respectively. Relapse rate at 2 years was 17% for haploidentical and 29% for URD. In multivariable analysis, DRI high or very high(HR=2.28, p=0.009) and PBSC(HR=3.13, p=0.002) were risk factors for death. Transplant-related mortality was higher with PBSC (HR=3.56, p=0.004) and in patients older than 30 y/o (HR=2.29, p=0.04).

DISCUSSION: Overall survival between haploidentical and unrelated donor transplantations were not different, which is in accordance with two meta-analyses that have shown no difference in overall survival. We also found a negative effect of peripheral blood stem cells(PBSC) on survival. Usually, PBSC are preferred in high-risk patients, but only one of our PBSC patients died of disease relapse, meaning low likelihood of selection bias. Brazil is a highly miscegenated country, which could have maximized the detrimental effect of PBSC. We also found no evidence of different patterns of graft-versus-host disease between the two groups, which is in contrast with two recent meta-analyses that found a higher risk of GVHD in URD transplants. In our study, all URD received ATG or PTCy, and the great majority of URD patients received bone marrow grafts, which could have minimized these differences. In summary, we have shown that results of haploidentical transplants with PTCy and URD transplants with ATG or PTCy are essentially the same. Our results also suggest that PBSC from alternative donor should be avoided in highly miscegenated populations.

TABLE 1 - Main outcomes

Outcome	Haploidentical	URD	p-value
Overall survival, 2y	56%	59%	1
Acute GVHD, grades II-IV, 6m	28%	42%	0.21
Acute GVHD, grades III-IV, 6m	12%	10%	0.73
Chronic GVHD, 2y	30%	18%	0.50
Transplant-related mortality, 2y	30%	25%	0.68
Relapse, 2y	17%	29%	0.29

TABLE 2 - Multivariate analyses

	HR	95%CI	p
Overall survival			
Age > 30	1.85	0.99-3.43	0.05
DRI			
Low/Int	Ref	Ref	
High/Very high	2.28	1.23-4.22	0.009*
Non-malignant	1.12	0.37-3.34	0.84
PBSC vs BM	3.13	1.50-6.55	0.002*
Acute GVHD grades II-IV			
Age > 30	1.83	1.00-3.36	0.05
MAC vs RIC	0.37	0.14-0.99	0.05*
Acute GVHD grades III-IV			
Age > 30	2.86	1.01-8.08	0.05*
Female vs Male	0.32	0.08-1.33	0.12
Transplant-related mortality			
Age > 30	2.29	1.05-4.99	0.04*
PBSC vs BM	3.56	1.76-7.23	0.0004*
Relapse			
Age > 30	0.40	0.12-1.37	0.14
DRI			
Low/Int	Ref	Ref	
High/Very high	6.46	2.32-18.0	0.0003*

*Statistically significant; DRI, disease risk index; PBSC, peripheral blood stem cells; BM, bone marrow; URD, unrelated donor; GVHD, graft versus host disease

UPDATE OF RESULTS OF THE LATIN AMERICAN BONE MARROW TRANSPLANT REGISTRY: HAPLOIDENTICAL TRANSPLANTATION OF HEMATOPOIETIC STEM CELL OF THE LATIN AMERICAN REGISTRY IN MYELODYSPLASTIC SYNDROMES

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BACKGROUND: Hematopoietic stem cell transplantation (HSCT) is the only curative procedure for treating myelodysplastic syndrome (MDS). However, among several limiting factors, we highlight the availability of a compatible HLA donor that, when available, is often hampered by age and donor comorbidities.

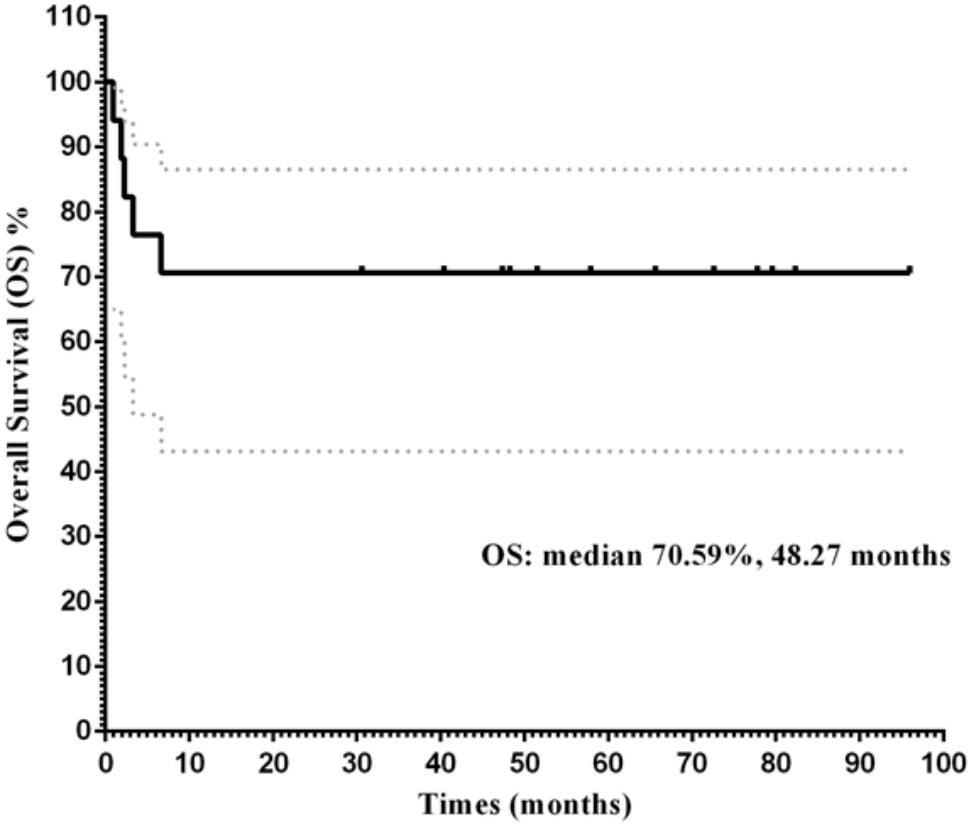
OBJECTIVE: To analyze the viability and results of these transplants. Methods: Data from the seventeen patients transplanted with a haploidentical donor were obtained from the Latin American Registry of HSCT from October 2012 to August 2020. Statistical analyzes were performed by SPSS version 23.1 and Graphpad Prism version 5.0 with significance $p < 0.05$.

RESULTS: All donors were haploidentical relatives. In none of these patients was the availability of an identical HLA family donor or unrelated donor 8/8. The mean age was 51 years (2 - 79). According to IPSS-R, there was a "very high" rating (17.6%), "high" (52.9%), "intermediate" (5.9%) and "low" (23.5%). Previous therapy with demethylating agents was per-

formed in 13 patients (76.4%). There was a predominance of reduced intensity conditioning (76.4%) and the others were myeloablative (25.4%). The source of the cells was peripheral blood in 10 (58.8%) and bone marrow in 7 (41.2%) of the total. Prophylaxis of graft versus host disease (GvHD) in post HTCH was cyclosporin from D + 0, mycophenolate from D + 1 and cyclophosphamide 50mg / kg at D + 3 and D + 5. Hematologic recovery was complete in 16 (94.1%) patients. The incidence of grade II-IV acute GvHD was 11.7% and chronic GvHD was 5.8%. We had one death due to graft failure and no patient with autologous recovery. Three more patients died. One in D + 210 due to fungal infection, the second in D + 90 due to sinusoidal obstruction syndrome and another in D + 61 caused by Pseudomonas pneumonia. The general complications were mucositis (47%), general infections (35.2%) and CMV reactivated in 23.5% patients. Of the total number of living patients, we had 8 (47%) in complete remission and 5 (29.4%) with relapse of the disease. The mean follow-up was 39 months (5 - 72). The lowest probability of disease-free survival at 3 years was 79% (95% CI: 71.48 - 88.51).

CONCLUSION: In patients with MDS who do not find a related donor or compatible non-related donor, the possibility of a haploidentical donor should always be researched and discussed, even those with advanced disease.

FIGURE 1. Global survival of patients with haploidentical donors.



6. ALLOGENEIC HSCT

ANALYSIS OF BCR-ABL LEVELS AS A PREDICTOR OF RELAPSE AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) IN CHRONIC MYELOID LEUCEMIA (CML) IN THE ERA OF TYROSINE KINASE INHIBITORS (ITQ)

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BACKGROUND: Recurrence after allogeneic HSCT is observed in 20% to 40% of patients with CML. Monitoring BCR-ABL1 levels is a way of early detection of relapse after HSCT. However, the sensitivity of PCR technology has increased over the years. The population of transplant patients has also changed: they are more severe patients and have previously been treated with ITQ. Therefore, further studies are needed with this method and population to determine the current significance of the results of BCR-ABL after HSCT.

OBJECTIVE: To determine the relationship between BCR-ABL positivity at three, six and twelve months after HSCT and the risk of death or recurrence. Assess whether the 0.1% BCR-GLA cutoff correlates with survival, hematological or cytogenetic relapse (HC/R).

METHOD: we retrospectively assessed the levels of the BCR-ABL transcript by quantitative real-time PCR (QPCR) at three, six and twelve months in CML patients undergoing allogeneic HSCT, after therapeutic failure of ITQs, between 2005 and 2019 and we corelate to relapse and survival. Then we evaluated the outcomes of patients with values above and below 0.1%. Fisher's test was used for categorical variables. Survival curves were made using the Kaplan and Meier method and compared using Log Rank. Events were defined as death or relapse. Molecular recurrence (M/R) was considered if BCR-ABL/AB (%)> 0.1% on the International Scale (EI).

Results: The characteristics of patients and transplants are shown in Tables 1 and 2. The results of BCR-ABL/ABL (IS) are shown in Table 3. Having a positive test at three, six or 12 months did not correlate with HC/R and did not influence survival. Five patients had BCR-ABL> 0.1% at 3 months. Of these three relapsed and one died due to relapse. 37 patients had BCR-ABL transcripts <0.1% at 3 months and were divided into two groups: molecular response <0.1% (MR3) and undetectable. The chances of increasing BCR-ABL levels were greater in the MR3 group. In four years, the MR3 group had higher rates of M/R (79.9% vs 23%, p = 0.01) and a tendency towards shorter event-free time (17.3% x 61.9%, p = 0.07), but without differences in overall survival (69.3% x 78.4%, p = 0.48) or HC/R(8.8% vs 5%, p = 0.58). Three patients in the MR3 group started treatment with ITQs or donor lymphocyte infusion (ILD) after confirmed molecular relapse.

CONCLUSIONS: Our data suggest that the presence of low levels of BCR-ABL at 3 months (<0.1%) after HSCT implies greater chances of M/R when compared to patients with undetectable BCR-ABL. However, these patients did not have greater evolution to HC/R and there was no impact on survival, which may be due to the sample size and the intervention (ILD, ITQ) performed in these cases. More studies are needed to assess the significance of BCR-ABL levels after HSCT.

Analysis of BCR-ABL levels as a predictor of relapse after allogeneic hematopoietic stem cell transplantation (HSCT) in chronic myeloid leucemia (CML) in the era of Tyrosine Kinase Inhibitors (ITQ)

TABLE 1 - Clinical characteristics of patients and transplants

Parameter	Total (n=63)
Age, years	37 (9-60)
Sex	
Male	38 (60.3)
Female	25 (39.7)
Ethinicity	
White	54 (85.7)
Black	9 (14.3)
Disease phase at transplant	
CP	34 (54)
AP	20 (31.7)
BC	8 (12.7)
Previous therapy	
Prior TKI	49 (77.7)
No prior TKIs	14 (22.3)
Hidroxyurea	44 (69.8)
IFN-a	21 (33.3)
Interval from diagnosis to transplant, mon	50 (1-162)
Donor type	
Related	33 (52.3)
Non-related	30 (47.6)
Source of the graft	
BM	31 (49.2)
PB	32 (50.8)
CD34 cells (× 10^6/kg)	2,7 (0.36-17.06)
Neutrophils at the time of transplant	4399 (116-204,967)
Platelets at the time of transplant (x10^3)	177 (17-1271)
Condicioning intensity	
Standard	31 (49,2)
Reduced	32 (50,8)
Imunoprophylaxis	
Csa+mtx	52 (82,5)
Csa+mtx+ctc	11 (17,5)

Values are presented as median (range) or number (%). CP, chronic phase; AP, accelerated phase; BP, blast phase; TKI, tyrosine kinase inhibitor BM, bone marrow; PB, peripheral blood stem cell; CsA, cyclosporine; MTX, methotrexate.

TABLE 2 - Transplant outcomes

Parameter	Total (63)
Hematologic engraftment	
Primary graft rejection	1 (1,6)
Secundary graft rejection	1 (1,6)
Pega neutrofílica (>0.5 × 109 /L)	19 (12-81)
Pega plaquetária (> 20 × 109/L)	21 (10-115)
Acute GVHD	
Grade I	1 (1,6)
Grade II	12 (19)
Grade III	1(1,6)
Grade IV	4(6,3)
CI (>grade II) at 100 days	30.8%
Cronic GVHD	
Limited	8 (12,7)
Extensive	12(19)
CI (extensive) at for 4 years	19.1%
Cumulative incidence of relapse	
3 months	7.8
1 year	29.2
4 years	43.6
Overall Survival	
3 months	84.4
1 year	65.5
4 years	48.7

Values are presented as median (range) or percentage (%). GVHD,Graft Versus Host Disease; CI, Cumulative Incidence.

TABLE 3 - Evolution of BCR-GLA levels at 3.6 and 12 months after HSCT

Time after HSCT	Group	Total	Increasing BCR-ABL		Molecular relapse		H/CT relapse	
3 months	RM3	12	6 (50)	p=0.03	6 (50)	p=0.04	2 (16.7)	p=0.24
	ND	25	3 (12)		4 (26)		1 (4)	
6 months	RM3	12	3 (25)	p=0.07	5 (41.7)	p=0.44	2 (16.6)	p=0.24
	ND	15	0		4 (26.7)		1 (8,3)	
12 months	RM3	6	3 (50)	p=0.04	3 (50)	p=0.28	2 (33.3)	p=0.16
	ND	16	1 (6.25)		3 (18.7)		1 (6.25)	

Data are presented in absolute and percentage values. 5 patients had BCR-ABL> 0.1% at 3 months. Of these, 3 had an increase in the transcript in 1 year and 2 had hematological relapse during follow-up. HSCT, Hematopoietic stem cell transplantation; RM3, molecular response <0.1%; ND, not detectable; H / CT relapse, hematological / cytogenetic relapse.

COMPARATIVE SURVIVAL ANALYSIS OF ADULT PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA SUBMITTED TO ALLOGENEIC STEM CELL TRANSPLANTATION OR NOT: ONE CENTER EXPERIENCE

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Unlike in pediatric scenario, knowledge about adult patients treated for acute lymphoblastic leukemia (ALL) in Brazil is scarce. Its incidence is lower in adults and there are only few databases studying patients features, treatments and clinical outcomes. Some centers reported poorer survival rates using international standardized protocols1,2. In addition, stratification of high-risk cases based on minimal residual disease (MRD) and genetic alterations may help to identify patients who may benefit from allogeneic stem cell transplantation (allo-HSCT) 3. This retrospective single-center study aims to analyze clinical data, treatments and outcomes of adult patients diagnosed with ALL, and to compare clinical differences and outcomes of overall and progression-free survival between the group of patients undergoing allo-HSCT and the chemotherapy group. We included all consecutive patients ≥18 years diagnosed and treated for ALL from 2007 to 2020. A total of 33 patients were included. Baseline profile is in table 1, as well as main outcomes. In brief, baseline features were: 15 (45%) female, mean age 45 years (18-87 years), 26 (78.8%) B-cell ALL, 7 of them Philadelphia (Ph) positive, 7 (21.2%) T-cell ALL, median leukometry of 7.9 (1.8-327.0); central nervous system (CNS) involvement in 6/28 (21.4%); among Ph-negative patients, high risk cytogenetic-molecular alterations were found in 8/21 (38.0%). Regarding the profile of the treatment, 7/32 (21.8%) received a tyrosine kinase inhibitor (TKI), 17 (53.1%) pediatric-inspired protocols (GRAALL2003/2005; GMALL07/2003; BFM; GBTLI2009) and 8 (25%), Hyper-CVAD. Positive post induction MRD rates were higher in allo-HSCT group than in chemotherapy group (75% vs 42%, p=0.21). The 5-year overall survival estimative (70-75%) (FIGURE 1). Progression-free survival curves split one from another, but it was not statistically significant (FIGURE 2). This study found a 70-75% overall survival in adult patients with in 5 years and a 55-70% PFS, including patients treated with only chemotherapy and patients treated with allo-HSCT. Considering that there was a greater proportion of patients with an unfavorable prognosis – characterized by high-risk cytogenetic-molecular features and/or positive MRD – in the allo-HSCT group, those patients might have been benefited from allo-HSCT, when comparing with reported survival rates in this quite unfavorable subgroup3. However, the results of this study should be interpreted carefully, due to limitations related to the small cohort of patients, cohort heterogeneity and the lack of a direct control group, which would be patients with high risk cytogenetic-molecular changes not referred to allo-TCTH. Furthermore, many trials are currently incorporating new immunotherapies, target therapies and cell therapies in the upfront treatment, which in the future might also impact on the achievement of deeper responses, and therefore on the selection of patients with allo-HSCT indication.

EFFICACY AND SAFETY OF LOWER TOTAL DOSES OF ATG COMPARED TO HIGHER TOTAL DOSES IN THE PROPHYLAXIS OF ACUTE AND CHRONIC GVHD IN ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: SYSTEMATIC REVIEW AND META-ANALYSIS

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BACKGROUND: Graft-versus-host disease (GVHD) contributes to mortality and morbidity after allogeneic hematopoietic stem cell transplantation (Alo-HSCT). In vivo T-cell depletion with rabbit antithymocyte globulin (ATG) has been used in Alo-HSCT transplants for GVHD prophylaxis. The type, dose and duration of treatment with ATG are a controversial issue in HSCT.

OBJECTIVES: To determine the efficacy and safety of higher doses of ATG-T (Thymoglobulin) or ATG-F (Fresenius) compared to lower doses in patients undergoing Alo-HSCT. Methods: Systematic Review and Meta-Analysis including compared clinical studies with patients undergoing related or unrelated Alo-HSCT and different total doses of ATG-F or ATG-T, without language, follow-up time and date limitations. Exclusion criteria have not been defined. Data sources were MEDLINE/PUBMED, EMBASE, The Cochrane Library, Web of Science, Lilacs and Scielo 03/2020. The random model was applied to meta-analysis and intervention was defined as higher doses of ATG.

RESULTS: 18 articles from 2002 to 2019 were included. Higher total doses of ATG-T showed greater benefit for reducing the incidence of grade III-IV acute GVHD (RR 0.60; 95% CI 0.42-0.84; I^2 = 25%) and limited chronic GVHD (RR 0.64 CI 95% 0.45-0.92; I^2 = 34%). No significant difference was related to extensive chronic GVHD in ATG-T (RR, 0.89; 95% CI 0.58-1.35) and ATG-F (RR, 1.14; 95% CI 0.27-4.80). Higher total doses of ATG-T showed greater EBV-associated lymphoproliferative disease (EBV+LPD) or EBV reactivation (RR 1.90 95% CI 1.49-2.42; I^2 = 0%) and higher risk of CMV reactivation (RR, 1.30; 95% CI 1.03-1.64; I^2 = 80%). No difference between higher and lower doses of ATG-T and ATG-F occurred in primary or secondary graft failure (RR, 1.88; 95% CI 0.61-5.77; RR 0.47; 95% CI 0.06-3.73, respectively), in 1-year corrected relapse (RR, 1.28; 95% CI 0.98-1.68; RR, 1.13; 95% CI 0.56-2.27, respectively) and in 1-year corrected transplant-related mortality in ATG-T (RR, 0.91; 95% CI 0.51-1.62, I^2 = 35%). Conclusions: Higher total doses of ATG-T (6-12 mg/kg) were effective in reducing grades III-IV acute GVHD (mainly in unrelated HSCT) and limited chronic GVHD. Greater risk of reactivation of CMV and EBV or EBV+LPD was related to higher doses of ATG-T. No difference between higher and lower total doses of ATG-F occurred in any evaluated outcomes. A significant number of observational studies and variable range of higher and lower doses are limitations of the study.

EXTRACORPOREAL PHOTOPHERESIS INTEGRATED SYSTEM FOR STEROID-REFRACTORY, -INTOLERANT OR -DEPENDENT ACUTE GRAFT-VERSUS-HOST DISEASE: A SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS

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INTRODUCTION: Graft-versus-host disease (GVHD) is a serious, life-threatening condition that can occur after allogenic hematopoietic stem cell transplant (HSCT). Patients with the acute form of the disease (aGVHD) are primarily affected in the skin, liver or gastrointestinal tract. The initial treatment for aGVHD usually encompasses the use of corticosteroids without interrupting prophylactic treatments. If the patient proves to be refractory, intolerant or dependent on steroid, another treatment is added to the therapeutic strategy. However, the continued use of steroids is undesirable due to its deleterious effects in the long term. Among the therapeutic options, the integrated extracorporeal photopheresis system (ECP) shows an immunomodulatory mechanism of action and has a potential steroid-sparing effect.

OBJECTIVE: To perform a systematic literature review and meta-analyses to assess the efficacy and safety of ECP for steroid-refractory, -intolerant or -dependent aGVHD patients after allogenic HSCT.

METHODS: A systematic literature review was performed according to Cochrane and International Society of Pharmacoeconomics and Outcome Research (ISPOR) recommendations. The searches were conducted in PubMed and Scopus databases. Longitudinal studies evaluating ECP as subsequent line treatment for aGVHD were considered. Efficacy and safety outcomes were extracted. Treatment response was defined as complete or partial response. Meta-analyses were conducted whenever possible using 'R' and the 'meta' package. Inverse of variance method and random effects model were applied. Heterogeneity was evaluated using the I2 statistic, and values greater than 75% were considered as high heterogeneity. The effect estimates are presented along with the 95% confidence interval (95% CI).

RESULTS: The initial search retrieved 1,466 papers. After screening, 16 studies were included in the systematic review; two of them were interventional and 14 observational studies. We were able to conduct proportion non-comparative meta-analyses (i.e. number of patients experience the event) for the following outcomes: a) overall treatment response: 71%, 95% CI 64-76%, I2 32%; b) skin response: 80%, 95% CI 74-85%, I2 0%; c) liver response: 62%, 95% CI 49-73%, I2 0%; d) gastrointestinal response: 64%, 95% CI 46-79%, I2 62% and e) steroid discontinuation: 65%, 95% CI 41-84%, I2 64%. Besides patients who managed to interrupt the corticotherapy, others (not included in the statistical analysis) achieved steroid dose reduction. It was not possible to conduct meta-analyses for other outcomes. Conclusions: The comprehensive systematic literature review, followed by meta-analyses, showed that ECP was safe and efficacious. Our results demonstrated that the majority of patients achieved an overall treatment response. Furthermore, our meta-analysis showed that 65% of patients on ECP were able to stop the corticotherapy. Further research is needed to confirm these results.

7. INFECTIONS

ANALYSIS AND COMPARISON BETWEEN EPIDEMIOLOGICAL PROFILE OF CIRCULATING RESPIRATORY VIRUSES IN A HEMATOPOIETIC STEM CELL TRANSPLANT UNIT, IN A PEDIATRIC CANCER HOSPITAL

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INTRODUCTION: Infections of the upper airways (URTI) are frequently found in children. Mostly of viral etiology, they have a good prognosis in those previously healthy; however, immunosuppression is a risk factor for its complications. Within the group of URTIs, there are community-acquired viral respiratory infections (CARVs), recognized as a cause of significant morbidity and mortality among patients with malignant hematological diseases and those undergoing Hematopoietic stem cells transplantation (HSCT). In these there is a greater chance of a fatal outcome. This is a survey conducted to expand a previous study, with only prospective analysis, which limited the sample.

OBJECTIVE: To draw an epidemiological profile of the respiratory viruses found in a children's HSCT service, to check for the presence of complications in the patients studied and to list the viruses found in patients and their respective companions, when possible. Material and methods: Observational ambispective study, carried out in patients, companions and professionals with symptoms of URTI of the analyzed HSCT unit. The sample was made for convenience, obtaining 78 participants and 141 events, from November 2017 to November 2019. A nasal wash and / or swab was collected to identify, through the PCR method, the suspected respiratory virus.

RESULTS: 46 patients were found, totaling 104 collection events. 15 symptomatic companions were identified, with 15 events paired with patients, and 17 employees, with 22 events. The most common virus found in all populations was the Rhinovirus. Most patients positive for viruses had undergone allogeneic HSCT (91%), were using immunosuppression (51%), and more than 100 days after transplant (70%). A quarter of patients had progression of IVAS to the lower airways. There was the same viral isolation in patient and companion in 60% of events. Among the symptomatic collaborators, 82% showed positive viral collection, being removed from their activities in 90% of the cases.

DISCUSSION: The profile of the viruses found in the study, as well as their seasonality, corroborate with the literature. A considerable number of patients showed respiratory complications. There was a viral pairing between patients and companions, showing the importance of removing symptomatic people. Even with all the proposals described in the literature for viral containment, in addition to the removal of symptomatic collaborators, there is still a significant viral circulation in the sector studied.

CONCLUSION: The epidemiological profile found in the studied populations was similar to that found in the literature. A significant number of patients evolved with a complication of URTI. There was a correlation between the viral pairing of patient and companion. A high level of positivity was found among employees, reinforcing the need to leave their activities.

HUMAN HERPESVIRUS 7 INFECTION IN PEDIATRIC ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT)

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INTRODUCTION: Little is known about the clinical characteristics and the treatment of human herpesvirus 7 (HHV-7) infection in the scenario of allogeneic HCT, especially in the pediatric age group.

OBJECTIVE: To describe the presentation and the response to treatment of HHV-7 infections after pediatric allogeneic HCT.

PATIENTS: Between May 2018 and August 2020, we performed 48 allogeneic HCT and 21 of them have had at least one HHV-7 isolate. Patient and transplant characteristics are shown in Table 1.

METHOD: Viral PCR surveys were performed weekly, including adenovirus, polyomavirus and pan-herpes from the beginning of the conditioning up to D+100 in all allogeneic HCT or longer in the presence of graft-vs-host disease (GVHD). Tissue samples (gastrointestinal tract, cerebrospinal fluid, tracheal secretion, amygdala) were collected in patients with clinical symptoms to define etiology and rule out GVHD. HHV-7 was considered a tissue infection only in the absence of a positive blood PCR. This is a retrospective cohort study.

RESULTS: Twenty-one children had 35 HHV-7 positive PCR (8 had more than one positive sample) at a median of 74 days after HCT. Most were unrelated HCT. The most frequent clinical manifestations were gastrointestinal symptoms - nausea, vomiting and diarrhea (18), fever (9), skin rash (3), cytopenias (2), respiratory conditions (5), neurological (4), and 4 children were totally asymptomatic, with a positive weekly surveillance. Co-infection with other viruses was present in 13/35 samples, and the most common was HHV-6. Most patients (77%) were already using a prophylactic antiviral. Patients with HHV-6 co-infection were treated with ganciclovir or, if already on in, with Foscarnet for 21 days. In 7 children who were already on prophylactic acyclovir, increasing it to therapeutic zoster dose was ineffective in 4. One child remained symptomatic with a positive CSF despite using acyclovir, ganciclovir, and the infection only cleared with foscarnet. Clinical presentations and treatments are shown in Table 2.

CONCLUSION: HHV-7 infections may cause a wide range of symptoms, is highly associated with gastrointestinal symptoms, and therefore, should be included in the differential diagnosis of GVHD and of viral infections post HCT. The viral reactivation in patients already on prophylactic acyclovir is in agreement with the primary resistance described in the literature. The use of ganciclovir is effective, but it is foscarnet is needed in patients failing primary ganciclovir therapy, especially CNS infections. All patients have resolved the infection.

TABLE 1 - Characteristics of the children with at least one HHV-7 positive PCR

Characteristics	N = 21 patients	
Age	8 years (6 months – 36 years)	
Onset (day after HCT)	D+74 (D+17 – D+268)	
	N	%
Gender		
Female	7	33.3%
Male	14	66.7%
Donor		
Related HLA-compatible	3	14.3%
Haploidentical	8	38.1%
Unrelated adult	9	42.9%
Unrelated cord Blood	1	4.7%
GVHD (II-IV)		
Yes	12	57.1%
No	9	42.9%

TABLE 2 - HHV-7 infection and treatment

	N	%
Viral isolation site		
Blood	19	54,3%
Gastrointestinal tract	9	25,7%
Tracheal secretion	5	14,3%
Cerebrospinal fluid	1	2,8%
Amygdala	1	2,8%
Co-infection to HHV-7		
HHV-6	7	53,8%
HHV-6 + EBV	2	15,4%
CMV	1	7,7%
Adenovírus	3	23,1%
Infection while antiviral use		
Acyclovir / Valacyclovir	16	45,7%
Ganciclovir	8	22,8%
Cidofovir	3	8,6%
None	8	22,8%
Response to increasing Acyclovir dose	**N=7**	
Yes	3	42,9%
No	4	57,1%
Response to Ganciclovir	**N = 15**	
Yes	14	93,3%
No	1	6,7%
Response to Foscarnet	**N = 5**	
Yes	5	100%
No	0	0%

LOW DOSE GANCICLOVIR FOR CYTOMEGALOVIRUS REACTIVATION AFTER ALLOGENEIC HSCT IS A FEASIBLE OPTION WITH SAME EFFICACY AND LESS TOXICITY THAN REGULAR DOSE

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BACKGROUND: Cytomegalovirus (CMV) reactivation after allogeneic hematopoietic stem cell transplantation (HSCT) occurs in approximately 70% of seropositive patients. CMV reactivation is associated with higher non-relapse mortality (NRM) and worse overall survival (OS). Although preemptive therapy effectively prevents CMV disease, toxicity of ganciclovir (GCV), valganciclovir (VGCV), and foscarnet is a major concern. While GCV 5 mg/kg BID (regular dose) is the most commonly used regimen, some series have suggested that a lower dose (5mg/kg QD, lower dose) could be an option.

OBJECTIVES: To compare two different regimens of ganciclovir (regular vs. lower dose) for preemptive CMV therapy.

PATIENTS AND METHODS: This was an observational, retrospective study in adult patients who underwent HSCT between April 2007 and April 2020 in two centers. Doses of ganciclovir were determined at the discretion of the transplant physician. The primary endpoint was CMV clearance (rate and time to) between the two preemptive strategies.

RESULTS: We analyzed 118 consecutive patients. The median age was 50 years, acute leukemia was the most frequent underlying disease (59%), and most patients received transplants from alternative donors (matched unrelated in 32% and haploidentical in 36%), after reduced-intensity conditioning regimens (76%), with peripheral blood as the source of stem cells (73%). T-cell depletion was performed in 31% (ATG in 29%, alemtuzumab in 2%). In total there were 174 CMV reactivations: 124 (71%) were treated with the regular dose, and 50 (29%) in an outpatient setting with low dose. The median time to CMV clearance was similar between regular and low dose of GCV (15 days vs. 18 days, respectively, p=0.88). The cumulative incidence (CI) of CMV clearance at 30 days was 83% in the regular dose and 88% in the lower dose (p=0.82). By multivariate analysis, correcting for the differences between the groups, the GCV regimen did not influence the time to CMV clearance (hazard ratio 0.94, 95% confidence interval 0.70 – 1.26). On the other hand, hematologic toxicity was more frequent in the regular dose, with more cases of both grade 3-4 neutropenia (59% vs. 33%, respectively, p=0.002) and thrombocytopenia (77% vs. 48%, respectively, p<0.0001). Ten patients had CMV disease and were treated with GCV 5mg/kg BID for 21 days.

CONCLUSION: Our findings suggest that the use of GCV once daily was safe, less toxic, and may be less expensive, considering that most patients will receive the regimen in an outpatient basis. These data should be confirmed in a prospective trial.

REAL-LIFE DATA ON IMMUNE RECONSTITUTION AFTER ALLOGENIC STEM CELL TRANSPLANTATION: AN OBSERVATIONAL STUDY IN PEDIATRIC PATIENTS

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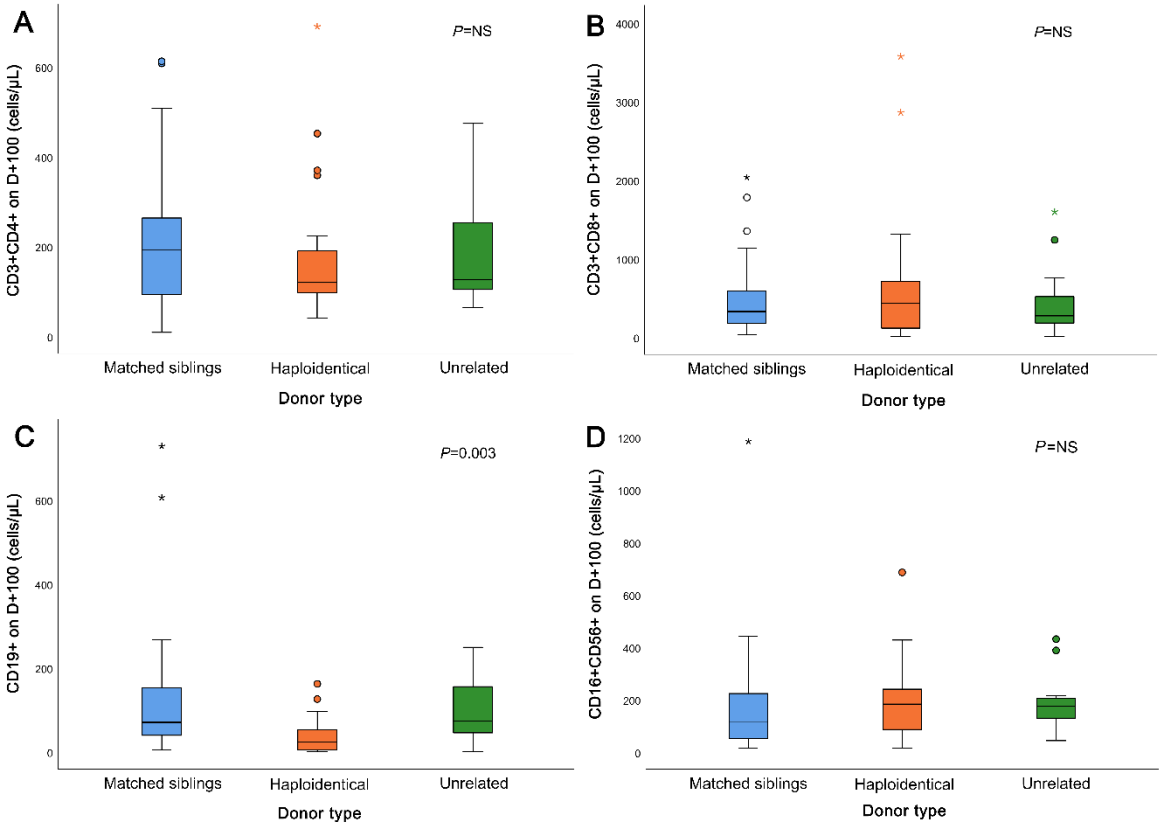
BACKGROUND: Immune reconstitution (IR) after allogenic hematopoietic stem cell transplantation (allo-HSCT) is a long and progressive process intrinsically correlated to therapeutic success. Monitoring the IR remains a challenge due to its interdependence with several factors and the unstandardized immune parameters.

OBJECTIVE: Identify factors interfering with post-HSCT IR and potential predictors of clinical outcomes.

PATIENTS AND METHODS: We included 111 patients ≤18 years submitted to the a first allo-HSCT for malignant and non-malignant diseases between 2013 to 2018. All patients received bone marrow or peripheral blood stem cells, and all had evidence of engraftment. For lymphocyte recovery analysis, patients with incomplete data or those who developed treatment failure were excluded. Lymphocyte recovery was classified based on cut-off values for absolute lymphocyte count (ALC) on day +30, +100 and +180 and for subtypes CD3+CD4+, CD3+CD8+, CD19+ and CD16+CD56+ on day +100. We analyzed the association of lymphocyte recovery with patient and HSCT characteristics, through $\chi 2$ e Fisher tests; with clinical outcomes, through Gray test and Fine-Gray regression; and with overall survival, through Kaplan-Meier method and Cox regression.

RESULTS: ALC had a gradual increase on day +30 (634/µL), +100 (1022/µL) and +180 (1541/µL). On day +100, CD3+CD8+ achieved the highest recovery rate (68%), followed by CD16+CD56+ (47%), CD3+CD4+ (39%) and CD19+ (8%) (Figure 1). Adequate ALC recovery on day +30 was associated with age <8 years, bone marrow grafts, myeloablative conditioning, and non-haploidentical donors. The use of serotherapy correlated to a poor ALC recovery on day +180. Counts of ALC and CD3+CD8+ on day +100 were higher in patients with cytomegalovirus infection. CD3+CD4+ recovery was associated with age <8 years, non-malignant disease and a lower incidence of acute graft-versus-host disease (Tabel 1). ALC and CD3+CD4+ recovery on day +100 resulted in higher overall survival, as ALC was determinant regardless of disease type (HR 3.65, 1.05-12.71, P=0.04) (Figure 2).

CONCLUSION: Several factors related to the patient, the HSCT procedure and its outcomes influenced IR after pediatric allo-HSCT. ALC≥500/µL on day +100, preferably concomitant with lymphocyte subtypes analysis, was found to be an IR biomarker and a predictor of survival. This biomarker may be a simple and easily available strategy to resource-limited centers lacking IR monitoring protocol. Prospective multicentric studies covering additional variables will be able to better assess the time to reach immunocompetence and standardize immune surveillance.



Source: the Author (2020).

FIGURE 1 - Reconstitution of lymphocyte subpopulations on day +100 (n=74)

TABEL 1 Factors related to lymphocyte recovery

Variables	ALC D+30 ≥ 300/µL	ALC D+100 ≥ 500/µL	ALC D+180 ≥ 750/µL	CD3+CD4+ ≥ 200/µL	CD3+CD8+ ≥ 200/µL
	P-value	*P*-value	*P*-value	*P*-value	*P*-value
Lymphocyte recovery					
Age (≥8 y vs. <8 y)	0.001 (67% vs. 93%)	NS	NS	0.001 (20% vs. 56%)	NS
Disease (malignant vs. non-malignant)	NS	NS	NS	0.04 (26% vs. 50%)	NS
Donor (MSD vs. haploidentical vs. unrelated)	0.03 (86% vs. 62% vs. 87%)	NS	NS	NS	NS
Source (BM vs. PBSC)	0.01 (83% vs. 54%)	NS	NS	NS	NS
Conditioning (MAC vs. RIC)	0.03 (85% vs. 65%)	NS	NS	NS	NS
Serotherapy (yes vs. no)	NS	NS	0.01 (76% vs. 95%)	NS	NS
Cumulative Incidence					
CMV infection (yes vs. no)	NS	0.04 (46% vs. 15%)	NS	NS	0.02 (46% vs. 21%)
aGvHD ≥ grade 2 (yes vs. no)	NS	NS	NS	0.01 (3% vs. 20%)	NS
Multivariate analysis (HR 95% C.I.)					
CMV infection (recov. vs. not-recov.)	NS	0.01* (1.0 vs. 0.19 [0.05-0.70])	NS	NS	0.01+ (1.0 vs. 0.31 [0.12-0.79])
aGvHD ≥ grade 2 (recov. vs. not-recov.)	NS	NS	NS	0.01§ (0.24 [0.08-0.76] vs. 1.0)	NS
Overall survival (recov. vs. not-recov.)	NS	0.04** (3.65 [1.05-12.71] vs. 1.0)	NS	NS	NS

Abbreviations: aGvHD, acute graft-versus-host disease; ALC, absolute lymphocyte count; BM, bone marrow; C.I., confidence interval; CMV, cytomegalovirus; D+30, day +30; D+100, day +100; D+180, day +180; HR, hazard ratio; MAC, myeloablative; MSD, matched sibling donor; Not-recov., not-recovered; NS, not significant; PBSC, peripheral blood stem cells; Recov., recovered; RIC, reduced-intensity conditioning.

* CMV infection adjusted for ALC ≥ 500 on day +100, sex, donor and source of stem cells.

\+ CMV infection adjusted for CD3+CD8+ ≥ 200, sex, donor and source of stem cells.

§ aGvHD ≥ grade 2 adjusted for CD3+CD4+ ≥ 200 and donor.

** Overall survival adjusted for ALC ≥ 500 on day +100 and disease type.

Abbreviations: aGvHD, acute graft-versus-host disease; ALC, absolute lymphocyte count; BM, bone marrow; C.I., confidence interval; CMV, cytomegalovirus; D+30, day +30; D+100, day +100; D+180, day +180; HR, hazard ratio; MAC, myeloablative; MSD, matched sibling donor; Not-recov., not-recovered; NS, not significant; PBSC, peripheral blood stem cells; Recov., recovered; RIC, reduced-intensity conditioning. * CMV infection adjusted for ALC ≥ 500 on day +100, sex, donor and source of stem cells. + CMV infection adjusted for CD3+CD8+ ≥ 200, sex, donor and source of stem cells. § aGvHD ≥ grade 2 adjusted for CD3+CD4+ ≥ 200 and donor.** Overall survival adjusted for ALC ≥ 500 on day +100 and disease type.

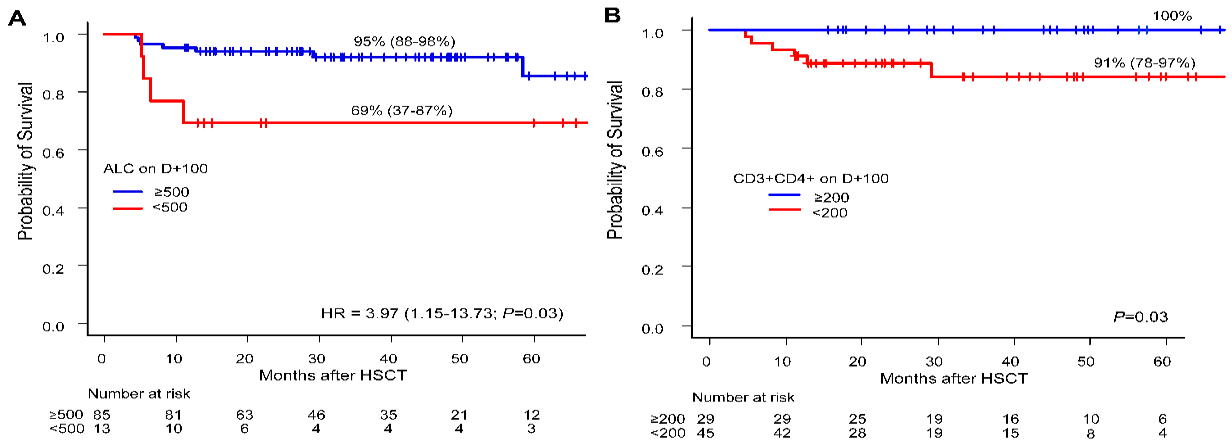


FIGURE 2 - Overall survival according to lymphocyte recovery

A: Kaplan-Meier overall survival curve for absolute lymphocyte count recovered patients (blue line) and not recovered (red line) on day +100 and its Hazard Ratio by univariate Cox regression. B: Kaplan-Meier overall survival curve and log-rank of CD3+CD4+ recovered patients (blue line) and not recovered (red line) on day +100. Abbreviations: ALC, absolute lymphocyte count; HR, Hazard ratio.
Source: the Author (2020).

RETROSPECTIVE ANALYSIS OF THE PRESENCE OF ORAL MUCOSITES AND OPPORTUNISTIC INFECTIONS IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLATATION

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Patients treated with haematopoietic stem cell transplantation (HSCT) presentes several toxicities, among which are complications in the oral cavity, such as oral mucosites (OM) and opportunistic infections. These injuries end up leading to a painful oral condition with na importante impact on the individual´s nutrition and quality of life. There are several protocols in the literature that include the dentist in the HSCT care team to prevent and treat these changes in the oral cavity. The aim of this study was to describe the photobiomodulation protocol in the prevention and treatment of OM in patients undergoing HSCT, and to compare the clinical results of OM with those described in the literature. In addition to describing the frequency of opportunistc infections in the mouth during HSCT. Patiens and methods: Patients udergoing HSCT (n=132) were evaluated retrospectively fron January 2016 to May 2020 analyzed takin into account the type of HSCT, conditioning regime, degree of OM, laser therapy protocol and number of laser therapy sessions. Results: All patiens evalueted were submitted to the photobiomodulation protocol using 660nm, 100mW, 1J, 10J/cm2. Laser therapy was perfomed daily starting on de second day of conditioning until neutrophil engraftment. All patients underwent myeloablative conditioning regimes with a high risk of developing OM (busulfan, melphalan, cyclophosphamide and total body irradiation). Both patients undergoing autologous and allogeneic HSCT had a high frequency of mild OM (grade 0 25.9%; grade 1 16.54%; and grade 2 25.98%) and low frequency of severe OM (grade 3 18.9%; and grade 4 12.6%). Of the opportunistic infections during the autologous transplant, 4 patients with fungal infection and 1 with viral infection, and in the allogeneic 3 patients with fungal infection, 1 with viral infection. Comparing with the literature, the frequency of OM severity was reduced in the presente study and the incidence of opportunistic infections was reduced. Conclusion: The presence of dentist and laser therapy in the daily follow-up of the patient undergoing HSCT minimized the expected risk of severe OM.

REVISITING HERPES ZOSTER INFECTION IN HSCT RECIPIENTS IN VIEW OF THE PROSPECT OF A NEW RECOMBINANT VACCINE

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INTRODUCTION. Herpes zoster (HZ) is frequent after stem cell transplantation and represents the clinical manifestation of varicella-zoster virus (VZV) reactivation. Antiviral prophylaxis or vaccination are the current strategies to avoid VZV reactivation.Live-attenuated zoster vaccine is not recommended after HSCT and live-attenuated varicella vaccine is recommended only after the 2nd year of HSCT, in patients not using immunosuppressive drugs. As zoster may occur at any time after HSCT prolonged acyclovir prophylaxis is the preferred strategy to suppress VZV reactivations in the first 2 years of HSCT. Recently, two doses of a recombinant zoster vaccine proved to be safe and effective in autologous HSCT recipients. We retrospectively reviewed the median time of zoster occurrence and the main risk factors associated with VZV reactivations, for a more accurate recommendation of the recombinant zoster vaccine in the near future.

METHODS. We revised the charts of 1,723 patients who underwent allogeneic (n=1,008) or autologous (n=715) HSCT from 2012 to 2019 at Amaral Carvalho Foundation for the occurrence of clinically diagnosed herpes zoster. Demographic characteristics and transplant related variables were taken from patients' charts and local HSCT registry. Cord blood transplants were excluded as only 12 procedures were performed. Cox proportional model was used to determine the variables significantly associated with the occurrence of HZ. Death or relapse before the event were included as competing events.

RESULTS. HZ occurred at a median of 194 (17 to 2,576) days after HSCT. Cumulative incidence of HZ was 17.4% (CI 95% 15-20). A second episode of zoster was rare (5 patients, 2%). Localized and disseminated zoster were observed in 164 (92.6%) and 13 (7.3%) patients, respectively. In 69 patients (28%) the local of zoster lesions was not described. The regions more frequently affected were the trunk (107 cases, 60.4%) and the head (39 cases, 22%). HZ occurred significantly earlier in autologous (median 119 days; range 17 to 1,701) in comparison with allogeneic HSCT (median 228 days; range 34 to 2,576; $p < 0.0001$). Univariate analysis showed that the variables significantly associated with the occurrence of HZ were HSCT type, underlying disease, conditioning with TBI, SC source and chronic GVHD. In multivariate analysis, the presence of chronic GVHD ($p<0.0001$), allogeneic HSCT ($p=0.031$) and TBI ($p=0.0019$) remained significantly associated with the occurrence of HZ.

CONCLUSIONS. The majority of HZ episodes occurred in the first year of HSCT (188 cases, 76.7%) and the occurrence of a second zoster episode is rare (2%). Live-attenuated varicella vaccine given after day +730 would benefit only a small proportion of patients (11%). The new recombinant zoster vaccine should be included in the revaccination calendar of autologous HSCT recipients in the first 100 days. Ongoing clinical studies will define the safety and efficacy of the recombinant zoster vaccine in allogeneic HSCT recipients. Currently, the use of prolonged acyclovir prophylaxis remains the safest alternative for preventing zoster in allogeneic HSCT recipients.

SHARP DECREASE IN THE RATE OF OTHER RESPIRATORY VIRUSES DURING THE COVID-19 PANDEMIC

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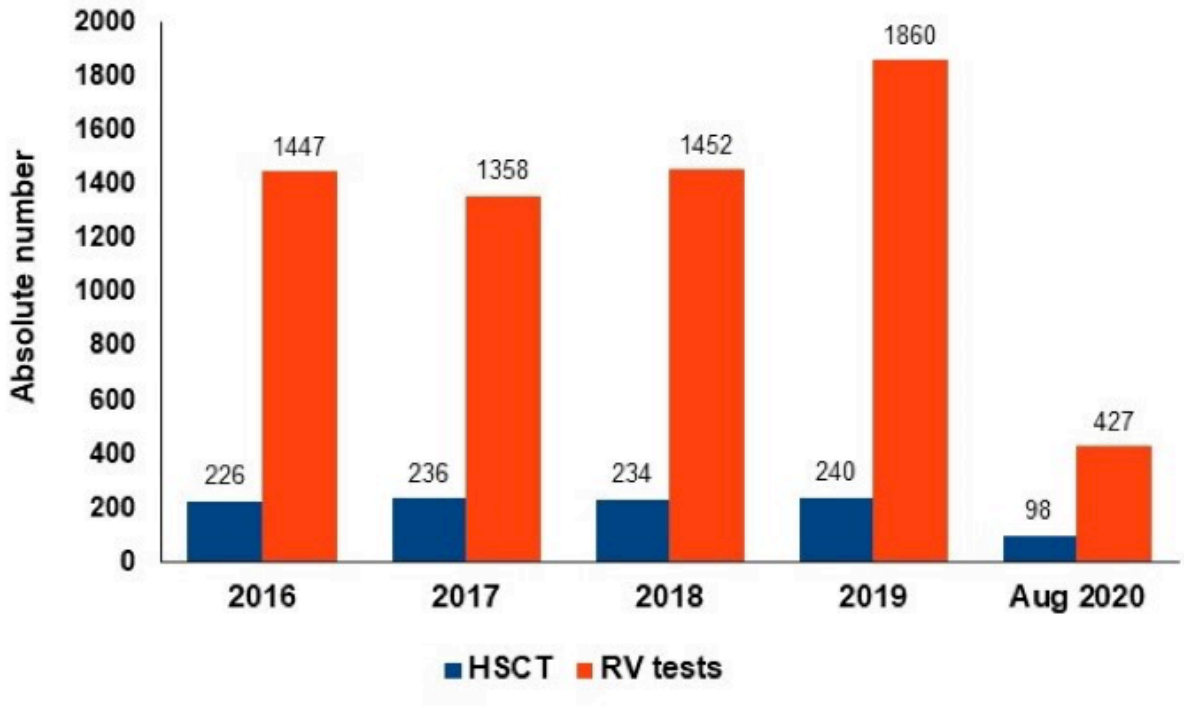
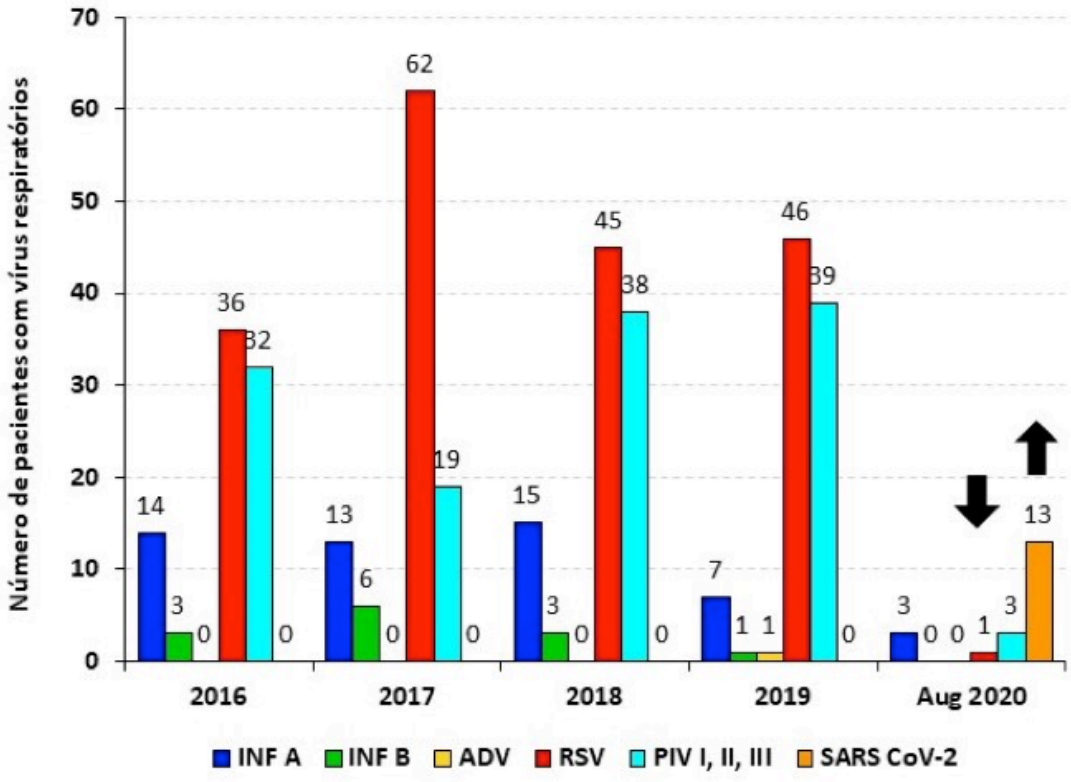
INTRODUCTION. Respiratory virus (RV) infections can cause great morbidity and mortality in HSCT recipients, especially during fall-winter months. Despite of seasonal and yearly differences, respiratory syncytial virus (RSV), rhinovirus (HRV), and parainfluenza virus (PIV) are the respiratory viruses most frequently detected. In December 2019, a new and highly contagious coronavirus named SARS CoV-2 emerged in China, with rapid spread to all continents. In March 12th the WHO recognized COVID-19 as a pandemic. In the following 8 months, more than 28 million cases of COVID-19 have been reported, with almost 1 million deaths. HSCT programs had to be partially suspended and usual routines had to be rapidly modified to fit this new reality and to control transmission. During this period, we observed a sharp decrease in the incidence of other RV during the pandemic.

METHODS. In our HSCT center, pre-transplant screening of asymptomatic patients and daily respiratory symptom surveillance is performed year-round for rapid diagnosis of RV infections and prompt application of proper precautions. With the advent of the new coronavirus, the diagnosis of SARS CoV-2 by PCR (RealStar® SARS-CoV-2 RT-PCR Kit -Altona diagnostics Brasil Ltda) was quickly introduced into the diagnostic portfolio of RV. Other RV infections were diagnosed by direct immunofluorescent assay (D3® Ultra DFA, Diagnostic Hybrids, Inc). Data on RV infections in previous years were retrieved from local laboratory registry.

RESULTS. We analyzed the frequency of RV from 2016 up to Aug 2020. Figure 1 shows the absolute number of respiratory samples taken and the number of HSCT performed during this period. No striking variation was noted in the number of HSCT or the number of respiratory samples taken from 2016 to 2019. As SARS CoV-2 starts to be diagnosed in our center, a decrease in the diagnosis of other respiratory viruses was noted, as shown in figure 2. The same has been observed in the general population of the State of São Paulo.

CONCLUSIONS. The incidence of other respiratory viruses decreased during COVID-19 pandemic. The probable reasons are: 1) Improved compliance with the transmission control measures, mainly social distancing, frequent hand hygiene and use of masks; 2) The phenomenon of viral interference, when a cell infected with a virus often becomes resistant to a secondary infection with the same virus or a related virus.


Absolute number
2000
1800
1600
1400
1200
1000
800
600
400
200
0
226
1447
236
1358
234
1452
240
1860
98
427
2016
2017
2018
2019
Aug 2020
HSCT
RV tests


Número de pacientes com vírus respiratórios
70
60
50
40
30
20
10
0
14
3
0
36
32
0
13
6
0
62
19
0
15
3
0
45
38
0
7
1
1
46
39
0
3
0
0
1
3
13
2016
2017
2018
2019
Aug 2020
INF A
INF B
ADV
RSV
PIV I, II, III
SARS CoV-2

YELLOW FEVER VACCINATION COVERAGE IN BONE MARROW TRANSPLANT RECIPIENTS

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INTRODUCTION: Yellow Fever (YF) vaccine is free and has been recommended for people who live in the endemic areas, such as the State of Minas Gerais. Thus, the patient bone marrow transplantation (BMT) in endemic regions can be immunized against yellow fever after assessment of the center transplantation..

OBJECTIVE: learn about the vaccination coverage and the clinical and demographic characteristics of the immunized against YF in transplanting bone marrow.

CASUISTRY: retrospectively analyzed 244 nurse's records of the attended patient in the appointment after BMT.

METHODS: cross-sectional study realized in public hospitals in the period 2016/January to 2018/June. The data extraction occurred by structured scripts that collection the demographic characteristics (sex and age) and clinical characteristics (BMT type, BMT after time, vaccine card present and vaccine against YF note). Microsoft Office Excel® and SPSS version 19.0 were the softwares used for tabulation and data analysis. Descriptive analysis of the sample was performed using appropriate statistics for interval or continuous variables. Thus, dispersion measures were presented, the median, the values (minimum and maximum) of the distributions were also obtained. For categorical variables, absolute numbers and proportions were presented in each category.

RESULTS: 244 patients were analyzed, 149 (61,1%) vaccine cards were present and 52 (21,3%) were immunized against YF. Between immunization people 27(51,9%) were male and 25 (48,1%) were female. In relation the BMT of type 49 (94,2%) were allogeneic transplant related and 3 (5,7%) not related. Observed that age median of the immunized were 43 years, (range 2 to 79 years), of which 6 (11,5%) comprise 0 to 17 years, 7 (13,5%) 18 to 30 years, 30 (57,7%) 31 to 60 years and 9 (17,3%) under 61 years. Relation to BMT after time recognized median were 12 years (range 0 to 23 years), of which 17 (32,7%) were 3 to 10 years, 29 (55,8%) 11 to 20 years and 6 (11,5%) 21 to 30 years.

CONCLUSION: the study evidenced low vaccination coverage against YF patients transplanting bone marrow, mainly for those lived in endemic areas. Among those immunized against AF, there was homogeneity between the sexes, predominantly for the age group between 31 and 60 years old and who had a post-transplant time of 11 to 20 years.

KEY WORDS: Vaccination

8. ORAL PRESENTATIONS IN HSCT

ASSESSMENT OF ORAL HEALTH CONDITION AND THE NEED FOR DENTAL TREATMENT IN RECIPIENTS OF ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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Leandro Dorigan de Macedo, Divisão de Odontologia e Estomatologia, Departamento de Oftalmologia, Otorrinolaringologia e Cirurgia de Cabeça e Pescoço, Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brasil

The adequacy of the oral environment before hematopoietic stem cell transplantation (HSCT) is an important step in the prevention of infectious complications during treatment, despite this, there is little information about the oral health condition of patients at this stage of treatment. Knowledge of oral conditions and dental demands in pre-transplantation is an important management tool. The objective of this study was to evaluate the oral health condition and dental treatments performed on patients in pre-allogeneic HSCT. To this end, after approval by the Research Ethics Committee (CAAE: 81213917.0.0000.5440), the records of patients treated during 2015 in a dentistry service in a Brazilian university hospital were reviewed. The following oral health data were obtained: 1. Decayed, missing and filled teeth / correlated index for primary dentition (DMFT/dmft); 2. Quality of oral hygiene and 3. Oral pathologies: 3.1 Periodontal infectious focus (active gingivitis and / or periodontitis) 3.2 Endodontic infectious focus (symptomatic teeth that presented radiographic periapical lesions and cases of pulp necrosis without treatment and / or temporary root canal filling) and 3.3 Caries. Thirty-three patients were included, with a mean age of 28.42 (±16.37), 20 male and 13 female. The DMFT/dmft average was 10.24 (±8.37), 27.2% of patients had active caries lesions, 33.3% gingivitis, 40% poor oral hygiene and 39.3% infectious foci. Almost half of the patients (48.4%) had to undergo dental intervention, 24.2% needing periodontal scaling, 21.2% fillings and 12.1% tooth extractions. We conclude that the studied population had an important incidence of oral pathologies and infectious conditions that could complicate throughout HSCT, especially in younger patients. There was also a high demand for dental treatment in the pre-HSCT.

EVALUATION OF THE DMSO REMOVAL PROCEDURE IN HEMATOLOGICAL PROGENITOR CELLS COLLECTED BY APHERESIS AND CRYOPRESERVED FOR PEDIATRIC AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: Dimethylsulfoxide (DMSO) is a cryoprotectant used in the cryopreservation of hematopoietic progenitor cells (HPC) to ensure the maintenance of cell viability. However, its infusion can be toxic to the recipient, being associated with the development of adverse reactions, ranging from relatively mild symptoms, such as nausea, vomiting, hypo or hypertension, to severe complications, such as allergic, gastrointestinal, cardiovascular, renal and hepatic disorders among others. The maximal recommended dose of DMSO to be infused in one session is 1 g/kg of body weight and, in cases where this limit is exceeded, the product can be washed or be infused over two days. DMSO removal is most often performed in pediatric patients due to low body weight.

OBJECTIVE: To evaluate the manual DMSO removal procedure in cryopreserved HPC obtained from apheresis (HPC (A)) for subsequent infusion.

CASUISTRY: DMSO reduction procedures in HPC (A) were evaluated on 11 oncopediatric patients (1 to 8 years old) submitted to autologous transplantation. Method: Cryopreserved HPC (A) containing 5% DMSO were thawed at 37 to 40°C and the following quality parameters were evaluated: quantification of total nucleated cells (CNT), viable CD45+ cells, viable CD34+ cells, cell viability by 7AAD and Trypan blue. One solution prepared with 5% albumin and 4,5% Voluven® was added to the cell product, allowing a dilution from 1/2 to 1/10. The diluted cell product was centrifuged and the supernatant expressed, leaving a cell concentrated washed product. The same quality parameters were evaluated in a sample of this concentrated product. Microbiological evaluation was also performed on the material after the DMSO removal process. The following criteria were considered satisfactory for the process: average loss of cell viability by 7AAD or Trypan blue less than 20%, average CNT recovery greater than 80%, average recovery of CD34 + and CD45 + cells greater than 70% and negative microbiological evaluation.

RESULTS: When comparing the sample evaluated after the washing process with the sample analyzed after thawing and DMSO pre-reduction, the average, minimum and maximum values found were: CNT recovery: 94.5% (84.8 – 101.6), CD45 + recovery: 84.17% (66.7 - 101.4), CD34 + recovery: 84.5% (62.8 - 109.8), loss of viability by 7AAD: 5.3% (0.0 - 16.4) and loss of viability by Trypan blue: 4.2% (0.0 - 9.7). All samples showed negative results in sterility control for aerobic, anaerobic bacteria and fungi.

CONCLUSION: The results obtained demonstrate that the manual DMSO removal procedure maintained the expected quality for HPC (A), according to the acceptance criteria established by the laboratory.

EVALUATION OF THE INFLUENCE OF CHARACTERISTICS OF HEMATOPOIETIC PROGENITOR CELL UNITS FROM MOBILIZED PERIPHERAL BLOOD IN THE OUTCOME OF BONE MARROW TRANSPLANTATION

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INTRODUCTION: Some variables can affect the functionality of hematopoietic progenitor cells (HPC) and, consequently, the kinetics of hematopoietic recovery after bone marrow transplantation. The aim was to evaluate the influence of characteristics of the cryopreserved HPC units from mobilized peripheral blood on the outcome of autologous transplantation.

METHODS: Data from patients with cryopreserved HCP units from 02/2014 to 12/2019 were retrospectively analyzed. The medical records were reviewed to obtain the following information: sex, age, diagnosis, preapheresis CD34+ count, composition of the cryoprotectant solution (solution 1: DMSO5% HES6% ALBUMINA3% ACD5%; or solution 2: DMSO10 % ALBUMINA4% ACD5%), storage duration, nucleated cells concentration per cryobag, infused CD34+ cell dose, post-thawing viability (tripan blue), conditioning regime and transplant outcome (hematopoietic recovery and time of hospitalization). Continuous variables were expressed as median ± interquartile range and categorical variables as percentages. Multiple linear regression was used to determine the independent effect of each covariate on outcomes. Binary logistic regression was used to analyze the covariables associated with delayed engraftment (> 14 days) and delayed hospitalization [> 18 days (75th percentile)].

RESULTS: the study included 476 patients (55.3% male) aged 4 – 74 years (53 ± 19 years). The most common diagnosis was multiple myeloma (n = 298; 62.6%), followed by lymphoma (n = 149; 31.3%). The median time to WBC, neutrophil and, platelet engraftment was 11 ± 2 days and the time of hospitalization after transplantation was 15 ± 6 days. The linear regression model for time to neutrophil engraftment maintained the CD34+ cell dose and the composition of the cryoprotectant solution (Table 1). The same variables were maintained in models for time to WBC and platelet engraftment. The linear regression model for time of hospitalization maintained the nucleated cells concentration per cryobag (coefficient = 0.010, 95% CI: 0.003 to 0.0017; P = 0.007). Patients who had HPC cryopreserved using solution 2 showed 6 times higher risk (OR = 6.6; 95% CI: 2.2–20.4; P = 0.001) of delayed neutrophil engraftment and 2 times higher (OR = 2.1; 95% CI: 1.3– 3.4; P = 0.002) of delayed hospitalization when compared with patients who had HPC cryopreserved with solution 1.

CONCLUSION: the CD34+ cell dose, the composition of the cryoprotectant solution, and nucleated cells concentration significantly impact the kinetics of hematological recovery and the time of hospitalization after autologous transplantation.

DONOR LYMPHOCYTE INFUSION FOR RELAPSE AFTER ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION: Donor lymphocyte infusion (DLI) is a treatment option for relapsed hematologic malignancies after allogeneic hematopoietic stem cell transplant (HSCT). The objective of this study was to evaluate a response to DLI.

PATIENTS AND METHODS: We analyzed 24 patients, between 2010 and 2020, with a median follow-up of one year, who received DLI for relapse after allogeneic HSCT. The median age of the patients was 50 years, the majority being male (58%). Acute myeloid leukemia (AML) was the most common diagnosis (58%). The majority (50%) received related HSCT (Table 1). The overall survival (OS) was estimated by Kaplan-Meier, and the response rate was estimated by the accumulated incidence curve.

RESULTS: DLI was used as a rescue therapy for relapsed patients (87.5%) or for loss of chimerism (12.5%). Most patients (83%) received other therapy associated with DLI, with azacitidine being the most common. Sixteen patients (66.7%) received DLI from peripheral blood. The median initial dose of DLI was 8.7x106 CD3 + / kg (5-15.3x106 / kg) and the median maximum dose was 14.2x106 CD3 + / kg (6.7–98x106 / kg). Most received a single dose of DLI (62.5%) (Table 2). Eleven patients (45%) had a satisfactory response with complete remission and chimerism > 95% (figure 1), the median was 90 days for this response. In addition, 11 patients (45%) had some degree of graft-versus-host disease (GVHD). The OS in 1 year was 50% (95% CI, 33% to 77%) (figure 2). Thirteen patients died, 5 from infection and 8 from disease progression.

DISCUSSION: DLI is an effective immunotherapy for rescue therapy in hematopoietic diseases relapsed after allogeneic HSCT. Its benefit is mainly reported in chronic myeloid leukemia, however, there are reports of several hematological malignancies, such as AML, with remission in approximately 15 to 20%.1,2 The mechanism of action of DLI is based on the infusion of T cells, generating a graft-versus-tumor effect, mainly through the reversal of T cell exhaustion in resident CD8+ T cells, having as targets, especially, disease-specific antigens[3]. AML patients show a beneficial response to the use of DLI if associated with another therapy, since it is a disease with a high tumor burden and rapid rate of cell division.2 The dose used in DLI varies according to the hematological diagnosis and current status of the disease. However, a cell dose of less than 1 x106 CD3 + T cells / kg is inefficient and when above 4.5x108 CD3 + T cells / kg does not show better responses.2 GVHD is the main associated complication. The dose used and the induced lymphodepletion are important risk factors for the appearance of GVHD4. Our study showed that patients who relapse after allogeneic HSCT can benefit from DLI, obtaining a sustained response of around 40% and GVHD was the main complication associated.

INFLUENCE OF THE SARS-COV-2 PANDEMIC ON BONE MARROW TRANSPLANTATION AND THE PROTOCOLS ADOPTED IN BRAZIL

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INTRODUCTION: In scenario of the COVID-19 pandemic the Hematopoietic Stem Cell Transplantation (HSCT) centers and other entities of onco-hematological treatment faced the challenge of continuing therapy and, in the case of HSCT, defining criteria for their realization.

OBJECTIVE: To evaluate the impact of the SARS-CoV-2 pandemic on HSCT and protocols adopted in Brazil.

METHODS: This is a cross-sectional study carried out from May to June 2020, through the application of a pre-structured questionnaire of 14 questions about the possible interventions carried out in the HSCT units in the face of the COVI-19 pandemic. The questionnaire was published on the website of the Brazilian Society of Bone Marrow Transplantation (SBTMO) to be filled in by the technical health officials of the Brazilian HSCT units. Data were collected using the Google Forms application and analyzed using the Excel program.

RESULTS: Out of a total of 86 qualified centers in Brazil, 51 centers (59.3%) responded to the questionnaire in May, which represents approximately 85% of all adult and pediatric transplants performed in Brazil. In June, 52 centers (60.4%) answered the questionnaire. In May, only 4% of the centers interrupted the HSCT program and 12.2% maintained their operation without reduction. In most of them, there was a decrease in the number of HSCT, varying from 50% to 75% of the typical number in 59.2% of all centers. All of them followed some recommendation, and the most cited was of the SBTMO both in May (98%) and in June (90.4%).

The orientation for testing the donor and the asymptomatic patient in the pre-HSCT assessment was initially a reason for discussion in the country,

due to the difficulty in making the exams available, but both in May (88.2%) and in June (88.5%) in most transplants and in those who do not, the collection of the RT-PCR exam is the greatest difficulty, due to the absence of a test or even an adequate place for the collection of samples. The main symptoms were fever, cough, anosmia and headache and the drugs most used for treatment were azithromycin (75%), hydroxychloroquine (55%), corticosteroids and ivermectin (both 15%). Those who were using immunosuppressants, these were maintained in 38.1%, decreased in 19% and discontinued in 14.3%. About 58% of health professionals were infected and removed in May. In June, this contamination increased to 73.1%. In May 88.9% of these professionals underwent a laboratory test to confirm the SARS -CoV-2 infection and in June 95%. When asked about testing asymptomatic health professionals directly involved with HSCT, only 26% of centers were tested in May and 44.2% in June, this measure may have decreased the viral transmission of asymptomatic workers and the chain of transmission to the patient and their relatives of these professionals. Conclusion: These data reveal the vulnerability of patients with onco-hematological diseases to COVID-19 infection, especially during HSCT procedures, in relation to the general population. Despite its limitations, it can be valuable for planning political and health measures at the regional and federal levels.

Co**NFLICTS OF INTEREST:** None.

KEYBOARD: SARS-CoV-2, bone marrow transplantation, protocols.

LOW BACK PAIN AND LASER ACUPUNTURE IN PATIENTS UNDERGOING BONE MARROW TRANSPLANTATION

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INTRODUCTION: Low back pain is a limiting factor in the functional activities of patients undergoing bone marrow transplantation. The laser acupuncture technique is a non-invasive method that has similar effects to traditional acupuncture and seems to provide pain desensitization.

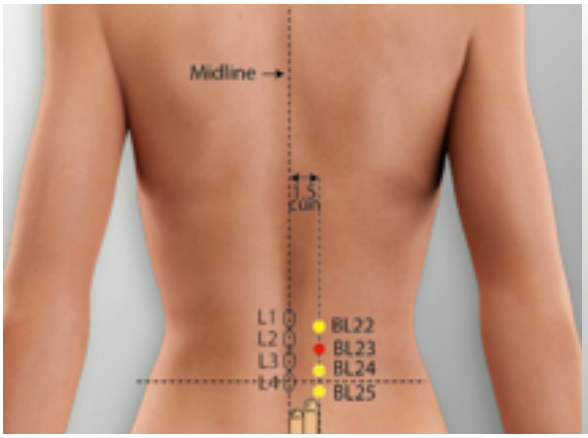
OBJECTIVE: Describe a laser-acupuncture approach in patients with low back pain after hematopoietic stem cell infusion.Method: This is a cross-sectional study with quantitative data analysis of 12 patients who underwent laser acupuncture technique after bone marrow transplantation. Patients were assessed using the Karnofsky Performance Scale, Quality of Life Questionnaire (EORTC QLQ-C30) and Visual Analogue Scale (VAS) at admission and discharge from the hospital's bone marrow transplant sector. Laser acupuncture was applied from the moment the patient had severe low back pain (VAS> 8) with regular analgesic use, until the patient had no low back pain or VAS <3 with Karnofsky performance scale between 80% -90 %. For the application, distal points (upper and lower limbs) were used based on the diagnostic pattern of the eight principles of traditional Chinese medicine and points in the lower back, with the DMCTherapy XT 3 Joules laser for 30 seconds at each point. Mann-Whitney test was performed for comparative analysis using Statistica®, the significance level adopted was p <0.05. This study was approved by the Ethics Committee of the Unigranrio University, Rio de Janeiro, under number 89910618.8.0000.5283.Results: Participants (n = 12, men n = 8), transplants (autologous n = 8, allogeneic n = 4), mean age 53.9 ± 13.2 years, time of aplasia 11.7 ± 2.9 days. , showed Karnofsky at admission: 97.5 ± 4.5% and at discharge 88.3 ± 12.6% p = 0.16, EORTC QLQ-C30 (Functional Scale) at admission: 81.4 ± 15 and at discharge: 72.2 ± 16.5, p = 0.75 and Admission Symptom Scale: 14.3 ± 13.9, at discharge 28.2 ± 14.4 p = 0.14 and initial VAS 8.0 ± 0, 8 and final 0.8 ± 0.5, p = 0.001.

CONCLUSION: Due to the clinical conditions of the patient, conventional needle treatment may not be the most appropriate; the use of laser acupuncture seems effective and safe in the control of low back pain in patients undergoing bone marrow transplantation, with maintenance of functional performance and quality of life of these individuals.

TABLE 1 - Subject Characteristics

Characteristics	Admission	Discharge	p values
Age (years)	53,9 ± 13,2		
Aplasia time (days)	11,7 ± 2,9		
Karnofsky	97,5 ± 4,5%	88,3 ± 12,6%	p = 0,16
EORTC QLQ-C30	81,4 ± 15	72,2 ± 16,5	p = 0,75
Symptom Scale	14,3 ± 13,9,	28,2 ± 14,4	p = 0,14
EVA	8,0 ± 0,8	0,8 ± 0,5	p = 0,001

n= 12 participants, EORTC QLQ-C30 (Functional Scale) mean ± SD, Karnosfsky performance scale mean ± SD, Sympton scale mean ± SD, EVA (visual analog scale) mean ± SD.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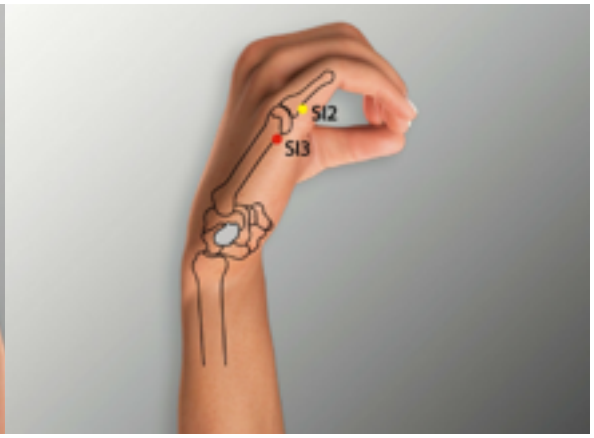
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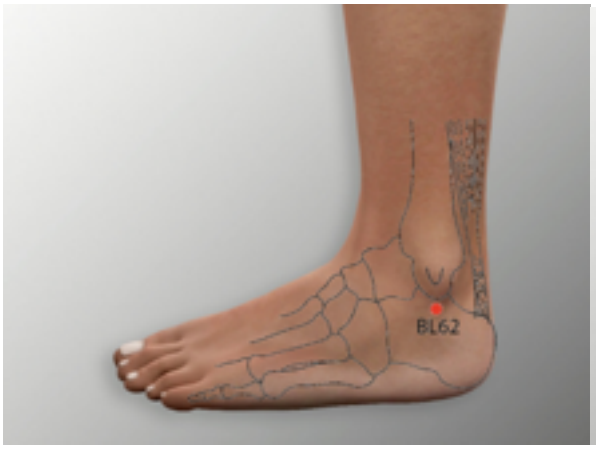
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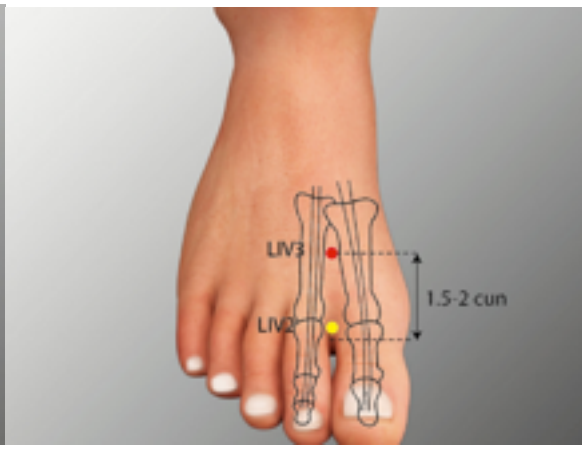
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QUALITY OF LIFE IN COVID-19 TIMES: COMPARISON BETWEEN BONE MARROW TRANSPLANTATION RECIPIENTS AND NON-TRANSPLANTED PATIENTS WITH CHRONIC ILLNESSES

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INTRODUCTION: The rapid spread of the new coronavirus has led the World Health Organization to declare a global health emergency. The pandemic caused special concern in people with comorbidities that represent greater risk of developing severe forms of COVID-19.

OBJECTIVE: To compare the pandemic experience in patients undergoing Bone Marrow Transplantation with that of other non-transplanted patients, but with chronic and disabling health conditions.

METHOD: This is a cross-sectional, descriptive-exploratory study, with a quantitative approach. The convenience sample consisted of 160 individuals, divided into groups NT (N = 121, not transplanted) and T (N = 29, transplanted). Patients in the NT group had chronic progressive diseases. For data collection, an online form was used, and the content of the responses was subjected to quantitative analysis using the SPSS program version 26.0.

RESULTS: Out of the 160 participants, 29 (18.1%) had undergone BMT. Mean (SD) age was 31.9 (10.6) years, varying between 15 and 50 years-old, 19 (65.5%) were male, 18 (62.1%) divorced, 19 (65.5%) without children, 12 (41.4%) had no employment, 13 (44.8%) had family income up to two minimum wages, 14 (48.3%) professed the Catholic religion, but 12 (41.4%) of them considered themselves non-practicing. There are statistically significant differences between participants submitted to BMT regarding age (T: 31.9 ± 10.6 versus NT 45.6 ± 15.8, p-value <0.001); income [T: 9 (36%) between 1 and 2 minimum wages, versus 28 (23%)> 2 minimum wages; p-value = 0.024]; perceptions about changes in quality of life in the pandemic period [it was the same as it was before 12 (35.3%) in the T group versus 31 (91.2%) changed for the better in the NT Group, p value = 0.010]; self-assessment on the possibility of becoming a better person [Group T 20 (29.0%) versus Group NT 49 (94.2%), p value = 0.004].

DISCUSSION: Patients submitted to BMT were younger and with lower income (higher concentration of individuals with family income between 1 and 2 minimum wages). Interestingly, there was no change in quality of life during the pandemic among transplanted patients, in contrast to the other patients, who reported changes for the better, and the finding that they had no personal gains with the crisis. These results may be related to the fact that many BMT patients already maintained some self-care behaviors required for protection even before the emergence of COVID-19 (such as wearing a mask, hygiene habits, restriction of social contact and food care). Financial factors seem to overlap with health factors, contributing to the lack of perception of improvement in quality of life in this subsample.

SARS COV-2 INFECTION AND COVID-19 IN HEALTH CARE WORKERS FROM HEMATOPOIETIC STEM CELL TRANSPLANT UNIT: PRELIMINARY RESULTS OF A PROSPECTIVE COHORT STUDY

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Health care workers (HCW) are considered a vulnerable population in the COVID-19 pandemic. In Brazil, 1,034 HCWs were hospitalized due to COVID-19 up to epidemiological week 33, and 226 died (21.8%). HCW can also be the source of infection for the fragile HSCT recipients. We started a prospective study estimating the incidence of SARS CoV-2 infection and COVID-19 in HCW from HSCT unit. Day of inclusion was considered study day-zero (dzero), when nasal washes/swabs and serum samples were taken. The epidemiological risk was assessed by a questionnaire. During follow-up, the participants were surveyed daily for the presence of symptoms. Respiratory samples were taken if symptoms or exposure to a confirmed or suspected case of COVID-19. In case of a positive PCR, the HCW quarantined for 14 days and at least 1 negative PCR test was required to return to work. SARS CoV-2 detection was done by PCR (RealStarÒ SARS-CoV-2, Altona Diagnostics, Germany) and serology was performed monthly by ELISA (Anti-SARS CoV-2 ELISA, Euroimmun Brasil). Survival analysis (Kaplan Meyer) was used to estimate the cumulative probability of SARS CoV-2/COVID-19 (SPSS version 21). From May 13th to Sept 9th, 99 HCW were included, being 88 female, 11 male, median age of 37 (20 – 58) years old and working expertise in HSCT of a median of 5.2 years. Median study follow-up was 121 (1 – 123) days. At dzero, 4 cases of SARS CoV-2 infection were diagnosed by PCR. During follow-up, 6 new cases of COVID-19 were diagnosed at a median of 58 (54-118) days. Nineteen of the 99 subjects (19.2%) reported respiratory symptoms and in 8 PAS (42.1%) COVID-19 was diagnosed by PCR. Sore throat and headache (62.5% each), cough and smell/taste disturbances (37.5% each) and fever (25%) were the most frequently symptoms in COVID-19 cases. In the first serological sampling, specific SARS CoV-2 antibodies were detected in 8 HCW, including 2 individuals who had a positive PCR on dzero. The remaining 6 HCW probably had an underdiagnosed SARS CoV-2 infection before study entry. Seroconversion occurred in the 6 new cases of COVID-19 diagnosed during PCR surveillance. Serology alone did not detect any additional case of SARS CoV-2 infection. In total, 16 HCW acquired SARS CoV-2 infection/COVID-19 from dzero up to d+118 so far. Fourteen cases (87.5%) occurred in nurses (8 cases) and nursing technicians (6 cases). The cumulative probability of SARS CoV-2/COVID-19 was 35.3% up to 123 days of follow-up. 87.5% of the symptomatic and 75% of the asymptomatic HCW developed specific antibodies to SARS CoV-2. No loss of specific antibodies was observed in the first 4 months of the study. The cumulative probability of SARS CoV-2/COVID-19 in HCW was high in this series (35.3%), as well as the rate of asymptomatic cases (50%). Early diagnosis of HCW and medical leave for 14 days can help to prevent the transmission of SARS CoV-2 to HSCT recipients. An effective vaccine and treatment for COVID-19 are urgently needed.

9. MULTIDISCIPLINARY

IMPACT OF OBESITY AND VISCERAL FAT ON MORTALITY IN HEMATOPOIETIC STEM CELL TRANSPLANTATION

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RATIONALE: In the last years, many studies has showed the importance of body composition parameters, muscle and fat mass, evaluated by Bioelectrical impedance analysis (BIA), Dual energy x-ray absorptiometry and Computerized Tomography in HSCT outcomes, as mortality and GVHD. Ultrasound(US) is a practical, efficient and lower cost method to evaluate body composition, however there was not studies in HSCT.

OBJECTIVES: In our study, we aimed to investigate the muscle and fat mass, before HSCT and after engraftment, evaluated by US and BIA and its relationship to mortality, engraftment and acute and chronic GVHD.

METHODS: All adult patients with hematological malignances admitted for HSCT autologous and allogeneic to Hospital Israelita Albert Einstein between 2012 and 2017 were eligible to enter this prospective study. The study protocol was approved by Ethics Committee and al patients provided informed consent. They were evaluated by US thigh muscle thickness, visceral fat and echogenicity, in the first day of hospitalization (baseline) and after engraftment (15-25 days post-HSCT).

RESULTS: We have evaluated 50 patients for 5 years, 42% were male and 58% were undergone allogeneic HSCT. Most patients were < 55 years-old (68%) and had normal BMI (50%). Less than 2% were malnourished. Also note that of the 50 people, 21 (42%) are considered elderly for TCTH (≥55 years). We found a significant reduction of right and left muscle thickness($p<0,001$) and echogenicity($p=0,002$) after engraftment compared to baseline. Our elderly patients had a significant bigger right thigh muscle thickness ($p=0,02$) and more visceral fat ($p=0,009$). Considering obese and non-obese patients, we found some significant differences, all of them were higher in obese patients: right and left muscle thickness ($p<0,001$); visceral fat ($p=0,003$) and echogenicity ($p=0,04$). Death in the first 100 days had a positive association with obesity ($p=0,001$) and visceral fat($p=0,002$). Visceral fat was the only variable independent of HSCT type and age in mortality risk.

CONCLUSION: Analyze body composition in HSCT patients is essential to define nutritional and HSCT outcomes. In our study visceral fat had an important impact in mortality. Ultrasound is a high cost-benefit imaging method to evaluate body composition. The impact of body composition on HSCT outcome should be investigated in further studies to standardize procedure and measurements by ultrasound.

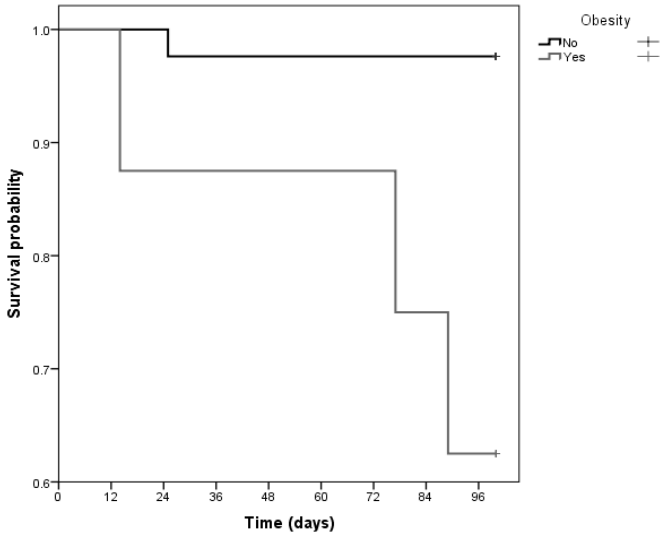
TABLE 1 - Description of patients'characteristics .

Variable	Total	Autologus	Alogenic
Age			
Mean (Standard deviation)	49(15)	50,5 (16)	48 (15)
Body Mass Index (kg/m^2)			
Mean (Standard deviation)	25,5 (4,4)	25 (4,8)	26 (4,2)
Elderly (>55 years) - n (%) (N=50)			
No	29 (58)	12 (57)	17 (59)
Yes	21 (42)	9 (43)	12 (41)
BMI - n (%) (N=50)			
Normal	25 (50,0)	9 (42,9)	16 (55,2)
Overwight	16 (32,0)	7 (33,3)	9 (31,0)
Obesity	8 (16,0)	4 (19,0)	4 (13,8)
Malnutrition	1 (2,0)	1 (4,8)	0 (0,0)
Engraftment (days)			
Mean (Standard deviation)	14 (5)	12 (4)	16 (5)

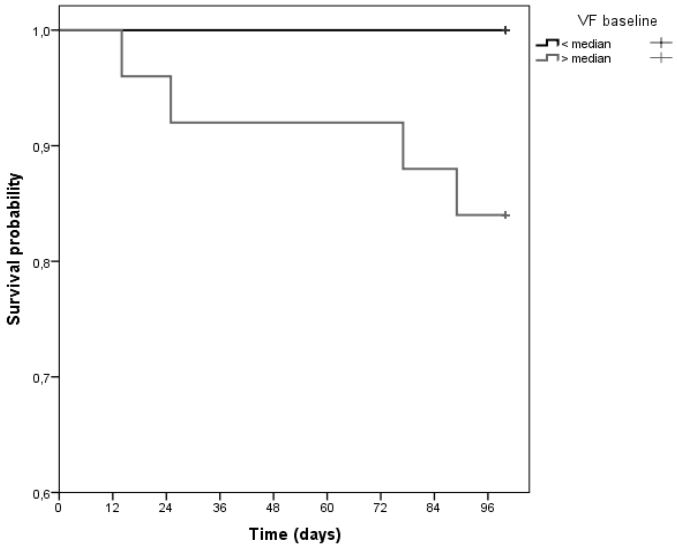
TABLE 2 - Description of variables before HSCT and after engraftment

Variables Mean (Standard deviation)	Before HSCT(n:50)		After Engraftment(n:48)	
	Autologus	Alogenic	Autologus	Alogenic
Weight (kg)	72 (14)	78 (14,5)	69 (14)	71 (12)
Body Mass Index (kg/m²)	25 (5)	26 (4)	24 (5)	23 (3)
UMTRT (cm)	1,7 (0,3)	1,6 (0,4)	1,5 (0,3)	1,5 (0,3)
UMTLT (cm)	1,7 (0,4)	1,7 (0,3)	1,5 (0,4)	1,5 (0,3)
UFTRT (cm)	0,8(0,4)	0,7 (0,3)	0,9 (0,5)	0,7 (0,3)
UFTRT (cm)	0,8 (0,4)	0,7 (0,3)	0,8 (0,5)	0,7 (0,3)
Visceral Fat (cm)	4,6 (1,6)	5,0 (1,6)	4,2 (1,6)	4,7 (1,6)
Echogenicity	6242 (4126)	5654 (5024)	3611 (2337)	2990 (2084)

HSCT-Hematopoietic Stem Cell Transplant; BMI-Body Mass Index; UMTRT-ultrasound muscle transversal right thigh; UMTLT- ultrasound muscle transversal left thigh; UFTRT- ultrasound fat transversal right thigh; UFTLT- ultrasound fat transversal left thigh



Graphic 1: Survivorship curve for obese and non-obese patients undergone HSCT (p:0.01)



Graphic 2: Survivorship curve for visceral fat of patients undergone HSCT (p:0.02)

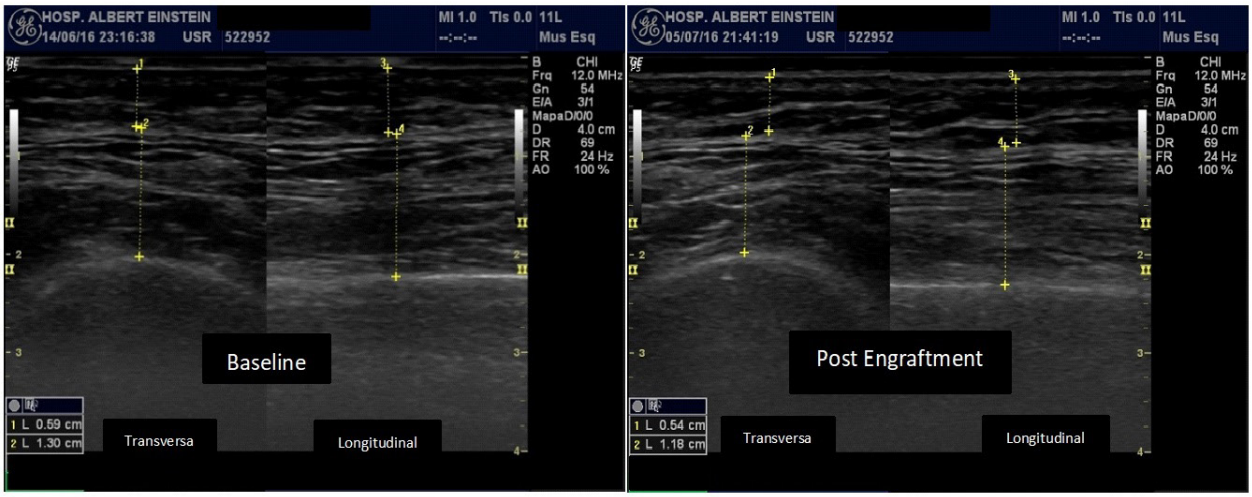


Figure 1: Ultrasound images of right quadriceps femoris muscle in transversal and longitudinal planes. Same male patient in baseline and post engraftment.

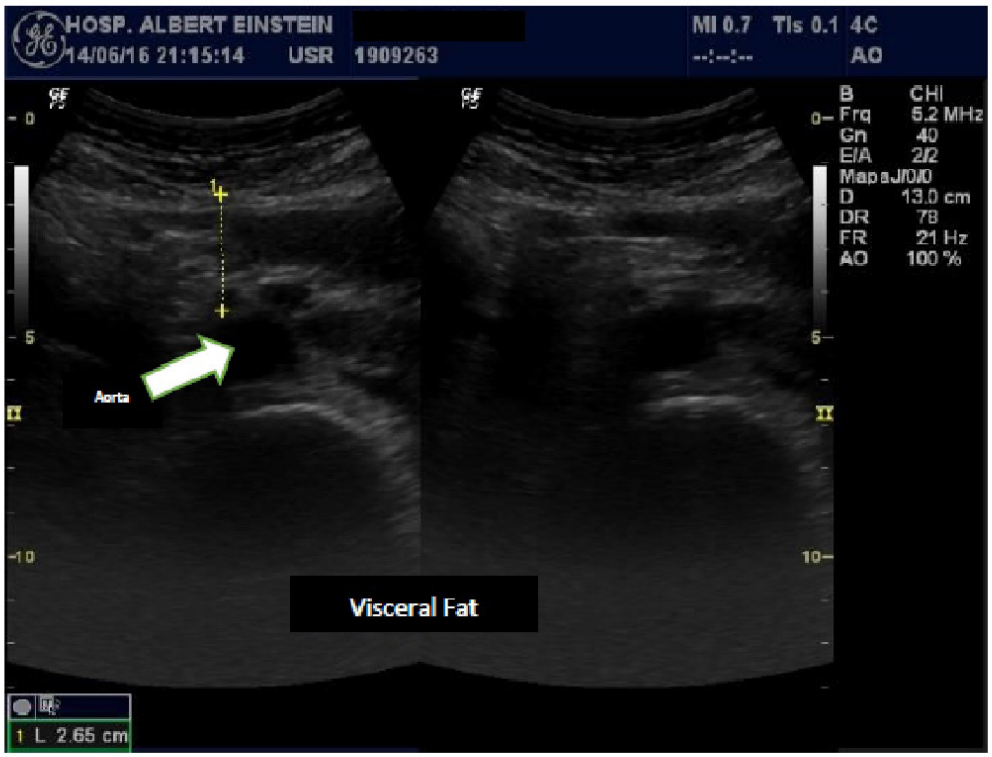


Figure 2: Ultrasound image of visceral fat in a female patient in baseline

IMPACT OF PHYSIOTHERAPEUTICAL ACTING ON THE MUSCLE FORCE OF CHILDREN SUBMITTED TO TCTH THROUGH THE SCALE MEDICAL RESEARCH COUNCIL (MRC)

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INTRODUCTION: Pediatric patients undergoing hematopoietic stem cell transplantation (HSCT) have complications that lead to deterioration of the global muscle capacity since the underlying disease, previous treatments, the treatment itself and complications during hospitalization. They commonly present changes in muscle force (FM) due to immobilization due to muscle disuse, prolonged hospital stay, bed rest, high doses of chemotherapy, toxicity of the conditioning regime, periods of medullary aplasia and marked reduction in body weight. Generating limitations in carrying out activities of daily living, loss or reduction of FM, fatigue, reduction in joint amplitude, impacting quality of life and functional capacity. A simple instrument adapted for FM evaluation is the Medical Research Council (MRC), created in 1943, for the evaluation of 6 movements of upper and lower limbs. The graduation ranges from 0 (plegia) to 5 points (normal strength), totaling a maximum value of 60 points. Therefore, the presence of physiotherapy to maintain and gain early muscle strength during transplantation is essential to prevent complications, making the physiotherapist an important part of the multidisciplinary team necessary to meet the complex needs of the patient, avoiding losses and complications in the medium and long term.

OBJECTIVE: Assess muscle force (FM) before and after HSCT and demonstrate the impact of assessment and physiotherapeutic performance on the hospitalization and treatment process.

MATERIALS AND METHODS: Retrospective longitudinal study, based on data from evaluations carried out by professionals at the infant HSCT unit, of an oncology hospital in the interior of the state of São Paulo. Data were collected from September 2019 to August 2020, using FM assessments, using the MRC scale, in two moments (pre-hospitalization and high) for one single evaluator. 37 patients were included, age 1 to 18 years, with a predominant diagnosis of leukemia and the type of transplant was the unrelated allogeneic. The average daily hospital stay was 31 days, ranging from 20 to 98, with daily physical therapy. Six muscle groups were evaluated, being: shoulder abductors, elbow flexors, fist extensors, hip flexors, knee extensors and ankle dorsiflexors bilaterally. The samples were stored in an electronic spreadsheet (Microsoft Excel) and were expressed as mean and standard deviation, with subsequent descriptive analysis.

RESULTS: From the evaluations performed, it was found that the average muscle force referring to the first evaluation (pre-hospitalization) was 59.42 (± 2.12), proving normal and in the second (high) 56.94 (± 6,93), showing that they maintained normal muscle force without acquired weakness during hospitalization. Conclusions: Pediatric patients did not show any deterioration in muscle strength after performing the HSCT, as evidenced by the MRC scale.

KEYWORDS: Hematopoietic stem cell transplantation. Allogeneic. Autologous. Physiotherapy. Muscle force. Pediatrics.

NUTRITIONAL EVALUATION WITH HAND GRIP AND NUTRITIONAL THERAPY DURING HEMATOPOIETIC STEM CELL TRANSPLANT

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INTRODUCTION: Patients undergoing hematopoietic stem cell transplant (HSCT) are considered at high risk for nutritional disorders that can be related to the conditioning protocols and the transplant. The main disorders causes are: decreased food intake, mucositis, colitis, intestinal malabsorption, and graft-versus-host disease. In addition, most patients have nutritional deficits history or malnutrition related to underlying diseases and its treatments, which cause body composition changes, including loss of fat body and lean body mass. These alterations result in weight loss and changes in other anthropometrics parameters. As a method of nutrition assessment, the hand grip strength test could be used to evaluate strength and functionality, it is a practical, easy and low-cost method.

OBJECTIVE: To describe anthropometric aspects of inpatients underwent autologous and allogeneic HSCT in nutritional therapy.

METHOD: Retrospective and descriptive study, with data collection in medical records regarding daily nutritional assessments carried out at the HSCT unit between May 2019 to July 2020. Were collected data of anthropometric (weight, height, weight loss) and hand grip strength at admission and discharge moments. Data on the use of nutritional support by the patient as an oral supplement and enteral or parenteral nutrition were also collected. The values that discriminate the altered hand grip strength text are different for each gender, male <27 kg and female <16 kg.

RESULTS: Sixty-six patients were evaluated. Eighteen (27,3%) underwent allogeneic HSCT (allo-HSCT) and 48 (72,7%) autologous HSCT (auto-HSCT). The general mean Body Mass Index (BMI) was 26,4kg/m^2 pre-HSCT and 24,2kg/m^2 post-HSCT, classified as overweight and eutrophic, respectively. The pre and post-HSCT hand grip strength test results were normal regarding muscular strength. However, the male patients underwent to auto-HST had 4,1kg reduction in strength, while those underwent to allo-HCST had 7,7kg reduction during hospitalization. Overall, 22 (31,8%) patients used parenteral nutrition for an average period of 10 days, 58 (88,8%) used oral nutritional supplement for an average period of 12 days and none used enteral nutrition. Mean hospitalization time was 21,5 days for auto-HCST and 26 days for allo-HCTS patients (Table 1). CONCLUSION: In summary, the nutritional monitoring and the nutritional therapy during HCST may attenuate weight loss and muscle force of patients, however these losses are common because of gastrointestinal alterations and HSCT complications that impact directly in evolution and life quality. Therefore, it is very important to keep the nutritional and multiprofessional follow-up for total patient rehabilitation.

KEYWORDS: Hematopoietic stem cells transplant, Nutritional therapy, Nutrition, Hand grip.

Type of Transplant		Autologous		Allogeneic	
Gender		Male	Female	Male	Female
Number of patients (%)		30 (62,5)	18 (37,5)	8 (44,44)	10 (55,56)
Mean age		43	45	36	41
Admission Body Mass Index (Kg/m^2)		26,93	28,02	23,17	24,44
Discharge Body Mass Index (Kg/m^2)		25,58	27,10	22,20	23,97
Weight Loss (%)		-5	- 3,3	-4	-1,9
Admission **hand grip strength** (Kg)	Right hand	43,5	23,6	40,6	22
	Left hand	40,8	22,4	36,6	21,1
Discharged hand grip strenght (Kg)	Right hand	39,4	21,2	32,9	22
	Left hand	39	21,3	31,9	20,4
Oral nutritional supplement(%)		24 (80)	17 (94,4)	7 (87,5)	10 (100)
Parenteral nutrition (%)		10 (33,3)	7 (38,8)	2 (25)	3 (30)
Hospitalization time (days)		23	20	26	26

Table 1.Descriptive analysis by gender of 66 patients underwent to HSCT between May 2019 to July 2020.

PRE-TRANSPLANT EVALUATION OF MICRONUTRIENTS AND PHASE ANGLE IN PATIENTS WHO WILL UNDERGO BONE MARROW TRANSPLANTATION

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INTRODUCTION: The measurement of micronutrients is not common in the assessment of the nutritional status of patients undergoing hematopoietic stem cell transplantation (HSCT). However, some patients may present complications associated with their deficiency, the dosage of these micronutrients before HSCT, is essential for possible replacements. Electrical bioimpedance (BIA) is a method used to assess body composition, among the results provided by BIA the phase angle (PA) consists of a parameter used in clinical practice, being studied as a prognostic indicator and nutritional status in individuals with cancer . In this way, monitoring micronutrients and PA can contribute to early interventions and improve quality of life.

OBJECTIVE: To evaluate PA and vitamins A, B1, B9, B12, C, D and zinc in patients who will undergo bone marrow transplantation.

METHODOLOGY: Retrospective, cross-sectional, descriptive, uncontrolled study, which evaluated PA and micronutrient levels between D-18 and D-1, in patients hospitalized between February and August 2020 in the onco-hematology sector of a hospital in São Paulo.

RESULTS: 19 patients were evaluated, 9 of whom were female and 10 were male, with a mean age of 48.7 ± 9.9 years. The AF presented a mean of 5.6 ° ± 1.6 °, on nutritional admission and according to the Subjective Global Assessment (SGA) 100% of the patients were classified as well nourished. Among micronutrients, vitamin D was the one with the greatest deficiency 37.5% (n = 6), only 5.5% (n = 1) had B9 deficiency and 5.5% (n = 1) had zinc deficiency , 16.7% (n = 3) had vitamin B12 deficiency and 11.1% (n = 2) had vitamin A, C and B1 deficiency. It was observed that 11.1% patients (n = 2) who obtained more than 2 micronutrient results as deficient, had a 4.3 ° phase angle.

CONCLUSION: The evaluation of PA and pre-HSCT micronutrients should be considered as an important marker for the monitoring of patients undergoing HSCT, since it has been demonstrated that patients already have nutritional deficiencies before the infusion of cells and these are correlated with the smallest angle phase, taking into account that the micronutrient intake can be decreased, and the results may be aggravated in the period pending neutrophilic grafting. Further studies are needed to assess the impact of results on HSCT outcomes.

10. HISTOCOMPATIBILITY

COMPARISON OF HLA TYPING RESULTS BY PCR-SSO WITH NGS

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INTRODUCTION: Despite the advancement of HLA molecular typing techniques, such as those based on the complete sequencing of the genes of interest (new generation sequencing - NGS), that allows an increasingly greater resolution of the result obtained, laboratories use different combinations of techniques to meet the different types of exams requested, offering compatible prices. The PCR-SSO technique continues to be widely used and serves as a solution for HLA typing in the initial stages of the search and histocompatibility process, offering faster results, with reduced cost and good accuracy.

OBJECTIVE: The present work aims to compare the HLA typed obtained by two different techniques of different levels of resolutions, in order to determine the degree of reliability in the results.

CASUISTIC: 82 HLA typing tests of voluntary bone marrow donors carried out in 2020 obtained by both NGS and PCR-SSO were included in the evaluation.

METHOD: The examinations were performed from DNA samples extracted from the blood of individuals, processed by NGS using the commercial kit Omixon Holotype HLA NGS (Omixon Inc .; Budapest, Hungary) for sequencing the HLA-A, -B and - DRB1 running on HiSeq 2500 equipment (Illumina, Inc .; San Diego, CA, USA). Processing was also performed by PCR-SSO using the commercial kit LABType ™ SSO (One Lambda Inc .; Canoga Park, CA, USA) for typing the HLA-A, -B and -DRB1 loci running on the LABScan3D ™ equipment (One Lambda). Statistical calculations were performed using SPSS v20 software (IBM Corp. Armonk, NY, USA).

RESULTS: For all the loci, 100% of the types were consistent among the techniques in the first field of resolution. In the second resolution field, all 164 alleles were concordant at the HLA-A locus. The agreement rate in the second field for the HLA-B locus was 98.17% and for the HLA-DRB1 locus, 95.73%. Certain alleles like HLA-DRB1 *11:01:02 proved to be more difficult to be correctly detected by the PCR-SSO technique.

CONCLUSIONS: The PCR-SSO technique, despite having a lower detection resolution than the NGS technique, still has a high rate of correct typing of the HLA-A, -B and -DRB1 loci, especially in the first resolution field. In the second resolution field, despite presenting some inconsistencies, the hit rate remains at a high frequency, and can be comfortably used for initial steps in the search for compatibility as the first phase of the REDOME system.

DETERMINATION OF CONFORMATIONAL ALPHA/BETA CHAIN EPITOPE OF HLA DP

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INTRODUCTION. The correct interpretation of the Luminex single antigen test (LSA) results is essential for the precise antibodies identification and, consequently, for the definition of the presence or absence of donor specific antibodies (DSA). Antibodies against HLA DQ and DP can be justified by the presence of reactions against polymorphic regions in the alpha or beta chain. HLA DPB has six polymorphic regions in the protein, encoded by exon 2, and one polymorphic region encoded by exon 3 (96 position). Some authors (Barabanova, 2009 and Tambur, 2010) have reported antibodies to conformational HLA-DQ epitopes, i.e., epitopes composed by combinations of DQα/β polymorphisms. The purpose of this communication is to describe an HLA-DP antibody that can only be justified by the presence of a conformational epitope formed by the HLA-DP alpha and beta chains.

MATERIAL, MÉTODOS E RESULTADOS. A male, typed as HLA A*03,-; B*07,35; DRB1*11,13; DQB1*03(7),06; DPB1*04:02,- DPA1*01:03,- received a second transplant from a deceased donor typed as HLA A*01,30; B*18,35; DRB1*11,-; DQB1*03(7),06; DPB1*01:01,04:01; DPA1*01:03,03:01. Antibody screening was performed with One Lambda class II LSA . In the pre-transplant sample it was observed DSA against 84DEAV and 50R epitopes. In a serum sample collected 39 months post-transplant, we identified positivity against: HLA DPB1*03:01/DPA1*02:01; DPB1*11:01/DPA1*02:02; DPB1*01:01/DPA1*02:01; DPB1*09:01/DPA1*02:01; DPB1*05:01/DPA1*02:01; DPB1*17:01/DPA1*02:01; DPB1*14:01/DPA1*02:01; DPB1*10:01/DPA1*02:02; DPB1*06:01/DPA1*02:01; DPB1*13:01/DPA1*02:02; DPB1*05:01/DPA1*02:02; DPB1*13:01/DPA1*02:01. Neither the HLA Matchmaker nor the Terasaki epitope analyses were able to identify the potential epitope responsible for these positivities. Assuming the probable haplotypes as DPB1*04:01/DPA1 *01:03 and DPB1*01:01/DPA1*03:01 we couldn't determine the presence of DSA against HLA DP, because the DPB1*01:01/DPA1*03:01 is not represented in the OneLambda single antigen class II kit. The analysis of the reaction pattern to HLA DPA and DPB epitopes, showed that the reactivity was resctricted to antigens that share the 84DEAV epitope, in the beta chain, and the 50R epitope, in the alpha chain. Considering either the cis, as the trans configuration of the donor's HLA DPB/A, we can concluded for the absence of DSA against HLA DP in the post-transplant sample. This conclusion, based on theoretical evidence, was later confirmed by testing the serum with a class II HLA LSA from another vendor (Immucor) which contained beads with the the donor HLA DP cis/trans configurations.

CONCLUSION: This case illustrates the importance of performing epitope analyses, with attention to potential new reaction patterns and, whenever possible, to complementing the new pattern hypothesis experimentally. Furthermore, the present case emphasizes that the databases of the HLA Matchmaker and Terasaki Epitopes algorithms, widely used in the analysis of antibody reactivity, do not include all the possibilities of existing epitopes, mainly concerning epitopes formed by combinations of polymorphisms in the alpha and beta chains.

FACTORS OF POSITIVE RESPONSE TO DESENSITIZATION IN HSCT RECIPIENTS

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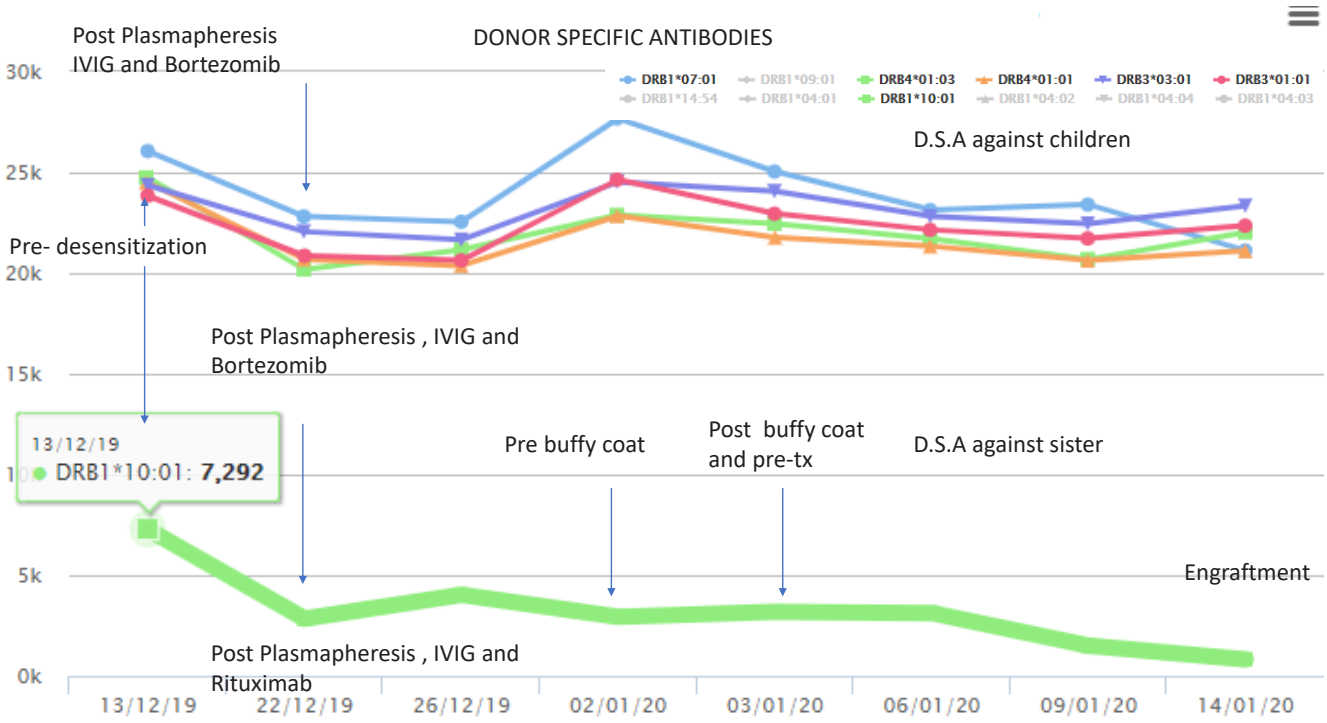
There is growing evidence that the presence of donor specific anti-HLA antibodies (DSA) are associated with enhanced risk of graft failure (GF) in HLA-mismatched allogenic Hematopoietic Stem Cell Transplantation (HSCT). In the absence of a donor without DSA, the patient must be desensitized prior to receiving a transplant from a DSA-positive donor. In particular, high DSA levels and antibodies to HLA-DQ, HLA-DR51/DR52/DR53 are known to lead to a poorer response to desensitization. The fundamental question addressed here is, given a choice between several different potential DSA-positive donors, how can one identify the most appropriate donor with the best chance of achieving a successful desensitization to avoid GF?

The case reported here is that of a 61-year-old female diagnosed with acute myeloid leukemia (AML) who underwent successful haploidentical HSCT after desensitization treatment. The patient and her three children (potential donors 1-3) were genotyped for HLA-A/B/C, HLA-DRB1/DRB3/DRB4/DRB5, HLA-DQB1 and HLA-DPB1 antigens. A One Lambda LABScreen Single Antigen bead assay (Thermo-Fischer Scientific, Canoga Park, CA, USA) for anti-HLA Class I and II antibodies showed that the patient had high levels of DRB3*01:01 (MFI=23971) present in potential donors 1 and 2 and of DRB1*07:01 (26235), DQB1*02:02 (19728) and DR53 (24806)present in potential donor 3. A flow cytometric crossmatch performed with donor 1 was consistent with these results, being negative for T-cells and positive for B-cells (352 with a cutoff of 93). Given the high DSA levels against her children, genotyping of a potential fourth donor, her sibling, revealed the presence of DRB1*10:01 (7422). Because antibody strength tests performed with diluted serum (1:4 and 1:8) indicated a 50% reduction in DR10 antibodies, as compared to less than 20% for the other specific antibodies, her sibling was selected as a more promising donor than potential donors 1-3. Indeed, after 3 cycles of plasmapheresis, intravenous immunoglobulin (IVIG) and rituximab, the DR10 levels of the patient decreased significantly, while those of DR7, DR52, DR53 and DQ2 against the potential donors 1-3 remained high. Infusion of buffy coat on D-1 showed no decrease in the relevant antibody levels and the transplant in early January, 2020, gave positive results for engraftment 15 days later.

This case study highlights the importance of employing antibody titers determined via serial dilution or crossmatch tests, together with avoiding DSA associated with less successful desensitization such as HLA-DQ and DRB3/4/5, as key elements in the selection of the donor with the greatest chance of successful desensitization. The lack of response of the buffy coat infusion to HLA class II antigens also warrants further study of its relationship to efficiency.


Post Plasmapheresis
IVIG and Bortezomib
DONOR SPECIFIC ANTIBODIES
DRB1*07:01
DRB1*09:01
DRB4*01:03
DRB4*01:01
DRB3*03:01
DRB3*01:01
DRB1*14:54
DRB1*04:01
DRB1*10:01
DRB1*04:02
DRB1*04:04
DRB1*04:03
D.S.A against children
30k
25k
20k
15k
5k
0k
Pre- desensitization
Post Plasmapheresis , IVIG and Bortezomib
13/12/19
DRB1*10:01: 7,292
Pre buffy coat
Post buffy coat and pre-tx
D.S.A against sister
Engraftment
Post Plasmapheresis , IVIG and Rituximab
13/12/19
22/12/19
26/12/19
02/01/20
03/01/20
06/01/20
09/01/20
14/01/20

LOSS OF HETEROZYGOSITY IN HLA-B LOCUS IN A PATIENT WITH APLASTIC ANEMIA

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Loss of expression caused by somatic mutations (SM) in HLA genes has been reported in several haematological diseases. Herein we reported the occurrence of SM in an HLA-B gene with loss of heterozygosity in a 48-year-old male patient, diagnosed with aplastic anemia (AA). HLA confirmatory typings were performed by Next Generation Sequencing (NGS) (Omixon, Budapest, Hungary) from peripheral blood sample. In the HLA-B typing a new mutation in exon 1, codon -18.1 (C->T), leading to an amino acid change and a premature stop codon (CGA -> TGA Arg -> STOP) in B*14:02 allele has been observed. In order to confirm whether this new mutation leads to a null allele, serological typing was performed (One Lambda, Thermo Fisher, CA, USA). The results showed that the B14 (serological equivalent B65) molecule was not being expressed on the cell surface. Concomitantly, to correlate the occurrence of the mutation with the disease, HLA-B typing was performed by Sequencing Based Typing (One Lambda, Thermo Fisher, CA, USA) using an oral swab sample. The results suggested that the mutation was not present in this sample, however, due to technical limitations in the analysis of the region where the mutation was found, confirmation was required. Then, a new oral swab sample was tested by NGS (One Lambda, Thermo Fisher, CA, USA) and the mutation was clearly observed again. A possible contamination of this sample with blood was considered as C and T bases, related to B*14:02 normal and mutated allele, respectively, were detected. Additional tests with samples collected at different times of the disease were suggested. Meanwhile, a new peripheral blood sample was sent to another HLA laboratory and the mutation was also confirmed by NGS typing (CareDx, San Francisco, CA). Then, the first DNA sample, used in the initial HLA typing, collected months before the confirmatory typing, was tested by the same laboratory and did not presented the mutation. The result was reported as B*14:02 and the search for an unrelated donor proceeded. The patient continues to search for an unrelated donor and, when possible, further tests will be conducted to investigate the persistence of HLA loss. There are several reports of SM in patients with AA in the literature. The B*14:02 allele was identified as a risk allele for the development of the most severe form of this disease. Furthermore, it is an allele more likely to develop chromosomal abnormalities, such as mutations that lead to loss of heterozygosity. Our results revealed a SM in HLA-B*14:02 allele, which originated a null allele recently named by a third laboratory as B*14:85N. Also, our findings support the hypothesis that this allele is more inclined to suffer SM and HLA loss. Patients with AA carrying this allele must be tested with special attention in order to identify possible alterations in DNA sequence, which may impact the results of HLA typing.

RARE ALLELES DETECTED THROUGHTOUT THE ROUTINE OF HLA TYPING BY NGS

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Recently, the 3.0.0 version of the catalog of common, intermediate and well-documented (CIWD) HLA alleles, that compiled data from more than 8 million individuals, was published. This publication classifies HLA alleles according to their frequencies, in different populations, supporting HLA assignment in cases of ambiguous results. The use of Next Generation Sequencing (NGS) methodology for HLA typing leads to higher frequency of detection of rare alleles compared to lower resolution methodologies. This is due to the fact that NGS allows the complete, or almost complete, sequencing of HLA genes, revealing polymorphisms in regions not usually sequenced by other techniques. The aim of this study was to describe the occurrence of rare alleles, classified according to the CIWD 3.0.0 publication, in 5,280 HLA-A, B, C, DRB1, DQB1, DPB1 typings of Brazilian individuals, performed by NGS, from July 2018 to August 2020. We detected 32 rare alleles in 57 individuals. Fifteen alleles are classified as rare in the CIWD publication (A*02:152, A*02:384, A*02:664, A*24:314, A*24:352, B*08:108, B*15:151, B*35:198, B*35:332, B*40:175, B*51:213, DQB1*04:02:13, DQB1*05:16, DQB1*06:225, DPB1*304:01). The other seventeen alleles (A*02:724, A*11:01:79, A*31:02:02, B*51:113, B*55:102, C*03:29, C*15:02:31, DRB1*13:60, DQB1*03:264, DQB1*03:289, DQB1*06:327, DPB1*650:01, DPB1*652:01, DPB1*706:01, DPB1*762:01, DPB1*834:01, DPB1*902:01) are not listed in the CIWD 3.0.0 catalog because they were identified after the publication (that includes alleles found in IPD-IMGT/HLA version 3.31.0 from January 2018) or they were reported included in a group of ambiguous alleles. Six of the 32 alleles (A*02:152, B*35:198, DRB1*13:60, DQB1*03:264, DQB1*03:289, DQB1*06:327) have already been described in Brazilian individuals. They may become more frequently found in the Brazilian population with the increasing use of sequencing, especially the NGS, for HLA typing. Twenty one of the rare alleles described in this report are included in G and P groups, i.e., they present differences outside the peptide binding site and may be hidden in ambiguous results. Intronic regions were not analyzed. Knowledge of the frequencies of alleles in different populations is important for studies related to solid organ and hematopoietic stem cell transplantation, population studies, disease associations and others. The role of laboratories is essential for the determination of HLA allelic frequencies and data obtained in different regions in the world contribute to better understanding and accuracy in HLA typing.

RELATIONSHIP BETWEEN ANTIBODIES AGAINST AT1R IN PRE-TRANSPLANT SERA AND EVOLUTION OF RENAL TRANSPLANTATION

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INTRODUCTION. Several studies have shown association between antibodies against AT1R (angiotensin II type I receptor) (AT1R-Ab) in pre transplant (Tx) sera and antibody-mediated rejection in kidney transplantation. On the other hand, the relationship between these antibodies and other transplant outcomes, such as cell-mediated rejection, long-term renal function or graft survival is not well established. Aim. The aim of this study was to investigate the relationship between the presence of AT1R-Ab in pre-Tx serum and acute rejection, as well as long-term graft function, death-censored graft survival and patient survival. The recipient age and sex were also analysed in relation to AT1R-Ab.

METHODS. The study included 87 adult recipients of first Tx from deceased donors. The transplants were performed in a single-center, between 2014 and 2016, with negative CDC crossmatch and without HLA- A, B or DR DSA with MFI ≥ 1500. None of the recipients had cPRA ≥80% and 85% of the Tx were performed without HLA-DR incompatibilities. AT1R-Ab levels were determined by ELISA (EIA-AT1RX kit, OneLambda®). There were 17 biopsy proven acute rejections, which were classified as cell-mediated rejections (IA to III Banff scores), and two clinically diagnosed rejections. Graft function was assessed using estimated glomerular filtration rate (eGFR) calculated with the MDRD equation. The survival curves were constructed using Kaplan-Meyer method and compared with Log-Rank test. Kruskal-Wallis and chi-square tests were also used for statistical analyses.

RESULTS. Twenty recipients (23.0%) had AT1R-Ab levels < 10 U/mL, 51 (58.6%), levels of 10 to 16 U/mL, and 16 (18.4%), levels ≥ 17 U/mL. The presence of AT1R-Ab, considering ≥ 10 or ≥ 17 U/mL, did not correlated with recipient age (p=0.45) or sex (p=0.48). The occurrence of acute rejection was not different between recipients without (< 10 U/mL) or with (≥ 10 or ≥ 17 U/mL) AT1R-Ab (p=0.48). In addition, there were no difference among the groups regarding 4-year eGFR (p=0.37), nor 5-year death-censored graft (p=0.10) or patient survivals (p=0.35).

CONCLUSION. The present study did not identify any association between pre-transplant AT1R-Ab and acute cell-mediated rejection, 4-year eGFR, nor 5-year death-censored graft or patient survivals. It is important to note, that no recipient of our cohort presented antibody-mediated rejection, which is the sole outcome that has been, so far, consistently associated with AT1R-Ab.

SIMULTANEOUS LIVER–KIDNEY TRANSPLANT AND HIGH SENSITIZED PATIENTS: WHERE IS THE "SAFE ZONE"?

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INTRODUCTION: Simultaneous Liver–Kidney Transplant (SLKT) is carried out based on the absorptive ability of the liver allograft, also known as "protective phenomenon". However, this phenomenon is not completely understood, and some studies suggest that DSA may be not completely removed, especially in highly sensitized patients.

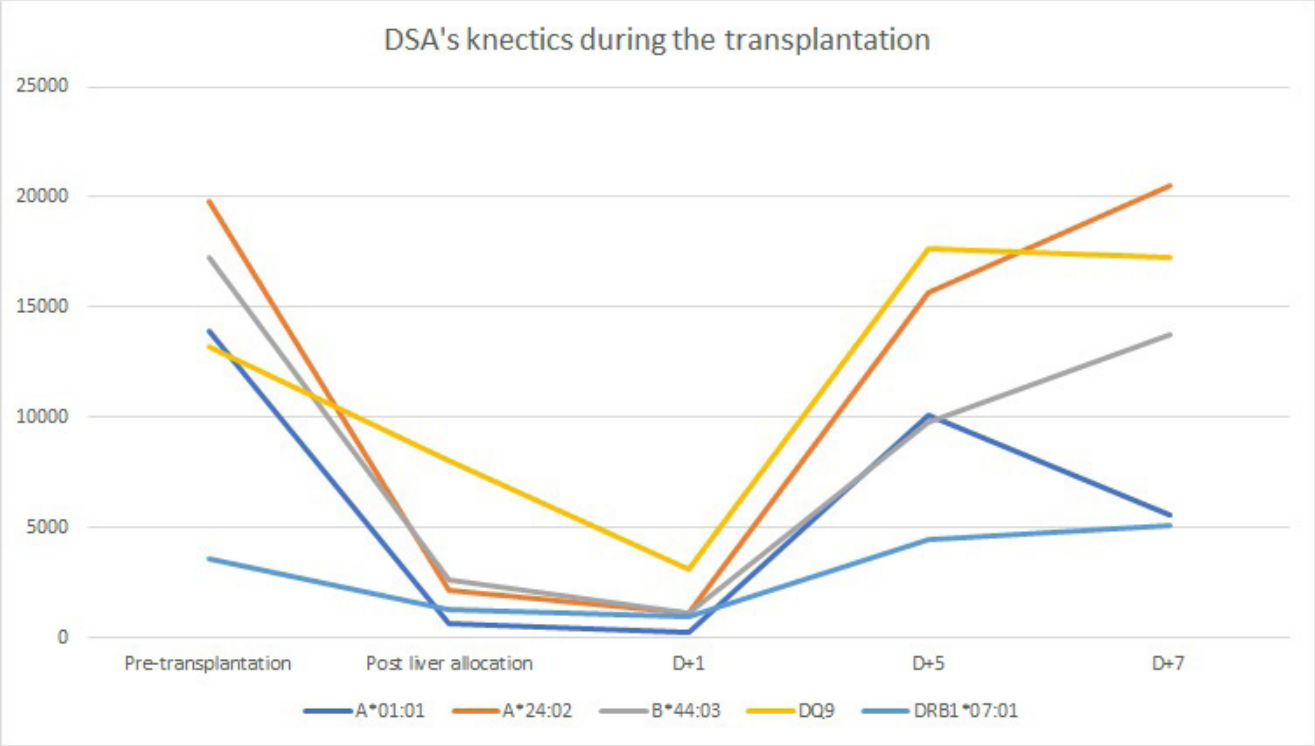
OBJECTIVE: Demonstrate the "protective phenomenon" trough the DSA kinetic of a patient candidate of SLKT.

CASUISTRY: highly sensitized patient, gender male, 20 years old, with 100% calculated PRA, candidate of SLKT. Due to the high DSA levels and the absence of consensus about the capacity of the "protective phenomenon", was decided to not procced with the kidney allocation. Even so, we perform this study to better understand the phenomenon and the DSA's behavior.

METHOD: solid phase assay was performed to measure the MFI DSA levels in the serum pre and post liver transplantation at the days +1, +5 and +7. We also performed complement dependent cytotoxicity assay with serum pre and at day +1 with the serum post liver transplantation.

RESULTS: DSA pre-transplantation levels (A*01:01 MFI=13.897, A*24:02 MFI=19.764, B*44:03 MFI=17.280, DQ9 MFI=13230, DRB1*07: 01 MFI=3.618); DSA levels post liver allocation (A*01: 01 MFI=639, A*24: 02 MFI=2.177, B*44: 03 MFI=2.643, DQ9 MFI=8013, DRB1*07: 01 MFI=1.269), D+1 (A*01: 01 MFI=299, A*24: 02 MFI=1.142, B*44:03 MFI=1.110, DRB1*07:01 MFI=961, DQ9 MFI=3099), D+5 (A*01:01 MFI=10.135, A*24:02 MFI=15.646, B*37:01 MFI=2.671, B*44:03 MFI=9.757, DRB1*07:01 MFI=4.440, DQ9 MFI=17617), D+7 (A*01:01 MFI=5.599, A*24:02 MFI=20.523, B*37:01 MFI=3.204, B*44:03 MFI=13.733, C*05:01 MFI=1.924, DRB1*07:01 MFI=5.107, DQ9 MFI=17240). The CDC assay was positive in the serum pre-transplantation and became negative after liver allocation, we did not perform CDC assay in the following days due to the absence of donor sample. Conclusion: There is few studies about the protective phenomenon, and less showing correlation between the effect and MFI values. Consequently, there is no data to stablish a "safe zone" to proceed for kidney allocation in candidates for SLKT. Our study demonstrated the "protective phenomenon" and add data to the literature to improve allocation decisions for SLKT. In our study, the liver was able to remove DSA in the first days of transplantation but was not able to keep these low levels more than 5 days. Our results also show that the "protective phenomenon" by itself it is not enough to ensure success for all SLKT, especially in highly sensitized patients.

KEYWORDS: Liver, Kindey, Protective Phenomenon


DSA's knectics during the transplantation
25000
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Pre-transplantation
Post liver allocation
D+1
D+5
D+7
A*01:01
A*24:02
B*44:03
DQ9
DRB1*07:01

SOMATIC MUTATION IN THE HLA-B GENE IN A PATIENT WITH T CELL ACUTE LYMPHOBLASTIC LEUKEMIA

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A 56-year old male patient was diagnosed with T cell acute lymphoblastic leukemia in January 2020. In the following month, with the disease in full activity and indication for hematopoietic stem cell transplantation, a sample of the patient`s peripheral blood was sent for HLA typing to initiate the search for a compatible donor. The HLA typing was performed by Next Generation Sequencing (NGS) (Immucor, Norcross, GA, USA) and revealed a new mutation in the HLA-B*81:01 allele, located in exon 2, codon 80 (C->T). This result was confirmed by Sequencing based typing (SBT) (One Lambda, Thermo Fisher, CA, USA). This single nucleotide substitution does not lead to amino acid change (AAT-> AAC) (Asn -> Asn), therefore it is characterized as a synonymous mutation. The result HLA-B*81:01P was sent to the medical team, in order to not impact the search time for a related or unrelated donor, while we waited for the requested new samples for further investigation. A few days later, we received samples from five siblings of this patient for HLA typing. The results of the NGS typing showed that three of them were HLA identical to the recipient, but none of them presented the same mutation in the HLA-B*81:01 allele. The patient received two cycles of chemotherapy and then, in March, new samples of peripheral blood and oral swab were collected. The HLA-B typing of these new samples was performed using SBT and we did not detect the same nucleotide substitution in any of them. These results revealed that the mutation was associated with the disease stage. Several reports in the literature have associated the occurrence of mutations in the HLA genes in hematological diseases with the escape of immune surveillance. In this case, the detected mutation would have no clinical impact, as it is a silent mutation. However, our present report showed that somatic mutation in hematological diseases may interfere with HLA typing accuracy.

VIRTUAL PLATELET CROSSMATCH

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INTRODUCTION: Patients presenting platelet refractoriness usually have undergone several blood transfusions triggering alloimunization to HLA antigens, mainly at Class I. At the Immunology Service of Hospital de Clínicas de Porto Alegre, Flow Citometry Platelet Crossmatch (FCPXM) and Panel-reactive Antibody (PRA) are used to manage refractory patients. The Virtual Crossmatch aims to evaluate compatibility of previously detected alloantibodies against specific donor antigens.

OBJECTIVES: To validate Virtual Crossmatch (VC) as a surrogate of FCPXM when patient presents alloantibodies against certain platelet antigens from donors. The validation of VC would also allow for an optimization of FCPXM technique use with an improvement in resources consumption.

METHODOLOGY: Virtual Crossmatching based on expected compatibility according to platelet donor HLA typing and patient's HLA alloantibody profile, obtained from PRA, were retrospectively compared to FCPXM results performed between January and November 2019. Incompatibility criteria on VC considered as reactive alloantibodies those presenting mean fluorescence intensity (MFI) values higher than 5000. Alloantibodies with MFI values lower than this cutoff were not accounted in this analysis. Results from FCPXM were considered incompatible when the Median Channel Shift (MCS) value was 63 or higher.

RESULTS: A total of 1,725 FCPXM results from crossmatching of 779 apheresis platelets donors and 41 patients presenting definitive or suspected immunological platelet transfusion refractoriness, between January and November of 2019, were available for this analysis. HLA typing was recovered from the 779 selected platelets donors. About 20% had HLA typing in medium resolution, resulting in 305 tests analyzed. Sensitivity value obtained for the VC was 87% and can be defined as the probability of a patient that shows reactivity in PRA, with MFI values above 5000 (considering platelet donor HLA antigens profile) eventually result in an incompatible result in FCPXM (MCS≥63). Other diagnostic tests properties such as specificity, accuracy, positive and negative predictive value could not be evaluated in this validation, since we could not correlate negative Virtual Crossmatch with negative FCPXM, due to countless factors like: HPA, CREG, locus C, interactions with ABO blood antigens, which can produce false positive results in FCPXM, even in the absence of DSA for loci A and B.

CONCLUSION: The sensitivity value found showed that the VC performance was satisfactory and, therefore, it was considered validated for the Immunology Service routine. VC reduces the amount of FCPXM testing, resulting in a time and cost-saving advantage. Furthermore, it also highlights the importance of HLA typing in recurrent platelets donors from HCPA blood bank.

11. LABORATORY PRACTICES

AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION WITHOUT CRYOPRESERVATION IN PATIENTS WITH MULTIPLE MYELOMA: EXPERIENCE OF A SINGLE CENTER

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INTRODUCTION: Multiple myeloma (MM) is one of the most prevalent hematological cancers and still virtually incurable. The last decade has witnessed an unprecedented expansion of the therapeutic arsenal for the treatment of patients with MM. The incorporation of new drugs has enabled significant gains in terms of progression-free survival and overall survival. Even so, first-line treatment consists of chemotherapy and autologous hematopoietic stem cell transplantation (AHSCT) for eligible patients. In order to reduce the costs inherent to hematopoietic stem cell cryopreservation and not to exposure patients to the toxic effects of dimethyl sulfoxide, Oncological Treatment Center and Hematology and Hemotherapy Center of Southern Brazil standardized non-cryopreserved AHSCT in MM patients since November 2018.

OBJECTIVES: To analyze the experience of non-cryopreserved AHSCT in MM patients in our Center.

M**ETHODS:** We conducted a retrospective study evaluating the first year of non-cryopreserved AHSCT at a Transplant Center in Southern Brazil. Patients with the diagnosis of MM, aged 15 years or over, performing the first transplant were selected. Filgrastim was used for mobilization procedures. Poor mobilizers also received Plerixafor. Hematopoietic stem cells were collected by Spectra Optia Apheresis System (Terumo). The apheresis product was kept at 2-6oC, in a maximum concentration of 2x108 total nucleated cells/ml and reinfused up to 48 hours after collection. CD34+ cell viability was measured by 7-AAD cell staining immunophenotypic analysis, through FACS Canto II cytometer (BD Biosciences), in the first 24 hours after collection and immediately before reinfusion. Patients were conditioned with Melphalan 200mg/m2, at a single dose, 24 hours before reinfusion, except those with creatinine clearance below 60ml/min/1,73m2, which received 140mg/m2.

RESULTS: Forty-six eligible MM patients transplanted between November 2018 and December 2019, with an average age of 57 years, 41% male, 74% Durie-Salmon staging system III, were studied. Median CD34+ cell viability was 99,75% after apheresis collection and 98,25% immediately before infusion. Median CD34+ cells infused was 5x106/kg (IQR, 3.37-7.2x106). All patients engrafted, except one, with a median of 10 (IQR, 10-11) and 11 (IQR, 10-11) days for neutrophilic and platetet engrafment, respectively. The incidence of World Health Organization grades 3 and 4 mucositis was 22%. Patients stayed hospitalized for a median of 17 days (IQR, 16-19). The 100-day transplant related mortality was 6,5%.

CONCLUSION: Our results corroborate the safety and efficacy of non-cryopreserved AHSCT in MM patients and encourage the preferential use of this less laborious and time consuming technique.

EVALUATION OF THE DMSO REMOVAL PROCEDURE IN HEMATOLOGICAL PROGENITOR CELLS COLLECTED BY APHERESIS AND CRYOPRESERVED FOR PEDIATRIC AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: Dimethylsulfoxide (DMSO) is a cryoprotectant used in the cryopreservation of hematopoietic progenitor cells (HPC) to ensure the maintenance of cell viability. However, its infusion can be toxic to the recipient, being associated with the development of adverse reactions, ranging from relatively mild symptoms, such as nausea, vomiting, hypo or hypertension, to severe complications, such as allergic, gastrointestinal, cardiovascular, renal and hepatic disorders among others. The maximal recommended dose of DMSO to be infused in one session is 1 g/kg of body weight and, in cases where this limit is exceeded, the product can be washed or be infused over two days. DMSO removal is most often performed in pediatric patients due to low body weight.

OBJECTIVE: To evaluate the manual DMSO removal procedure in cryopreserved HPC obtained from apheresis (HPC (A)) for subsequent infusion.

CASUISTRY: DMSO reduction procedures in HPC (A) were evaluated on 11 oncopediatric patients (1 to 8 years old) submitted to autologous transplantation.

METHOD: Cryopreserved HPC (A) containing 5% DMSO were thawed at 37 to 40°C and the following quality parameters were evaluated: quantification of total nucleated cells (CNT), viable CD45+ cells, viable CD34+ cells, cell viability by 7AAD and Trypan blue. One solution prepared with 5% albumin and 4,5% Voluven® was added to the cell product, allowing a dilution from 1/2 to 1/10. The diluted cell product was centrifuged and the supernatant expressed, leaving a cell concentrated washed product. The same quality parameters were evaluated in a sample of this concentrated product. Microbiological evaluation was also performed on the material after the DMSO removal process. The following criteria were considered satisfactory for the process: average loss of cell viability by 7AAD or Trypan blue less than 20%, average CNT recovery greater than 80%, average recovery of CD34 + and CD45 + cells greater than 70% and negative microbiological evaluation.

RESULTS: When comparing the sample evaluated after the washing process with the sample analyzed after thawing and DMSO pre-reduction, the average, minimum and maximum values found were: CNT recovery: 94.5% (84.8 – 101.6), CD45 + recovery: 84.17% (66.7 - 101.4), CD34 + recovery: 84.5% (62.8 - 109.8), loss of viability by 7AAD: 5.3% (0.0 - 16.4) and loss of viability by Trypan blue: 4.2% (0.0 - 9.7). All samples showed negative results in sterility control for aerobic, anaerobic bacteria and fungi.

CONCLUSION: The results obtained demonstrate that the manual DMSO removal procedure maintained the expected quality for HPC (A), according to the acceptance criteria established by the laboratory.

EVALUATION OF THE INFLUENCE OF CHARACTERISTICS OF HEMATOPOIETIC PROGENITOR CELL UNITS FROM MOBILIZED PERIPHERAL BLOOD IN THE OUTCOME OF BONE MARROW TRANSPLANTATION

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INTRODUCTION: Some variables can affect the functionality of hematopoietic progenitor cells (HPC) and, consequently, the kinetics of hematopoietic recovery after bone marrow transplantation. The aim was to evaluate the influence of characteristics of the cryopreserved HPC units from mobilized peripheral blood on the outcome of autologous transplantation.

METHODS: Data from patients with cryopreserved HCP units from 02/2014 to 12/2019 were retrospectively analyzed. The medical records were reviewed to obtain the following information: sex, age, diagnosis, preapheresis CD34+ count, composition of the cryoprotectant solution (solution 1: DMSO5% HES6% ALBUMINA3% ACD5%; or solution 2: DMSO10 % ALBUMINA4% ACD5%), storage duration, nucleated cells concentration per cryobag, infused CD34+ cell dose, post-thawing viability (tripan blue), conditioning regime and transplant outcome (hematopoietic recovery and time of hospitalization). Continuous variables were expressed as median ± interquartile range and categorical variables as percentages. Multiple linear regression was used to determine the independent effect of each covariate on outcomes. Binary logistic regression was used to analyze the covariables associated with delayed engraftment (> 14 days) and delayed hospitalization [> 18 days (75th percentile)].

RESULTS: the study included 476 patients (55.3% male) aged 4 – 74 years (53 ± 19 years). The most common diagnosis was multiple myeloma (n = 298; 62.6%), followed by lymphoma (n = 149; 31.3%). The median time to WBC, neutrophil and, platelet engraftment was 11 ± 2 days and the time of hospitalization after transplantation was 15 ± 6 days. The linear regression model for time to neutrophil engraftment maintained the CD34+ cell dose and the composition of the cryoprotectant solution (Table 1). The same variables were maintained in models for time to WBC and platelet engraftment. The linear regression model for time of hospitalization maintained the nucleated cells concentration per cryobag (coefficient = 0.010, 95% CI: 0.003 to 0.0017; P = 0.007). Patients who had HPC cryopreserved using solution 2 showed 6 times higher risk (OR = 6.6; 95% CI: 2.2–20.4; P = 0.001) of delayed neutrophil engraftment and 2 times higher (OR = 2.1; 95% CI: 1.3– 3.4; P = 0.002) of delayed hospitalization when compared with patients who had HPC cryopreserved with solution 1.

CONCLUSION: the CD34+ cell dose, the composition of the cryoprotectant solution, and nucleated cells concentration significantly impact the kinetics of hematological recovery and the time of hospitalization after autologous transplantation.

TABLE 1 – Evaluation of the influence of laboratory procedures on time to neutrophil and platelet engraftment after autologous PBSC transplantation

	Time to neutrophil engraftment			
	Univariate analysis		Multivariate analysis	
Variables	Regression Coefficient (95% CI)*	*P* value	Regression Coefficient (95% CI)+	*P* value
Age (years)	-0.004 (-0.016 to 0.008)	0.543		
Sex	0.006 (-0.354 to 0.365)	0.976		
Diagnosis	0.014 (-0.134 to 0.161)	0.856		
Preapheresis CD34+ count (mm^3)	-0.005 (-0.008 to -0.002)	**0.001**		
Time from collection to processing (h)	-0.045 (-0.432 to 0.343)	0.821		
Cell concentration per cryobag (x 10^8 NC/mL)	0.002 (0.001 to 0.004)	**0.003**		
Composition of the cryoprotectant solution (1 or 2)	0.892 (0.477 to 1.307)	**<0.001**	0.949 (0.541 to 1.357)	**<0.001**
Post-thawing cell viability (%)	-0.022 (-0.038 to -0.006)	**0.006**		
Time from freezing and release for transplant (days)	-0.001 (-0.004 to 0.001)	0.273		
Conditioning regimen	-0.002 (-0.058 to 0.055)	0.951		
Infused CD34+ cell dose (x10^6/Kg)	-0.112 (-0.182 to -0.063)	**0.001**	-0.131 (-0.190 to -0.072)	**<0.001**

*Regression coefficient (β) were calculated using simple linear regression model (β); +Regression coefficient (β) were calculated using a multiple linear regression model. Bold values denote statistical significance at the $p < 0.05$ level. CI = confidence interval; h = hour

EVALUATION OF THE INFLUENCE OF LABORATORY CHARACTERISTICS ON POST-THAWING CELL VIABILITY OF HEMATOPOIETIC PROGENITOR CELLS FROM MOBILIZED PERIPHERAL BLOOD

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INTRODUCTION: Although cryopreservation of hematopoietic progenitor cells (HPC) is widely used, there is no worldwide consensus on the best laboratory methods. Many variables can affect the functionality of HPC and, consequently, the kinetics of hematopoietic recovery after infusion. The aim of this study was to evaluate the influence of laboratory characteristics on the post-thawing cell viability of cryopreserved HPC units.

METHODS: Data from patients with HCP cryopreserved units from 02/2014 to 12/2019 were retrospectively analyzed. The medical records stored at our cell processing center were reviewed to obtain the following data: age, sex, diagnosis, preapheresis CD34+ cell count, time from collection to processing, duration of gradual addition of freezing solution, time from addition of cryoprotectant solution to freezing start, composition of the cryoprotect solution (solution 1: DMSO5% HES6% ALBUMINA3% ACD5%; or solution 2: DMSO10% ALBUMINA4% ACD5%), and nucleated cells concentration per cryobag. The post-thawing cell viability of the segment (outcome) was determined by the trypan blue exclusion assay. Continuous variables were expressed as median ± interquartile range. Multiple linear regression was used to determine the independent effect of each covariate on post-thawing cell viability. Binary logistic regression was used to analyze the covariables associated with viability below our reference value (<50%).

RESULTS: the study population consisted of 619 patients (55.7% male) aged 2 to 74 years (53 ± 19 years). The most common diagnosis was multiple myeloma (n = 388; 62.7%), followed by lymphoma (n = 193; 31.2%). The post-thawing cell viability was 71.4% ± 13.7. The post-thawing cell viability of the cryopreserved units using solution 1 and 2 was 73.3% ± 11.7 and 61.8% ± 14.9, respectively (P <0.001). The post-thawing cell viability of cryopreserved units with nucleated cell concentration <3 x108 NC/mL per cryobag, 3–5 x108 and > 5 x108 was 73% ± 14, 71.5% ± 13.4 and 64.9% ± 14.4, respectively (P <0.001). The final linear regression model maintained the preapheresis CD34+ cell count, nucleated cell concentration per cryobag and the composition of the cryoprotectant solution (Table 1). The HPC cryopreserved units using solution 2 showed 4 times higher risk (OR = 4.2; 95% CI: 1.7–10.3; P <0.001) of having viability below 50% when compared to those cryopreserved using solution 1. Conclusion: the mobilization, the nucleated cell concentration per cryobag and the composition of the cryoprotectant solution significantly impact the post-thawing cell viability of HPC cryopreserved units for autologous transplantation.

TABLE 1 – Evaluation of the influence of laboratory procedures on post-thawing cell viability of hematopoietic progenitor cell units

	Linear regression analysis			
	Univariate analysis		Multivariate analysis	
Variables	Regression Coefficient (β)*	P value	Regression Coefficient (β)+	P value
Age (years)	0.031 (-0.023 to 0.084)	0.260		
Sex	-0.697 (-2.301 to 0.907)	0.394		
Diagnosis	-0.389 (-1.006 to 0.229)	0.217		
Preapheresis CD34+ cell count (mm3)g	-0.017 (-0.031 to -0.002)	0.023	-0.019 (-0.032 to -0.006)	0.004
Time from collection to processing (h)	0.556 (-1.122 to 2.233)	0.516		
Cell concentration per cryobag (x 108 NC/mL)	-0.024 (-0.031 to -0.018)	<0.001	-0.017 (-0.024 to -0.009)	<0.001
Composition of the cryoprotectant solution (1 or 2)	-10.881 (-12.701 to -9.060)	<0.001	-9.749 (-11.736 to -7.763)	<0.001
Duration of gradual addition of freezing solution (min)	-0.636 (-1.193 to -0.078)	0.026		
Time from addition of cryoprotectant solution to freezing start (min)	0.224 (0.099 to 0.350)	<0.001		

*Regression coefficient (β) were calculated using simple linear regression model (β); +Regression coefficient (β) were calculated using a multiple linear regression model. Bold values denote statistical significance at the $p < 0.05$ level. h = hour; min = minute.

FLOW CYTOMETRY ASSESSMENT OF CD34+ VIABILITY IN THAWED UNITS

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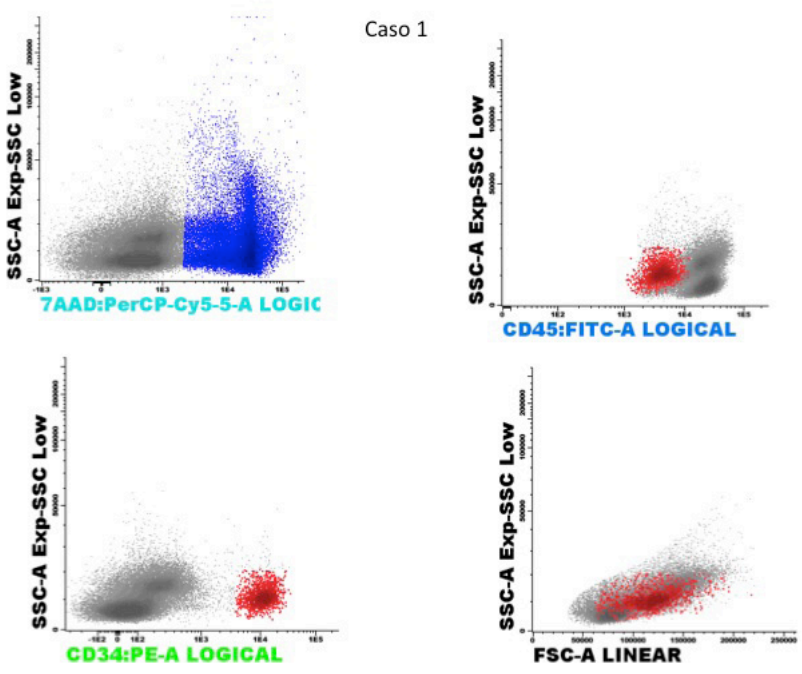
BACKGROUND: The number of CD34+ cells infused into patients at the time of autologous or allogeneic transplantation is a clinically important variable. In peripheral blood (PB) stem cell transplantation, the number of CD34+ cells infused is considered a predictor of haematopoietic engraftment. However, the currently accepted minimal threshold of CD34+ cells/kg was determined by counting CD34+ cells before freezing, and the loss of viable CD34+ cells during freezing, cryopreservation or thawing prior to reinfusion has not been assessed.

MATERIALS AND METHODS: PB were collected using acid citrate dextrose solution A (ACDA) as an anticoagulant. Cryopreservation is the only available method for the long-time maintenance of blood cells. Retrospective analysis of CD34 and viability. We analyzed by flow cytometry 325 samples from 2017 to 2020 (June). Leukocyte, proportions of CD34+ cells enumeration and viability (7AAD) were assessed from the frozen-thawed samples. The flow cytometric was based on The International Society for Hematotherapy and Graft Engineering (ISHAGE) recommendation is to enumerate CD34-positive events and use 7-actinomycin D as a viability marker.

RESULTS: The mean content of the divided apheresis products was 105.79x106/mL leukocytes, 57.97% viable leukocytes, 1.28 x 106/mL CD34+ cells (2.88%) and 84.08% viable CD34+ cells.

CONCLUSIONS: In our study viable CD34 cell assays are the standard quality measure to assess the impact of storage and cryopreservation and an adaptation of both the acquisition setting and the gating strategy is needed in order to detect viable and non-viable CD34+ cells in thawed units.

Bone Marrow Transplantation. 2005: 36, 199–204
British Journal of Haematology. 2016: 175, 771-783
Cytometry Part B (Clinical Cytometry). 2012: 82B:9–17



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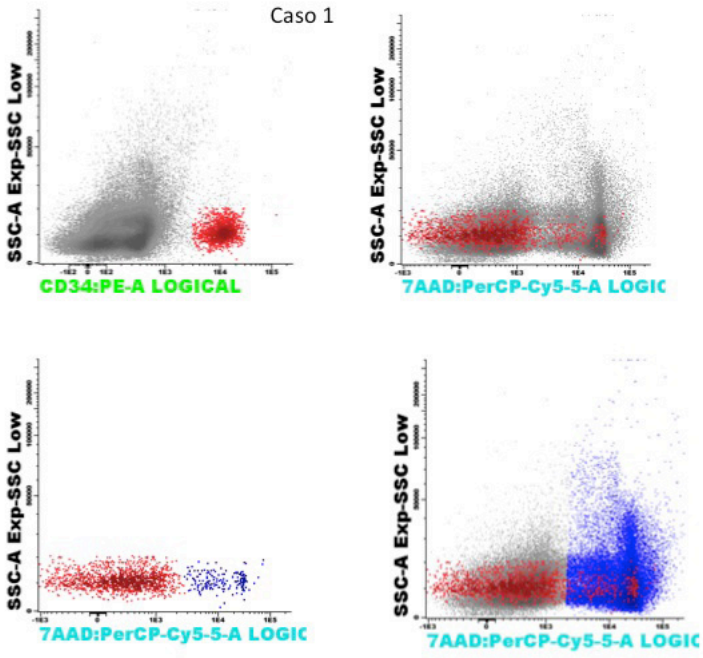

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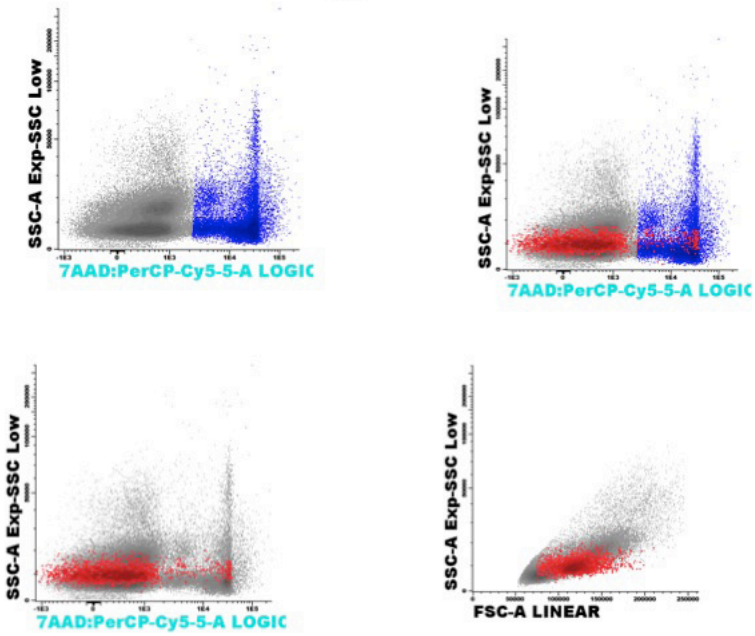

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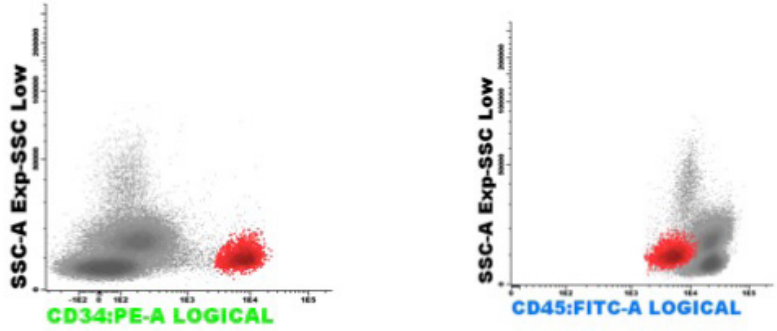

RELEASE CRITERIA FOR CRYOPRESERVED PERIPHERAL BLOOD STEM CELLS FOR AUTOLOGOUS TRANSPLANTATION

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Roberta Kelly de Andrade , Centro de Tecidos Biológicos de Minas Gerais, Fundação Hemominas, Minas Gerais, Brazil, Marcia Regina Issa Salomão Libânio , Centro de Tecidos Biológicos de Minas Gerais, Fundação Hemominas, Minas Gerais, Brazil, André Rolim Belisário , Centro de Tecidos Biológicos de Minas Gerais, Fundação Hemominas, Minas Gerais, Brazil

INTRODUCTION: The Cell Processing Center (CPC) can establish additional requirements for the release of products for therapeutic use. We used to store at least two segments containing 100uL aliquots representative of the product in each bag containing the cryopreserved peripheral blood stem cells (PBSC). Before patient conditioning begins, the units are evaluated with visual inspection and cell viability (trypan blue). The reference value (RV) initially used was 40%. In 2017, we performed a preliminary analysis of our data and determined our RV (mean - 2 standard deviations [SD]). From then on, we carried out additional tests on products that have cell viability lower than our RV. The data found are evaluated by the Medical Director (MD) of the CPC, who, when necessary, contacts the Transplant Center MD who can request the product release on an exceptional basis or opt for its disposal and new collection. Currently, we perform this analysis preferably within 10 days of cryopreservation. If the product is not ordered within 180 days, the tests are repeated at the ordering time. The objective of this work was to evaluate the data related to additional criteria established by our service for the release of cryopreserved PBSC.

MATERIAL AND METHODS: Retrospective evaluation of data obtained between 05/2014 and 12/2019.

RESULTS (mean ± SD): 944 bags collected from 666 patients were received. Of these, 156 were processed in a pool of two consecutive collections, which totalized 788 lots of bags that could be analyzed and 1744 cryopreserved bags. Cell viability was evaluated in 721(91.5%) lots segments with 70.3%±10.9%, which generated a 50% RV. Of the evaluated lots, 20(2.8%) showed cell viability <50%. Of these, in 18(90%), another segment was thawed to assess cell viability by flow cytometry (7AAD) of CD34+ cells (53.3%±26.7%) and CD45+ cells (55.1%±13,6%) and in 12 cases a clonogenic assay was performed with growth of colony forming units in 11 cases. Patients with viability of PBSC units less than 50% had a 12-fold higher risk (OR: 12.3; 95% CI: 3.4 - 43.6; P= 0.001) of having granulocyte grafting after D+14. Likewise, the risk was 7 (OR:6.9; 95% CI:2.4-20.2; P=0.002) and 9 (OR:9.6; 95% CI:2.4- 38.9; P=0.009) times greater than showing platelet and leukocyte graft after D+14, respectively. A macroscopic evaluation of 1593 cryopreserved bags were performed, of which 5(0.31%) presented opening system, 3(0.19%) due to segment breakage and 2(0.13%) due to bag fracture. Another 2 bags showed structures suggestive of small clots.

CONCLUSION: The critical evaluation of products after cryopreservation allows the identification of units with an additional risk of graft failure or that need to be thawed and prepared for use in the laboratory. The procedures adopted in our service are effective to identify PBSC units with the need for additional management before being released for transplantation.

KEY WORDS: Peripheral Blood Stem Cell. Autologous Bone Marrow Transplantation. Graft Manipulation. Cryopreservation.

12. NURSING

DEMAND FOR NURSING CARE IN A PROTECTED ENVIRONMENT UNIT ACCORDING TO THE PEDIATRIC PATIENTS CLASSIFICATION SYSTEM

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INTRODUCTION: The workload assessment using instruments that consider the care profile of the inpatient units for the dimensioning of personnel is necessary. However, studies that analyze the demand for care of pediatric patients undergoing hematopoietic stem cell transplantation (HSCT) are scarce. Aim: To evaluate the workload of the nursing staff in caring for pediatric oncohematological patients undergoing HSCT at the Protected Environment Unit (PEU).

METHOD: This is a cross sectional study carried out at the PEU of Clínicas de Porto Alegre Hospital (HCPA), from May 2019 to February 2020. The sample was patients between 1 and 14 years with HSCT indication. Data collection was performed using the Pediatric Patient Classification Instrument (ICPP), which makes it possible to categorize care into five levels: minimum, intermediate, high dependency, semi-intensive and intensive. This instrument was applied in pediatric patients admitted in UAP during the study period, independently by nurses on the same day in each shift (morning, afternoon and night). The research was approved by the HCPA Ethics Committee (CAAE nº 75091417300005327).

RESULTS: 64 observations were made with the ICPP in 15 patients with a mean age of 6.7 (Standard Deviation - SD - = 5.71) years. The most prevalent diagnosis was Acute Lymphoblastic Leukemia (ALL) in 5 (33%) of the patients. The mean ICPP score in the different shifts was: 23.8 (SD = 3.41) in the morning; 24.2 (SD = 3.79) in the afternoon; and 24.1 (SD = 3.59) in the night, with no significant difference between shifts ($p = 0.262$). The mean of the domains between shifts was similar, with no significant difference (family: $p = 0.079$; patient: $p = 0.662$; therapeutic procedures: $p = 0.105$). The classification of the demand for nursing care for the child and the family in the sample evaluated was between intermediate and high dependence.

CONCLUSIONS: The use of a validated instrument made it possible to categorize the pediatric patients undergoing HSCT demand. The findings of the present study can support in practice the definition of the dimensioning of nursing staff for units that perform HSCT in pediatric patients. The results show similarity in the assessment of dependence degree between shifts in relation to the domains of the ICPP instrument, which made it possible to assess under the perspective of a comprehensive care model, centered on the child and his family.

KEYWORDS: Health Evaluation, Pediatric Nursing, Workload, Hematopoietic Stem Cell Transplantation.

TABLE - Comparison between the domains of classification of pediatric patients in each shift (total observations = 64).

Domains	Shifts			P value*
	Morning	Afternoon	Night	
Family	2,5(0,91)	2,8(1,22)	2,9(1,34)	0,079
Patient	12,9(2,64)	13,0(2,72)	13,0(2,54)	0,662
Procedures Therapeutics	8,3(1,16)	8,5(1,19)	8,2(1,15)	0,105
Total	23,8 (3,41)	24,2(3,79)	24,1(3,59)	0,262

Data presented as mean (standard deviation).
* General Linear Model test (GLM for repeated measurements).

SARS COV-2 INFECTION AND COVID-19 IN HEALTH CARE WORKERS FROM HEMATOPOIETIC STEM CELL TRANSPLANT UNIT: PRELIMINARY RESULTS OF A PROSPECTIVE COHORT STUDY

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Health care workers (HCW) are considered a vulnerable population in the COVID-19 pandemic. In Brazil, 1,034 HCWs were hospitalized due to COVID-19 up to epidemiological week 33, and 226 died (21.8%). HCW can also be the source of infection for the fragile HSCT recipients. We started a prospective study estimating the incidence of SARS CoV-2 infection and COVID-19 in HCW from HSCT unit. Day of inclusion was considered study day-zero (dzero), when nasal washes/swabs and serum samples were taken. The epidemiological risk was assessed by a questionnaire. During follow-up, the participants were surveyed daily for the presence of symptoms. Respiratory samples were taken if symptoms or exposure to a confirmed or suspected case of COVID-19. In case of a positive PCR, the HCW quarantined for 14 days and at least 1 negative PCR test was required to return to work. SARS CoV-2 detection was done by PCR (RealStarÒ SARS-CoV-2, Altona Diagnostics, Germany) and serology was performed monthly by ELISA (Anti-SARS CoV-2 ELISA, Euroimmun Brasil). Survival analysis (Kaplan Meyer) was used to estimate the cumulative probability of SARS CoV-2/COVID-19 (SPSS version 21). From May 13th to Sept 9th, 99 HCW were included, being 88 female, 11 male, median age of 37 (20 – 58) years old and working expertise in HSCT of a median of 5.2 years. Median study follow-up was 121 (1 – 123) days. At dzero, 4 cases of SARS CoV-2 infection were diagnosed by PCR. During follow-up, 6 new cases of COVID-19 were diagnosed at a median of 58 (54-118) days. Nineteen of the 99 subjects (19.2%) reported respiratory symptoms and in 8 PAS (42.1%) COVID-19 was diagnosed by PCR. Sore throat and headache (62.5% each), cough and smell/taste disturbances (37.5% each) and fever (25%) were the most frequently symptoms in COVID-19 cases. In the first serological sampling, specific SARS CoV-2 antibodies were detected in 8 HCW, including 2 individuals who had a positive PCR on dzero. The remaining 6 HCW probably had an underdiagnosed SARS CoV-2 infection before study entry. Seroconversion occurred in the 6 new cases of COVID-19 diagnosed during PCR surveillance. Serology alone did not detect any additional case of SARS CoV-2 infection. In total, 16 HCW acquired SARS CoV-2 infection/COVID-19 from dzero up to d+118 so far. Fourteen cases (87.5%) occurred in nurses (8 cases) and nursing technicians (6 cases). The cumulative probability of SARS CoV-2/COVID-19 was 35.3% up to 123 days of follow-up. 87.5% of the symptomatic and 75% of the asymptomatic HCW developed specific antibodies to SARS CoV-2. No loss of specific antibodies was observed in the first 4 months of the study. The cumulative probability of SARS CoV-2/COVID-19 in HCW was high in this series (35.3%), as well as the rate of asymptomatic cases (50%). Early diagnosis of HCW and medical leave for 14 days can help to prevent the transmission of SARS CoV-2 to HSCT recipients. An effective vaccine and treatment for COVID-19 are urgently needed.

WHEN SHOULD A BMT HEALTH CARE PROVIDER WITH RESPIRATORY SYMPTOMS BE PUT ON ABSENCE OF LEAVE?

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Upper airways infections (UPI) are a one of the most common illness in childhood, however, adults are also frequently affected. Patients who underwent bone marrow transplantation (BMT) can present high morbidity and mortality secondary an UPI due the increased risk of small airways disease progression leading to fatal outcome. Health care providers who work in units specialized in immunocompromised patients should develop strict preemptive strategies in order to avoid patient contamination and outbreaks.

OBJECTIVES: To interpret the results of respiratory viral panels from BMT health care providers exhibiting signs and symptoms of UPI and the necessity to justify absence of leave.

METHODOLOGY: The study design is an ambispective cohort on BMT health care professionals exhibiting signs and symptoms of upper airways infection. We used a convenience sample of 17 subjects from November 2017 to November 2019. The respiratory viral panels were collected from a nasal swab and analyzed by polymerase chain reaction.

RESULTS: 17 subjects were responsible for 22 events in the 2 years study period spam. 20/22 presented with a positive result. Rhinovirus was the most frequent identified virus, accounting for 33% of the positive cases. None case of Influenza H1N1 was seen in this cohort. 91% of the health care providers were put in absence of leave and the time table to return to work was variable, ranging from up to 4 days for 11/17 of the subjects and more than 5 days for 45% of them. 19 subjects were nurses and 3 from the multidisciplinary team.

DISCUSSION: Rhinovirus being our most common respiratory virus corroborates with most of the studies already published. The virus is perennial through the entire year and frequently found in the general population. The absence of Influenza H1N1 findings must correlate with the massive national vaccination campaigns in the past 3 years when our study population achieved a 93% vaccine coverage. Regarding the time for the absence of leave, almost half of the health care providers required more than 5 days of leave and this impacted the nursed work flow. Due the increased risk of exposure, the nurses were the most affected pointing the need for immediate absence of leave of symptomatic professionals even those with mild symptoms.

CONCLUSION: Our finding of a very high incidence of positive results in the tested subjects (90%), the absence of leave seems to be a very effective strategy to minimize the risk of transmission to immunocompromised patients and to prevent outbreaks in a BMT unit. However, the impact of the absences may cause increase in the workload and can't be underestimated as a risk for the direct patient care.

KEYWORDS: hematopoietic stem cell transplantation. Nursing. respiratory viral.

YELLOW FEVER VACCINATION COVERAGE IN BONE MARROW TRANSPLANT RECIPIENTS

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INTRODUCTION: Yellow Fever (YF) vaccine is free and has been recommended for people who live in the endemic areas, such as the State of Minas Gerais. Thus, the patient bone marrow transplantation (BMT) in endemic regions can be immunized against yellow fever after assessment of the center transplantation..

OBJECTIVE: learn about the vaccination coverage and the clinical and demographic characteristics of the immunized against YF in transplanting bone marrow.

CASUISTRY: retrospectively analyzed 244 nurse's records of the attended patient in the appointment after BMT.

METHODS: cross-sectional study realized in public hospitals in the period 2016/January to 2018/June. The data extraction occurred by structured scripts that collection the demographic characteristics (sex and age) and clinical characteristics (BMT type, BMT after time, vaccine card present and vaccine against YF note). Microsoft Office Excel® and SPSS version 19.0 were the softwares used for tabulation and data analysis. Descriptive analysis of the sample was performed using appropriate statistics for interval or continuous variables. Thus, dispersion measures were presented, the median, the values (minimum and maximum) of the distributions were also obtained. For categorical variables, absolute numbers and proportions were presented in each category.

RESULTS: 244 patients were analyzed, 149 (61,1%) vaccine cards were present and 52 (21,3%) were immunized against YF. Between immunization people 27(51,9%) were male and 25 (48,1%) were female. In relation the BMT of type 49 (94,2%) were allogeneic transplant related and 3 (5,7%) not related. Observed that age median of the immunized were 43 years, (range 2 to 79 years), of which 6 (11,5%) comprise 0 to 17 years, 7 (13,5%) 18 to 30 years, 30 (57,7%) 31 to 60 years and 9 (17,3%) under 61 years. Relation to BMT after time recognized median were 12 years (range 0 to 23 years), of which 17 (32,7%) were 3 to 10 years, 29 (55,8%) 11 to 20 years and 6 (11,5%) 21 to 30 years.

CONCLUSION: the study evidenced low vaccination coverage against YF patients transplanting bone marrow, mainly for those lived in endemic areas. Among those immunized against AF, there was homogeneity between the sexes, predominantly for the age group between 31 and 60 years old and who had a post-transplant time of 11 to 20 years.

KEYWORDS: Vaccination, Vaccination coverage, Yellow fever, Bone marrow transplantation.

TABLE 1 - Distribution of demographic and clinical characteristics of bone marrow transplant patients related to immunization against Yellow Fever

VARIABLES	Categories	SAMPLE		Got vaccinated against yellow fever	
		n (%) 244(100,0)	Median (Mín – Máx)*	n=52	100,0%
Sex	Female	116(47,5)		25	48,1
	Male	128(52,5)		27	51,9
Ages Group (years)	0 to 17	30(12,3)	43 (2 – 79)	6	11,5
	18 to 30	47(19,3)		7	13,5
	31 to 60	141(57,8)		30	57,7
	Under 61	26(10,7)		9	17,3
Type of BMT**	Related allogeneic	227(93,0)		49	94,2
	Non-related allogeneic	17(7,0)		3	5,7
Time post BMT (years)	0 to 2	42(17,2)	12 (0 – 23)	0	-
	3 to 10	66(27,0)		17	32,7
	11 to 20	123(50,4)		29	55,8
	21 to 30	13(5,3)		6	11,5
Vaccination card	Yes	149(61,1)		52	100,0
	No	95(38,9)		0	-
Got vaccinated against yellow fever	Yes	52(21,3)		-	-
	No	192(78,7)		-	-

Legend: (Mín – Máx)*; Minimum and Maximum / BMT**; Bone Marrow Transplant
Source: Prepared by authors

E-PÔSTERES

1. ADULT TRANSPLANT

ALLOGENEIC

ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN APLASIA AS RESCUE OF REFRACTORY ACUTE MYELOID LEUKEMIA TO FIVE THERAPEUTIC LINES: CASE REPORT

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INTRODUCTION: Allogeneic hematopoietic stem cell transplantation (allo-SCT) is the best treatment for patients with relapse or refractory acute myeloid leucemia (AML). Despite current advances in the treatment of AML, many patients are refractory to chemotherapy or new therapies. Allo-HSCT is the only treatment that can provide better long-term disease-free survival (SLD) and cure for these patients.

CASE: Male patient, 31 years old with the diagnosis of AML in April 2018. Karyotype 45X,-Y, t(8;21)(q22;q22)/45,idem,del(2)(p24),del(2)(q33)[18]. FLT3-ITD, BCR-ABL, NPM1 and CEBPA negatives. He underwent chemotherapy induction with daunorubicin and cytarabine followed by consolidation with three cycles of high dose cytarabine. After 9 months he relapsed. We performed rescue therapy with fludarabine, cytarabine and daunorubicin, the patient presented no response to the treatment. We performed new rescue therapy with mitoxantrone, etoposide and cytarabine, however, the patient remained with refractory disease after 2 cycles. After the fourth therapeutic line with, venetoclax and azacytidine, the patient remained without response to therapy. We started new rescue therapy with topotecan, cytarabine and venetoclax, at day +14 the patient maintain 20% of blasts in the boné marrow. The patient underwnt allo-SCT with an unrelated donor (HLA 12X12), the conditioning regime was busulfan 9,6mg/kg and fludarabine 150mg/m^2, the graft versus host disease (GVHD) prophylaxis were cyclosporine and cyclophosphamide after transplant. Infusion of CD34+ 8,4 x 106/kg peripheral blood source. Neutrophilic and platelet engraftment were on D+15. The minimal residual disease (MRD) on day +19 was negative and chimerism was 100%. On day +29, the patient presented cutaneous acute GVHD grade 2 ((MAGIC I and IBMTR B). The patient achieved complete hematologic response of acute GVHD after 4 weeks of topical corticosteroid treatment. After 6 months, the patient remains MRD negative and chimerism 100%.

DISCUSSION: Overall survival and SLD after allo-SCT in patients refractory AML are related to variables present before transplantation one of the main ones is the number of cycles of chemotherapy and blasts (greater than or equal 25%) before the allo-SCT. Knowledge of these variables is importante to identify patients refractory AML who will benefit from the transplant, providing better outcomes. Therefore, being the allo-SCT a rescue alternative in refractory AML to multiple treatment lines, including refractoriness to target drugs, as an inhibitor of BCL-2.

CONCLUSION: This case reinforces the importance of allo-SCT as rescue therapy in a patient with relapsed and refractory AML, even in the era of target therapies.

ANALYSIS OF HOSPITAL READMISSIONS IN PATIENTS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION ON THE TRANSPLANT CENTER IN BRAZIL SOUTH

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INTRODUCTION: Hematopoietic Stem Cell Transplantation (HSCT) is a curative treatment for many people with malignant and non-malignant hematological diseases, as well as hereditary and immunological diseases. It is a procedure that presents a high risk of mortality, where the patient is submitted to a conditioning regime with high dose chemotherapy, including or not radiation therapy. The hospitalization is usually long and readmissions are frequent. Recent studies suggest that hospital readmissions are an important indicator of quality of care because they reflect the impact of hospital care on the condition of the patient after discharge. The knowledge of the main causes of hospital readmissions can help in planning the care that will be required after discharge in order to avoid an unscheduled readmission.

OBJECTIVES: To describe the hospital readmissions of patients after HSCT in the period from 2015 to 2019. Case series: All patients who underwent HSCT in the period between 2015 and 2019 were included.

METHOD: It is a descriptive cross-sectional study. The data collection was performed by consulting the electronic medical record. The data were coded, tabulated and analyzed using Microsoft Windows Excel. For the analysis of readmissions, those that lasted less than 24 hours and hospitalizations in Hospital Dia(day hospital) were excluded. The data were analyzed using descriptive statistics with the presentation of absolute and relative frequencies.

RESULTS: It was analyzed 175 hospitalizations of 168 patients. The median age among patients was 14 years (0-64). The most patients (62%) had at least one readmission after the transplant, and those who had none, 14%. The patients who died during the hospitalization of the transplant were 22%. About the reasons for readmissions, signs or symptoms of infection (60%), followed by Graft Disease Against the Acute Host (GVHD) with 9% of cases were most frequently. Of these patients who were readmissions, 36% died. These were caused by complications related to the relapse (44%) and infections (31%) in the majority.

CONCLUSION: The most of patients undergoing HSCT had at least one readmission, and the most frequent cause is some sign or symptom of infection. Multidisciplinary team work is very important and the patient education had to occur throughout the hospitalization of the transplant, this can avoid unnecessary readmissions, and it can worsen the psychosocial stress of the patient and family, who they have already come from a prolonged hospitalization. It should also be noted that further studies on this topic are needed.

CASE REPORT: EWING SARCOMA AS SECONDARY NEOPLASIA AFTER ALLOGENIC BONE MARROW TRANSPLANTATION IN ACUTE MYELOID LEUKEMIA

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KEYWORDS: Ewing's sarcoma, bone marrow transplant, secondary neoplasia.

INTRODUCTION: Ewing's sarcoma (ES) is an aggressive tumor of bones (80%) and soft tissues (20%) that affects children and young adults aged 10 to 30 years, with an incidence of about 1/1,000,000, male to female ratio being 1,5:1(1,2,3). The most common molecular alteration is translocation t (11; 22) (q24; q12), with fusion of the EWS-FLI1 gene (4). ES is rare as a secondary neoplasm for hematological malignancies (2, 5, 6).

OBJECTIVE: To describe a case of secondary ES in a patient after allogeneic transplantation due to acute myeloid leukemia (AML) and perform a brief review of the literature published in Pubmed of secondary SE after hematological neoplasia.

CASE REPORT: Male, 24 years old, diagnosed with AML intermediate risk, karyotype t (2; 16), treated with 3+7 induction protocol and two consolidations with cytarabine. He reached negative measurable residual disease (MRD) and was submitted to a related allogeneic hematopoietic cell transplantation (HSCT), conditioning with fludarabine, busulfan and thymoglobulin. He had an early relapse at 4 months with 9% MRD and mixed chimerism, being re-induced with a FLAG protocol, followed by three lymphocyte infusion (DLI), with complete response. He developed chronic graft versus host disease (GVHD) treated with corticosteroids and sirolimus. One year and 7 months after HSCT on a regular follow-up, a rapidly growing and progressive cervical mass emerged. Tomographic image demonstrated extensive infiltrative mass in soft tissues and bilateral cervical muscles, eroding bony structures of the face and infiltrating the rhinopharynx, with supra and infradiaphragmatic cervical lymph node enlargement and mediastinal conglomerate. Normal blood count and histopathology showed cervical biopsy of small, round and blue cell neoplasia, infiltrating muscle tissue. Positive immunohistochemistry for markers CD56, CD99, FLI-1, S100 and Ki67 90%, compatible with Ewing's Sarcoma.

DISCUSSION: The increase in the incidence of secondary neoplasia after previous chemo and/or radiotherapy treatment is well described compared to the general population. However, there are few reports on ES secondary to hematological neoplasia. The first case was described by Meadows et al. in 1977, an ES secondary to acute lymphoid leukemia (ALL) (7). The largest series of cases was published by Applebaum et al., that evaluated the database of the US National Cancer Institute between 1973 and 2008. It identified 58 cases of secondary ES (2.1% of ES cases), which 24% (14/58) cases of hematological neoplasms that preceded the ES. The overall 5-year survival was lower in the secondary ES compared to the primary (34.3% vs. 52.2%; p = 0.002) (8). ALL is the primary neoplasm that most precedes the ES and there are only 2 reports after myeloid neoplasia.

CONCLUSION: In summary, the diagnosis of secondary ES should be taken into account in young adults undergoing chemotherapy and bone marrow transplantation.

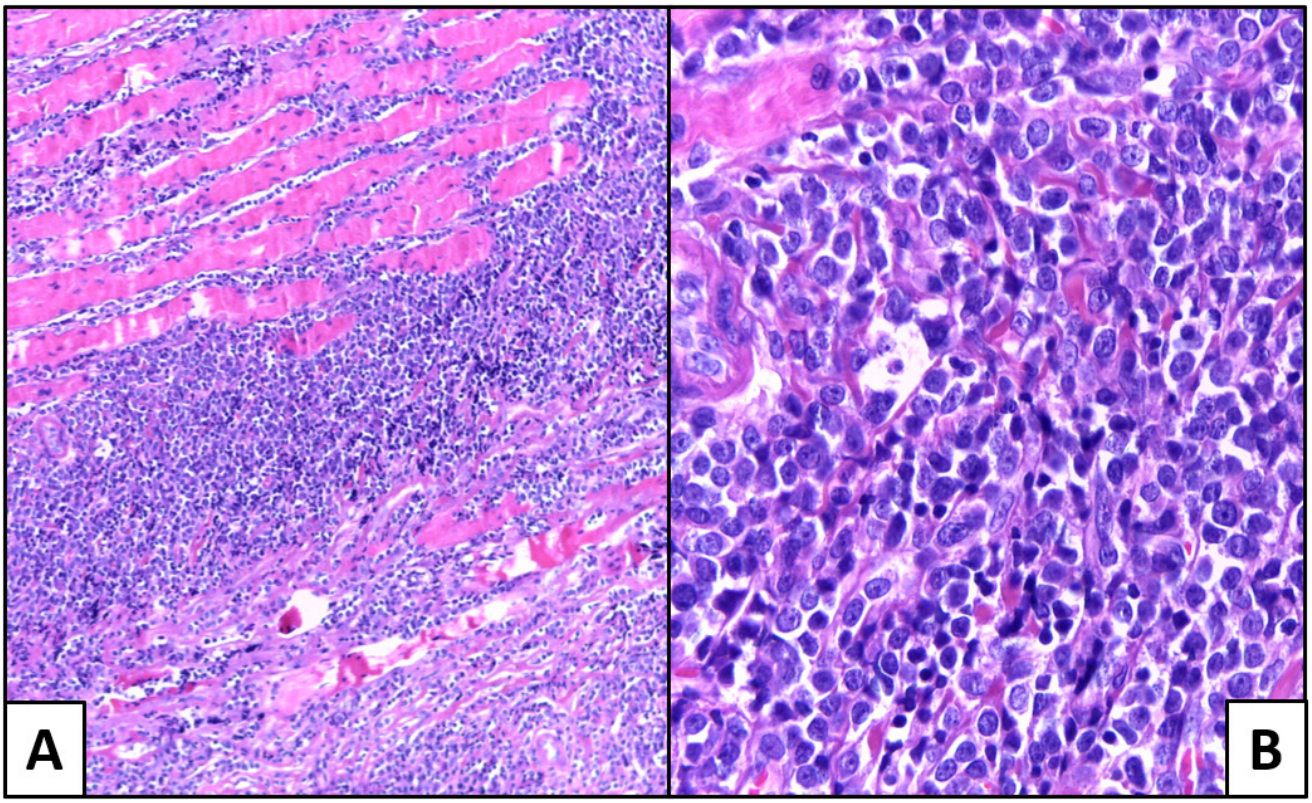

Image 1: Histological sections show neoplasia infiltrating the striated skeletal muscle tissue, arranged in diffuse sheets, composed of small cells, sparse cytoplasm and spherical, hyperchromatic nuclei, with small nucleoli (Hematoxylin-Eosin; A- 100x; B- 400x).

Image 2: The neoplasia cells exhibit diffuse positivity for FLI1 (A) and CD99 (B), confirming the diagnosis of Ewing's Sarcoma (400x).

REFERÊNCIAS

1 N. Esiashvili, M. Goodman, and R. B. Marcus Jr., "Changes in incidence and survival of Ewing sarcoma patients over the past 3 decades: surveillance epidemiology and end results data," Journal of Pediatric Hematology/Oncology, vol. 30, no. 6, pp. 425–430, 2008.

2 M. A. Applebaum, J. Worch, K. K. Matthay et al., "Clinical features and outcomes in patients with extraskeletal Ewing sarcoma," Cancer, vol. 117, no. 13, pp. 3027–3032, 2011.

3 N. J. Balamuth and R. B. Womer, "Ewing's sarcoma,"The Lancet Oncology, vol. 11, no. 2, pp. 184–192, 2010.

4 E. de Alava, L. S. Lessnik, and P. H. Sorensen, "Ewing sarcoma," in WHO Classification of Tumours of Soft Tissue and Bone, C. D. M. Fletcher, J. A. Bridge, P. C. W. Hogendoorn, and F. Mertens, Eds., pp. 305–309, IARC, Lyon, France, 2013.

5 N. Hiramoto, Y. Kobayashi, J. Nomoto et al., "Ewing sarcoma arising after treatment of diffuse large B-cell lymphoma," Japanese Journal of Clinical Oncology, vol. 43, no. 4, pp. 417–421, 2013.

6 N. Vanhapiha, S. Knuutila, K. Vettenranta, and O. Lohi, "Burkitt lymphoma and Ewing sarcoma in a child with Williams syndrome," Pediatric Blood and Cancer, vol. 61, no. 10, pp. 1877– 1879, 2014.

7 A. T. Meadows, G. J. D'Angio, V. Mike et al., "Patterns of second malignant neoplasms in children," Cancer, vol. 40, supplement 4, pp. 1903–1911, 1977.

8 M. A. Applebaum, R. Goldsby, J. Neuhaus, and S. G. DuBois, "Clinical features and outcomes in patients with secondary Ewing sarcoma," Pediatric Blood and Cancer, vol. 60, no. 4, pp. 611–615, 2013.

CASE REPORT: USE OF POST-TRANSPLANTATION CYCLOPHOSPHAMIDE IN HLA-IDENTICAL SIBLING DONOR HEMATOPOIETIC CELL TRANSPLANTATION FOR AN ADULT PATIENT WITH A PRIMARY IMMUNODEFICIENCY

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INTRODUCTION: The use of post-transplant cyclophosphamide (PTCy) after allogeneic hematopoietic cell transplantation (Allo-HCT) can mitigate human leukocyte antigen (HLA) barrier related complications in the setting of haploidentical HCT (HaploHCT), namely Graft-versus-Host Disease (GVHD) and graft rejection. Recent studies show encouraging results with PTCy-based GVHD prophylaxis in the setting of HLA-matched related and unrelated donors. PTCy offers opportunity to promote durable engraftment, achieve low rates of GVHD and transplant-related mortality, foster robust immune reconstitution, and shorten the duration of additional immunosuppression required to prevent GVHD. All these potential benefits are yet to be explored in primary immunodeficiencies (PID).

OBJECTIVE: Report a case of an HLA-identical sibling Allo-HCT using PTCy-based GVHD prophylaxis with curative intent in an adult patient with a PID.

METHODS: We retrospectively reviewed the patient's medical records.

RESULTS: A 30-year-old woman referred to Allo-HCT evaluation by the immunology department with a diagnosis of nonsevere combined immunodeficiency (nSCID) after a 6-year history of recurrent disabling vulvovaginal papillomatosis and previous grade 3 cervical intraepithelial neoplasia. A genetic panel for SCID found two mutations without defined pathogenic significance. The pretransplant immune evaluation showed absent B-cells and marked reduction in T-cells counts, especially naive CD4+. She was submitted to a bone marrow HLA-identical Allo-HCT from her brother. She was conditioned with Fludarabine 150mg/m^2 and Melphalan 140mg/m^2, and the total nucleated cell dose infused was 2.72 x 108/Kg of the receptor's body weight. GVHD prophylaxis was comprised of Cy 50mg/Kg on days +3 and +4, and Cyclosporine A (CyA) and Mycophenolate Mofetil (MMF) starting on day +5. The patient achieved neutrophil and platelet engraftment on days +18 and +21, respectively. MMF was discontinued on day +35. After engraftment, she presented a single cytomegalovirus reactivation on day +45 treated with preemptive valganciclovir. On day +107, owing to poor adherence to CyA, she developed grade II acute GVHD of the skin and the gastrointestinal tract, which promptly responded to systemic prednisolone and education. After the transplant, the patient evolved to sustained mixed chimerism with around 50% donor chimera. Immune reconstitution analysis showed complete restoration of B-cells and a significant increase in T-cells counts, especially CD8+. On the last follow-up, the patients had completed 15 months of transplantation, was still taking CyA, and presented a complete resolution of previous viral mucocutaneous lesions.

CONCLUSION: Here, we have described our experience with a single case of HCT with PTCy for the treatment of an adult with nSCID. Prospective studies are underway to address the role of PTCy in HLA-matched HCT for PID.

CHRONIC GRAFT VERSUS HOST DISEASE PRESENTING AFTER ACUTE ADENOVIRUS INFECTION - CASE REPORT

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INTRODUCTION: Graft versus host disease (GVHD) remains the most common cause of transplant related mortality. Classic risk factors include older age, HLA mismatch and type of conditioning regimen. Infections have also been linked to GVHD development, but the physiopathological aspects are not well described. Here we show a patient with striking temporal connection between acute adenovirus infection and chronic GVHD overture.

OBJECTIVES: Case report of chronic GVHD development following acute adenovirus infection, literature review and discussion.

METHODS : Retrospective analysis of the patient's medical records.

RESULTS: 57-year-old male, with high risk AML had a matched related bone marrow transplantation, without serious complications and no signs of GVHD. Five months after the procedure, minimal residual disease (MRD) was positive. A protocol with azacytidine and donor lymphocytes infusion (DLI) was started, consisting of 6 cycles of azacytidine 75mg/m2 and DLI on cycles 2, 4 and 6, with escalating doses of 1x10e6, 1x10e7 and 1x10e8 CD3/kg. After the first cycle, bone marrow became MRD negative. He finished the protocol with only mild oral lichen planus. Two months after protocol's end, the patient experienced upper respiratory symptoms and hepatitis, with ALT 12x the upper limit. Ten days after the beginning of symptoms, he developed hemorrhagic cystitis and needed hospitalization for bladder irrigation. Nasal secretion and blood PCRs were negative, but urine PCR came back positive for adenovirus. He was later discharged with mild urinary symptoms. Liver enzymes were 3x upper limit. However, on follow up appointment, the liver enzymes spiked again, and the patient developed generalized pruritus that did not respond to oral treatment. Oral lichen became extensive and symptomatic. A chronic GVHD diagnosis was made. The patient was started on steroids, but responded poorly. Second line treatment with ibrutinib lead to good clinical response.

CONCLUSION: Development of chronic GVHD relies on previous tissue damage and inflammation, which enhance macrophage and dendritic cells antigen presenting functions and T lymphocytes priming and activation. Thymus dysfunction and inappropriate regulatory T cells reconstitution lead to impaired central and peripheral tolerance, respectively. Finally, alloreactive B cells may escape peripheral elimination and produce autoantibodies that contribute to chronic tissue damage. Viral infections have been implicated in autoimmunity through multiple mechanisms including molecular mimicry, epitope spreading, bystander activation, and immortalization of infected B cells. Therefore, it is reasonable to hypothesize that the acute inflammation with extensive liver damage generated by the viral infection lead to immune activation and tolerance rupture in our patient, playing a defining role in chronic GVHD development.

CHRONIC GRAFT-VERSUS-HOST DISEASE-ASSOCIATED SEROSITIS: CASE REPORTS OF A RARE AND CHALLENGING POST-HEMATOPOIETIC CELL TRANSPLANTATION COMPLICATION

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INTRODUCTION: Serositis, a rare manifestation of chronic Graft-versus-Host Disease (cGVHD), is known to be difficult to treat, and its outcome is generally very poor.

OBJECTIVE: Here we describe our experience with adult patients treated for cGVHD-associated serositis.

PATIENTS AND METHODS: We retrospectively reviewed records of three consecutive patients with this condition at our institution.

RESULTS: P1:A 38-year-old man with a 4-week history of dyspnea, increased abdominal girth and pain, early satiety, and edema of the scrota and lower limbs. He was 81 months after allogeneic peripheral blood hematopoietic cell transplantation (Allo-PBHCT) from a matched related donor (MRD). He had a previous history of skin cGVHD and was in complete response (CR) 4 years without immunosuppression (IS). Clinical investigation revealed bilateral pleural effusions, gross ascites, constrictive pericarditis, and elevated liver enzymes. P2: A 34-year-old woman, who was 59 months after a second MRD-AlloPBHCT, presented a 2-week history of intense diffuse abdominal pain and swelling, and weight loss. She had an active multiorgan severe cGVHD in partial response (PR) receiving methotrexate with no recent dose changes. Initial evaluation showed large ascites and increased liver enzymes. P3: A 60-year-old man with a 3-week history of bilateral symmetrical upper limbs and periorbital edema, and diffuse abdominal swelling. He was 14 months after MRD-Allo-PBHCT and had a history of a grade 2 acute GVHD and an overlap mouth and liver moderate cGVHD, which were in CR while we were gradually tapering oral cyclosporine. Gross ascites and increased liver enzymes were also found. None of the patients had significant hypoalbuminemia or evidence of serosal involvement with a malignant or infectious process. Additional evaluation was negative for liver dysfunction, portal hypertension, and hepatic and portal veins thrombosis. P1's pleural biopsy showed marked polyclonal lymphoplasmacytic infiltrate. All patients had signs of cGVHD in liver biopsy, whereas P2 also showed hemosiderosis. All patients received diuretics, prednisolone, and steroid-sparing agents. P1 and P2 presented transient PR. P1 received sequential mycophenolate mofetil (MMF), rituximab (R), total lymphoid irradiation, and sirolimus, but died after 19 months due to an abdominal infection. P2 received sequential MMF, R, and sirolimus, but succumbed to a respiratory infection after 16 months. P3 received MMF, achieved a CR, and is alive after 6 months of follow-up without diuretics and <0.5mg/kg/day of prednisolone.

CONCLUSIONS: The emergence of serositis in association with other cGVHD features and its response to intense IS, although poorly understood, reinforce the pathophysiological relationship with cGVHD. All three patients were transplanted with peripheral blood cells, which is associated with a higher incidence of cGVHD. Our experience shows a variable and potentially dismal prognosis. Further studies are needed to better understand and treat this condition.

	Patient 1	Patient 2	Patient 3
Sex/Age	M / 38	F / 34	M / 60
Hematological Disease	ALL	1st HCT: DBA 2nd HCT: sAML	sAML
Donor	HLA-identical brother	HLA-identical sister	HLA-identical brother
PB CD34+ Cell Dose/Kg	6,74 x 10^6	8,2 x 10^6	6,79 x 10^6
Conditioning regimen	CyTBI	Modified FLAMSA+Mel140	Bu2FluTBI
GVHD prophylaxis	CyA + MTX	CyA + MTX	CyA + MTX
Involved serosa	Pleura, peritoneum and pericardium	Peritoneum	Peritoneum
Serum Albumin (3.4-4.8g/dL)	4.4g/dL	3.4g/dL	3.3g/dL
Effusion characteristics and serosa biopsy	Pleural: exudate; marked lymphoplasmacytic infiltrate Ascites: transudate	Ascites: transudate	Ascites: transudate
WBC differential	Monocytosis	Eosinophilia and monocytosis	Eosinophilia, monocytosis, and lymphocytosis (LGL-T)
Rheumatologic serologic tests	ANA 1:80 Nuclear fine speckled	ANA 1:160 Nuclear fine speckled	ANA 1:160 NuMA-like

ALL: acute lymphoblastic leukemia; DBA: Diamond-Blackfan anemia; sAML: secondary acute myeloid leukemia; HLA: human leukocyte antigen; CyTBI: cyclophosphamide 120mg/Kg + Total Body Irradiation 12Gy; Mel140: Melphalan 140mg/m^2; Bu2FluTBI: Busulfan 6,4mg/Kg + Fludarabine 150mg/m^2 + TBI 4Gy; CyA: cyclosporine A; MTX: methotrexate; WBC: white blood cells; LGL-T: T-cell Large Granular Leukemia; ANA: antinuclear antibody; NuMA: nuclear mitotic apparatus.

CRUSTED SCABIES IN PATIENT WITH CHRONIC GRAFT-VERSUS-HOST DISEASE - CASE REPORT

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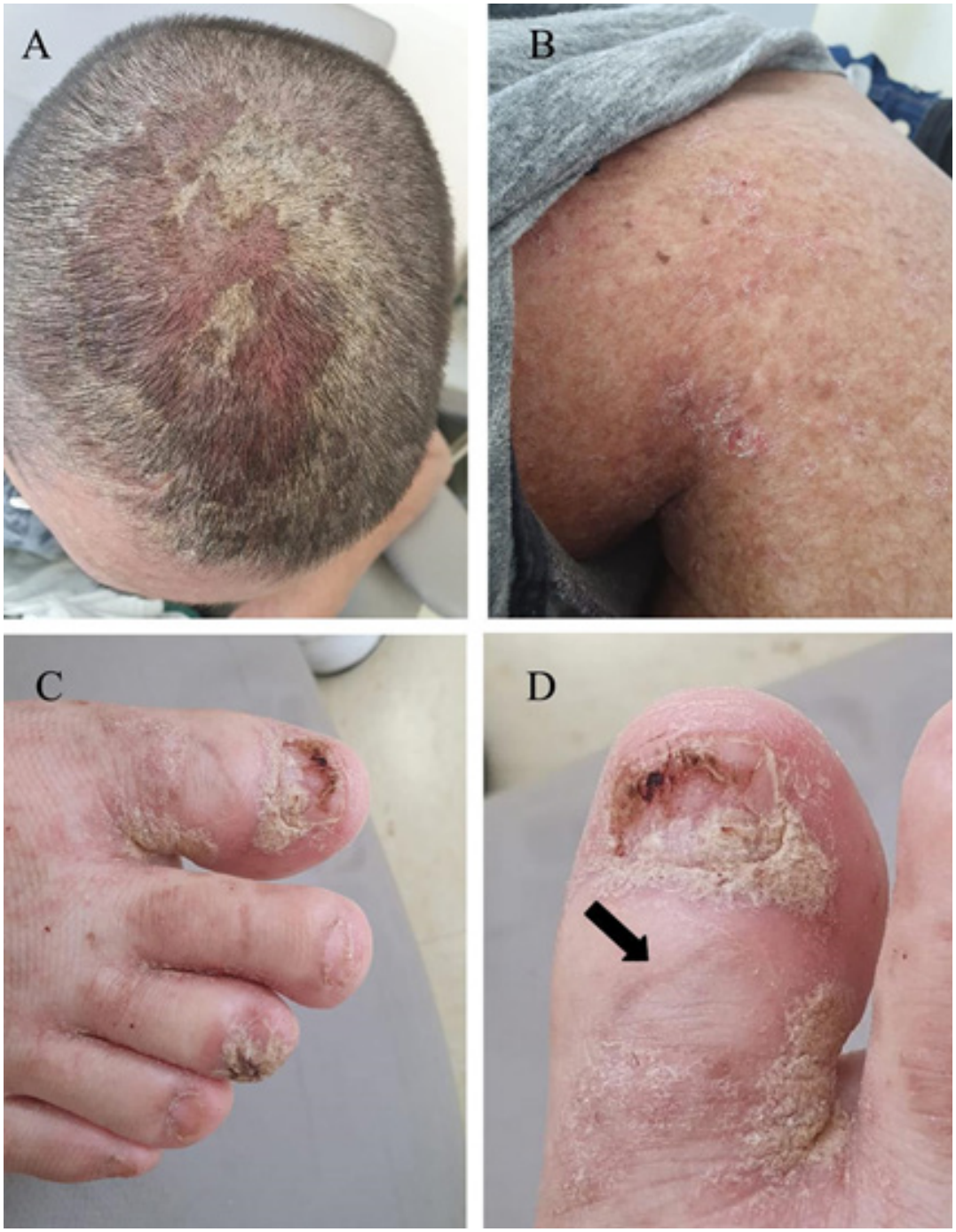
INTRODUCTION: Scabies is a skin infection caused by the microscopic mite Sarcoptes scabiei. Parasitic hyperinfestation leads to an atypical form of the disease called crusted scabies, characterized by hyperkeratotic lesions with the presence of millions of mites. It is more frequent in immunocompromised patients, such as transplant recipients and steroid users, as is the case with patients affected by chronic graft-versus-host disease (GVHD).

CASE REPORT: A 21-year-old male patient without comorbidities went through a matched unrelated bone marrow transplantation for B-cell ALL in second remission in July 2018. Early after transplantation, the patient developed severe skin and liver acute GVHD, for which he received methylprednisolone and tacrolimus. Afterwards, he developed deep skin sclerosis in superior and inferior limbs and chest, starting sirolimus therapy. Twenty months after transplantation, the patient comes to the outpatient clinic complaining of 2 weeks worsening of skin lesions. Notably, the patient complained of intense pruritus associated with hyperchromic feet, arms and scalp skin lesions, as well as nail dystrophy and keratotic plaques on the feet. According to the patient, he had been living for a month on a ranch and had exposed himself to morning sunlight while feeding animals. On physical examination, he displayed dry erythematous skin with hyperkeratotic papules, distributed across the chest and limbs, especially on the feet, where they converged over an erythematous base associated with severe nail dystrophy bilaterally. Scalp lesions consisted of scaly erythematous plaques. He received fluconazole, ivermectin and antihystaminics. A skin scraping sample was collected from a hallux lesion which revealed Sarcoptes scabiei mites on microscopy, including many parasite eggs. We also performed a skin lesion biopsy which showed lichenoid dermatitis with several parasites. Patient displayed partial improvement of the pruritus, a week later receiving another ivermectin dose before discharge. After one month, the patient returned to an appointment with resolution of pruritus and crusted lesions on the scalp and feet.

DISCUSSION: Despite the high incidence of Sarcoptes scabiei infestation in the brazilian population, this has been an uncommon infection among patients with chronic GVHD. The Sarcoptes mite is a parasite which spends its whole life cycle in the human body, digging pathognomonic epidermal burrows in the hosts epidermis. Crusted scabies is an atypical presentation associated with immunosuppression leading to the loss of immune response to the parasite. Chronic GVHD compromises T cell function leading to the loss of central and peripheral tolerance, which may constitute an intersection point in both entities pathogenesis. In summary, knowledge of infestation characteristics may support the early diagnosis of an uncommon infection among the transplanted population, allowing early treatment and avoiding severe complications.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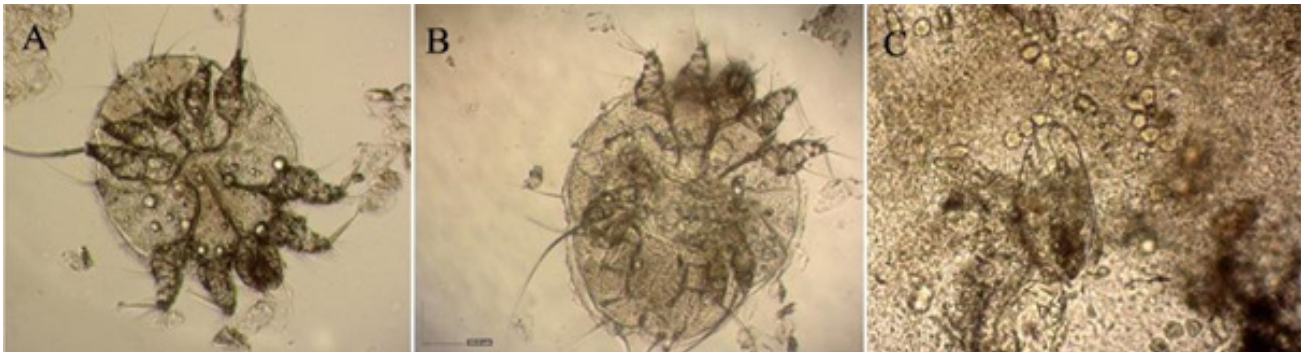
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DONOR LYMPHOCYTE INFUSION FOR RELAPSE AFTER ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION: Donor lymphocyte infusion (DLI) is a treatment option for relapsed hematologic malignancies after allogeneic hematopoietic stem cell transplant (HSCT). The objective of this study was to evaluate a response to DLI.

PATIENTS AND METHODS: We analyzed 24 patients, between 2010 and 2020, with a median follow-up of one year, who received DLI for relapse after allogeneic HSCT. The median age of the patients was 50 years, the majority being male (58%). Acute myeloid leukemia (AML) was the most common diagnosis (58%). The majority (50%) received related HSCT (Table 1). The overall survival (OS) was estimated by Kaplan-Meier, and the response rate was estimated by the accumulated incidence curve.

RESULTS: DLI was used as a rescue therapy for relapsed patients (87.5%) or for loss of chimerism (12.5%). Most patients (83%) received other therapy associated with DLI, with azacitidine being the most common. Sixteen patients (66.7%) received DLI from peripheral blood. The median initial dose of DLI was 8.7x106 CD3 + / kg (5-15.3x106 / kg) and the median maximum dose was 14.2x106 CD3 + / kg (6.7–98x106 / kg). Most received a single dose of DLI (62.5%) (Table 2). Eleven patients (45%) had a satisfactory response with complete remission and chimerism > 95% (figure 1), the median was 90 days for this response. In addition, 11 patients (45%) had some degree of graft-versus-host disease (GVHD). The OS in 1 year was 50% (95% CI, 33% to 77%) (figure 2). Thirteen patients died, 5 from infection and 8 from disease progression.

DISCUSSION: DLI is an effective immunotherapy for rescue therapy in hematopoietic diseases relapsed after allogeneic HSCT. Its benefit is mainly reported in chronic myeloid leukemia, however, there are reports of several hematological malignancies, such as AML, with remission in approximately 15 to 20%.1,2 The mechanism of action of DLI is based on the infusion of T cells, generating a graft-versus-tumor effect, mainly through the reversal of T cell exhaustion in resident CD8+ T cells, having as targets, especially, disease-specific antigens[3]. AML patients show a beneficial response to the use of DLI if associated with another therapy, since it is a disease with a high tumor burden and rapid rate of cell division.2 The dose used in DLI varies according to the hematological diagnosis and current status of the disease. However, a cell dose of less than 1 x106 CD3 + T cells / kg is inefficient and when above 4.5x108 CD3 + T cells / kg does not show better responses.2 GVHD is the main associated complication. The dose used and the induced lymphodepletion are important risk factors for the appearance of GVHD4. Our study showed that patients who relapse after allogeneic HSCT can benefit from DLI, obtaining a sustained response of around 40% and GVHD was the main complication associated.

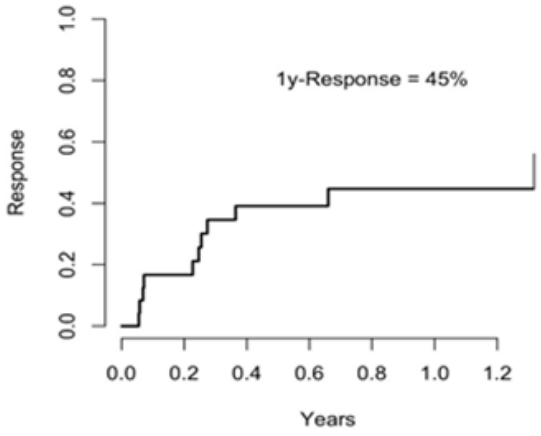

Figure1. Response to DLI

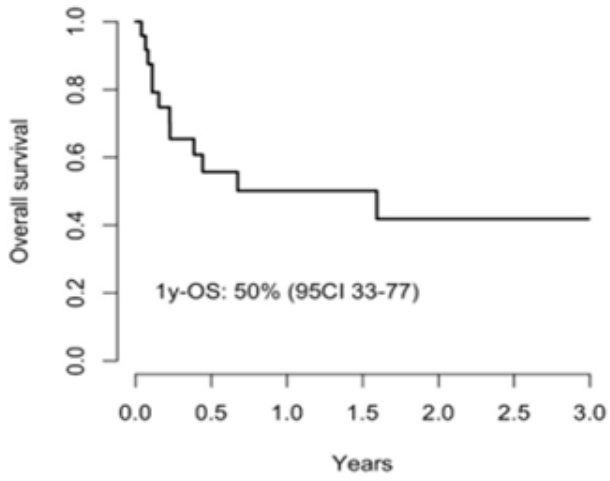

Figure 2.Overall survival

Table 1. Patient's characteristics	N= 24
Sex	
Female	10 (41.7%)
Male	14 (58,3%)
Diagnosis	
Lymphoproliferative disease	3 (12,5%)
Acute lymphoblastic leukemia	2 (8,3%)
Acute myeloid leukemia	15 (62,5%)
Myeloproliferative neoplasms	2 (8,3%)
Multiple myeloma	2 (8,3%)
Transplant subtype	
Related	12 (50%)
Haploidentical	3 (12,5%)
Unrelated	9 (37,5%)

Table 2. Features of DLI	N= 24
DLI indication	
Relapsed/refractory	21 (87,5%)
Loss of chimerism	3 (12,5%)
Sources for DLI	
Bone marrow	8 (33,3%)
Peripheral blood	16 (66,7%)
Number of DLI	
1	15 (62,5%)
>= 2	9 (37,5%)

INVASIVE ASPERGILLOSIS AS A COMPLICATION OF HEMATOPOIETIC STEM CELL TRANSPLANTATION IN A PATIENT WITH CHRONIC GRAFT VERSUS HOST DISEASE IN USE OF RUXOLITINIB: CASE REPORT

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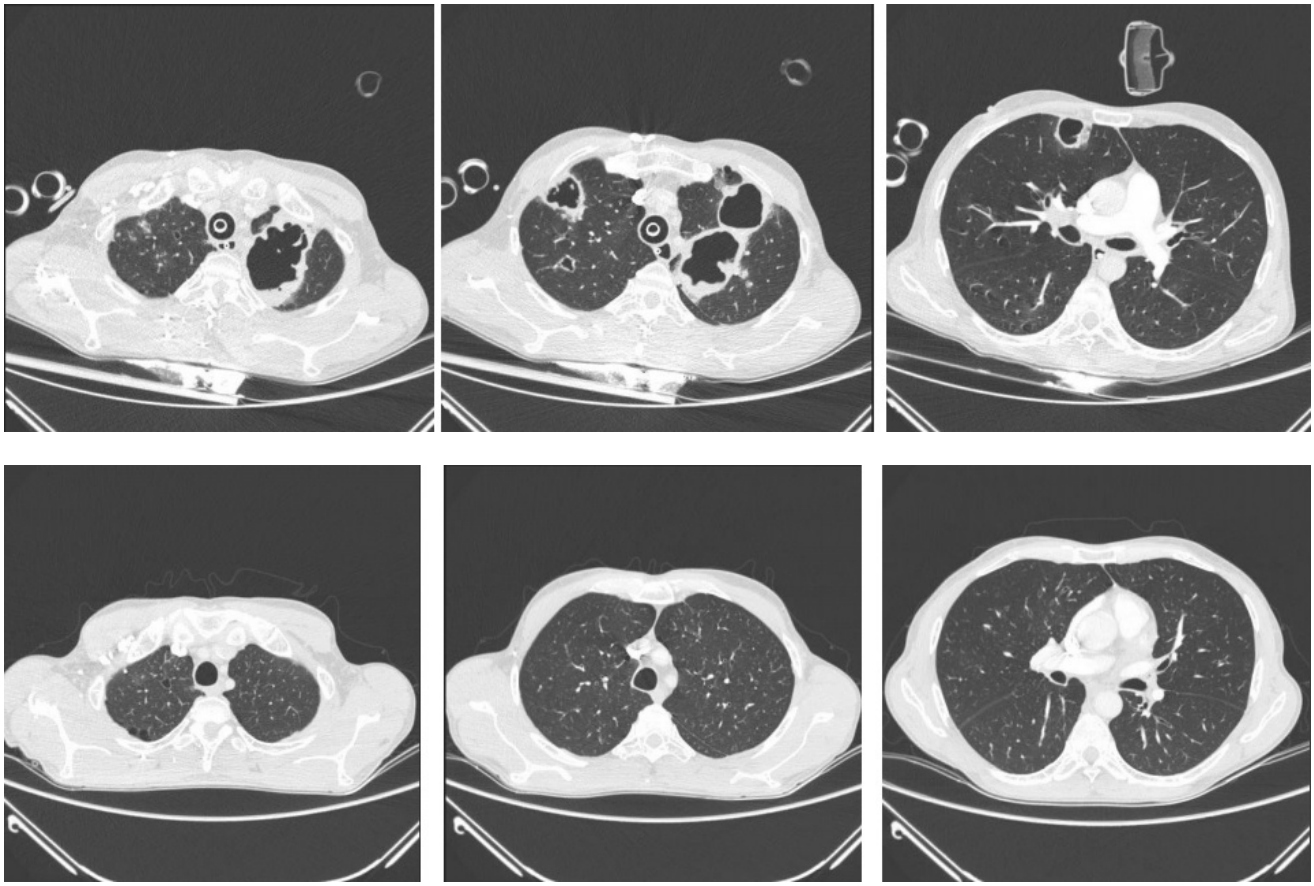
INTRODUCTION: With the discovery of new increasingly effective immunosuppressive therapies aimed mainly at the treatment of autoimmune diseases and rejection of transplanted organs, Aspergillus fumigatus has become more prevalent, causing serious and possibly fatal invasive infections, having great importance in the scenario of hematopoietic steam cell transplantation (TCPH) and in graft versus host disease (GVHD), whose treatment is based on immunosuppressants, among them ruxolitinib.

CASE REPORT: Male, 51 years old, from São Paulo, ex-smoker. Performed allogeneic haploidentical transplant in 2019 due to mutated JAK2 V617F primary myelofibrosis diagnosed in 2014, with reduced intensity conditioning regimen and GVHD prophylaxis with cyclosporine, mycophenolate mofetil and cyclophosphamide. On day +25, he presented a clinical diagnosis of acute cutaneous GVHD refractory to initial corticotherapy, but with a good response to ruxolitinib as second-line therapy. On day +200 he presented a further worsening of the cutaneous lesions, and corticotherapy was restarted with association with Methotrexate for a period, suspended due to toxicity. Associated with the condition, he progressed with progressive respiratory symptoms requiring hospitalization on day +307, where cardiovascular causes and venous thromboembolism were ruled out, showing rare foci of parasseptal emphysema and tiny nonspecific pulmonary nodules on chest tomography (Image 1), in addition to evidence of lung function with severe obstructive ventilatory disorder. Under the hypothesis of pulmonary cDECH, immunosuppression with corticosteroids and later ruxolitinib was restarted, requiring the switch from antifungal prophylaxis to fluconazole due to unavailability of voriconazole after a few weeks. After initial partial improvement, he developed a significant worsening of the pulmonary condition associated with fever, being hospitalized again on day +367, evolving with the need for invasive mechanical ventilation and vasopressors, where a new pulmonary image showed the appearance of excavated lesions with thick walls (Image 2) . On +375 the patient died in the context of refractory shock. There was growth of the Aspergillus fumigatus complex in the culture of bronchoalveolar lavage as a post-mortem result.

DISCUSSION: Despite the satisfactory results of ruxolutinib in the treatment of corticosteroid resistant cDECH, the rates of myelosuppression and infection are of concern. In a systematic review, the infection rate of cDECH in this context was 20%, with the fungal etiology responsible for 9%. Therefore, we report a case of invasive pulmonary aspergillosis associated with the use of ruxolutinib, where we believe that the alteration of antifungal prophylaxis with loss of spectrum for filamentous fungi associated with the use of the drug, in addition to corticotherapy, has allowed the emergence and progression of the presented patient's clinical condition, culminating in its unfavorable evolution.



INVASIVE SCOPULARIOPSIS IN A PATIENT WITH CHRONIC GVHD AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT: A CASE REPORT

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We describe a case of fatal disseminated infection by Scopulariopsis sp. in patient with chronic graft versus host disease (GVHD) after allogeneic hematopoietic stem cell transplant (HSCT). A 59-year-old male patient diagnosed with myelodysplastic syndrome was submitted to an unrelated HSCT in May 2014. He developed grade III skin and liver acute GVHD treated with prednisone. There was loss of follow-up in 2017, when he was diagnosed with chronic GVHD. He came back on March 2020, on low-dose prednisone since 2017 and respiratory infection. He had active chronic GVHD of skin, eye, liver, mouth and possibly lung. NIH score was severe, with no risk features. In April 2020, he was again admitted, and chest CT scan showed a cavity lesion suggesting fungal infection, for which was prescribed voriconazole. He was again discharged but came back one month later with worsening dyspnea and pulmonary nodules on CT. He was given intravenous voriconazole and was submitted to a bronchoscopy which result in bleeding, respiratory insufficiency, and ICU admission. Bronchoalveolar fluid and blood were positive for CMV, for which was prescribed ganciclovir. In June, as there were ground glass opacities on the chest CT suggesting a viral condition, the patient underwent blood tests for COVID-19, with positive IgG result. Nasopharyngeal PCR was negative. New CT showed ground glass opacities, nodule with halo sign, consolidation, and bilateral pleural effusion. He had worsening dyspnea and productive cough. Sputum culture isolated Scopulariopsis sp., and Itraconazole and Liposomal Amphotericin B were started. There was no response to treatment, evolving with progressive clinical deterioration and death in July 2020. Immunocompromised patients are at increased risk of opportunistic fungal infections. The main risk factors include severe neutropenia, catheters, disruption of the gastrointestinal or oropharyngeal mucosa by chemotherapy, use of broad-spectrum antibiotics and corticosteroid therapy for GVHD. The non-dermatophyte filamentous fungus Scopulariopsis sp. is associated with onychomycosis and rarely causes invasive infections. There are high rates of resistance of these fungi to all antifungals including amphotericin B and voriconazole. Although rare, there is an increasing number of infections by this agent in immunocompromised hosts. Diagnosis is difficult and there are no specific clinical manifestations or available blood tests, requiring culture and direct mycological examination. Our patient had a history of chronic GVHD, corticosteroids use and CMV infection as risk factors. It is not possible to state the role of infection COVID-19 in the outcome of this case, although coinfection by fungus and SARS COV-2 has been reported in immunocompromised patients. With this case we demonstrate the relevance of an early and accurate etiological diagnosis of potentially fatal invasive fungal infections in immunocompromised patients.

LATE RELAPSE OF APLASTIC ANEMIA AFTER HAPLOIDENTICAL HSCT WITH COMPLETE CHIMERISM: A CASE REPORT

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INTRODUCTION: graft failure after hematopoietic stem cell transplantation (HSCT) for severe aplastic anemia (SAA) remains the third most common cause of death, after infections and graft-versus-host disease (GVHD), with a variable incidence from 4 to 18%. Immunosuppressive therapy (IT) is administered to patients who do not have a compatible related donor, but an haploidentical donor is currently an alternative.

OBJECTIVE: report the case of a late SAA relapse after HSCT with complete chimerism.

MATERIALS AND METHODS: descriptive study of a 32-year-old malewith anticonvulsant use since childhood, diagnosed with SAA, without response to IT, undergoing haploidentical HSCT on 10/31/2014, major ABO incompatibility; conditioning: fludarabine, cyclophosphamide (Cy) and TBI 2Gy; GVHD prophylaxis: tacrolimus, mycophenolate and Cy; infusing 2,5x10^6 of CD34, neutrophil engraftment on D+20, complete chimerism on 11/27/2014. He had normal complete blood count and complete chimerism on D+46, without chronic GVHD or use of IT on D+200. On 10/17/2019 he starts with pancytopenia, and bone marrow trephine shows marked hypocellularity, maintaining complete chimerism. Anticonvulsant therapy was modified due to the possibility of myelotoxicity, with no response. IT was started with cyclosporine and prednisone, with partial response, maintaining severe thrombocytopenia. On 02/10/2020 he started with eltrombopag, plus deferasirox on 05/28/2020. Yet, he has stable counts and no transfusions needed.

DISCUSSION: some patients may develop pancytopenia despite sustained complete chimerism, which implies that SAA occurs in donor cells. The term donor-type aplasia (DTA) has been previously described as a rare phenomenon that occurs sooner or later. In the current case, this phenomenon occurred after sixty months of HSCTa. It is believed that the time taken for the destruction of stem cells by a lymphoid clone may be slower, occurring later and despite persistent complete chimerism. On the other hand, the recurrence of SAA could require a second trigger induced by viral infections. The treatment of recurrence can be done with a new IT or a new HSCT. Due to the patient's comorbidities, we have chosen to use IT associated with eltrombopag, with satisfactory response.

CONCLUSION: We can not exclude that viral or genetic factors may influence the development of DTA. HSCTa with post-Cy has increased in recent years, and graft dysfunction is an issue to be addressed. The later occurrence of relapse, sixty months after HSCT, is remarkable. Treatment with IT and eltrombopag was effective, allied to iron chelation.

LOW-DOSE METHOTREXATE FOR THE TREATMENT OF REFRACTORY CHRONIC GRAFT-VERSUS-HOST DISEASE

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INTRODUCTION: Chronic Graft-versus-host disease (cGVHD) affects 40-60% of patients after allogeneic stem cell transplant (allo-SCT). First-line treatment with steroids is well established, although less than 20% of patients maintain a partial or complete response and no need of a secondary systemic treatment after 1 year. There is no consensus on standard second-line therapy for cGVHD. Thereby, low-dose methotrexate (MTX), defined as 7.5mg/m^2/weekly, presents itself as a cost-effective option for steroid-refractory patients.

OBJECTIVES: We performed a retrospective analysis of the clinical characteristics and outcomes of low-dose MTX used as a systemic treatment for steroid-refractory cGVHD patients, based on a multicenter experience. The cGVHD diagnosis, grading, and response were defined according to the 2014 NIH Consensus Development Conference in cGVHD.

RESULTS: In total, 13 patients were treated with low-dose MTX: 8 were male, with a median age of 50 years (range, 27 to 68). All but one patient underwent reduced-intensity conditioning regimens and all received peripheral blood stem cells. Furthermore, their initial presentation of cGVHD developed after a median of 173 days after allo-SCT (range, 117-253). Overall grading was severe in 46% and most affected sites were skin (n=10) , and eyes (n=9), mouth (n=5), and lungs (n=4).

MTX was given orally at a dose of 7.5 mg/m2/weekly. We observed a 85% overall response rate (ORR), with 62% of partial responses (PR) and 23% of complete responses (CR). Median time on therapy was 165 days (range, 22 to 327). By September 2020, 8 patients remain on therapy, 2 discontinued after achieving a complete response, 2 due to adverse events (cytopenias grade 3/4 and hepatotoxicity grade 4, with recovery after withdrawal), and 1 due to personal decision.

DISCUSSION: MTX is an antimetabolite drug used as a prophylactic agent for GVHD after allo-SCT and has been studied for decades for this purpose. However, recent studies have shown that MTX is also capable of suppressing T cells lymphocytes, and therefore could be effective on treatment of GVHD as well.

Previous reports of salvage therapy with MTX for cGVHD, including 8-21 patients, had ORR between 55-76%. Our results are consistent with those from previous series and corroborate the effectiveness of MTX for cGVHD. Regarding safety, we observed that the most common adverse events were cytopenias and liver enzymes elevation, in accordance to previous reports. Besides, MTX could be more cost-effective than most second-line treatments for cGVHD. A meta-analysis evaluating cost-effectiveness of salvage therapy in steroid-refractory cGVHD, showed that the cost of treatment was only US$ 453,00 at 6 months.

CONCLUSION: In our series, MTX was an effective and safe option for the treatment of steroid-refractory cGVHD, especially for countries with limited resources because of the extremely favorable cost-effectiveness.

RETROSPECTIVE ANALYSIS OF FOUR PATIENTS' OUTCOMES AFTER SECOND LINE TREATMENT WITH IBRUTINIB OR RUXOLITINIB FOR STEROID REFRACTORY OR STEROID DEPENDENT GRAFT VERSUS HOST DISEASE

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INTRODUCTION: Graft versus host disease (GVHD) after allogeneic bone marrow transplantation causes significant morbidity and mortality. The standard treatment consists on steroids associated or not with calcineurin inhibitors. However, nearly 30% of patients are steroid refractory. There is no standard second line therapy, and the overall response for those patients stands bellow 50%. Recent studies have shown that ibrutinib and ruxolitinib are promising drugs for steroid refractory GVHD.

OBJECTIVES: Descriptive analysis of treatment response and patients' outcome after second line therapy with ibrutinib or ruxolitinib for steroid-refractory or steroid-dependent GVHD after allogeneic stem cell transplantation.

SAMPLES: Between January 2018 and December 2019, four patients submitted to allogeneic stem cell transplantation with our medical group developed steroid refractory or steroid dependent GVHD and were treated with ibrutinib or ruxolitinib.

METHODS: Descriptive analysis of patients' responses and outcomes after second line treatment for GVHD. The patients' characteristics are outlined on table 1.

RESULTS: Patient 1 remained on prednisone and cyclosporine therapy 12 months after transplantation, due to GVHD relapse during steroid dose tapering. She was started on ibrutinib and after 4 months, all three drugs could be discontinued. Patients 2 and 3 had similar clinical presentations, with grade 4 gastrointestinal GVHD, and needed parenteral nutrition. Patient 2 was started on ibrutinib and patient 3 was started on ruxolitinib. Both showed clinical improvement 3 to 4 weeks after therapy initiation, and oral nutrition could be reinstituted. However, prolonged immunosuppression was required, and they succumbed to bacterial sepsis. Patient 4 present with moderate chronic liver and skin GVHD after lymphocyte infusion for positive minimal residual disease. Response to prednisone was discrete. Three weeks after ibrutinib initiation, ALT levels began to drop, with tendency to normalization. Intense pruritus also subsided. After 5 months of therapy, he evolved with atrial flutter and medication needed to be discontinued. He remains on low dose prednisone, with ALT levels around 2x the upper limit and no significant skin symptoms.

CONCLUSION: All four patients described here showed good clinical response to second line treatment with ibrutinib and ruxolitinib. Mean time to response was 3 weeks. However, morbidity and mortality remained high, with significant drug adverse events and fatal infectious complications. Effective immune reconstitution in the context of severe GVHD is still a major problem. The elucidation of GVHD's physiopathological mechanisms, allowing for its prevention without compromising disease control, remains as one of the greatest challenges to ensure higher rates of success in bone marrow transplantation.

Tabela 1 - Características dos Pacientes Analisados e Desfecho Clínico Após Tratamento de Segunda LInha

Patient	Age	Gender	Disease	Donor	Conditioning	GVHD Prophilaxis	GVHD	Organs	Treatment	Adverse Event	Outcome
1	37	F	CML	MUD	BuFlu ATG	CSA + MTX	Acute D+30	Skin grade 3 Upper GI	Ibrutinib	Carpal Tunnel Syndrome	Alive
2	47	M	ALL	Haplo	FluTBI PtCy	MMF + FK	Acute D+21	GI grade 4	Ruxolitinib	No	Dead Sepsis D+330
3	58	F	ALL	Haplo	FluTBI PtCy	MMF + FK	Acute D+18	GI grade 4	Ibrutininb	No	Dead Sepsis D+375
4	57	M	AML	MRD	BuFlu	CSA + MTX	Chronic D+370	Skin Liver	Ibrutinib	Atrial flutter	Alive

CML – Chronic Myeloid Leukemia; ALL – Acute Lymphoblastic Leukemia; AML – Acute Myeloid Leukemia; MUD – Matched Unrelated Donor; MRD – Matched Related Donor; Bu – busulfan; Flu – fludarabina; ATG – anti-thymocyte imunnoglobulin; TBI – Total Body Irradiation; PtCy – post-transplant cyclophosphamide; CSA – cyclosporin; MTX – methotrexate; MMF – mofetil mycophenolate; FK – tacrolimus; GVHD – graft versus host disease; GI – gastrointestinal.

SEVERE HYPERTRIGLYCERIDEMIA IN PATIENT WITH GRAFT VERSUS HOST DISEASE HOST IN TREATMENT WITH RUXOLITINIB AND SIROLIMUS

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A 22-year-old female patient diagnosed with refractory Hodgkin's lymphoma after autologous bone marrow transplant (BMT) in December 2016. On 02/07/2017, she was submitted to an haploidentical transplant, having her mother as a donor. The patient developed chronic graft versus host disease (GVHD), overlap syndrome in mouth and skin and was treated with corticosteroid 1 mg/kg/day on 06/12/2016. GVHD was not controlled and she was then treated with Basiliximab three doses, again without clinical response. Cyclosporine was stopped due to renal failure and replaced with Sirolimus. Due to lack of response, ruxolitinib was added, and GVHD became stable. She was readmitted on June 26, 2017 complaining of diffuse abdominal pain, with triglycerides levels by 17,390 and total cholesterol 1,444. Chest and abdomen CT showed bilateral pleural effusion and free retroperitoneal fluid, both with small amounts, associated with hepatomegaly, hypodense right liver lobe and gallstone. Ultrasound presented a mild hepatic steatosis pattern. Upon 06/27, Sirolimus and Ruxolitinib were stopped, initiating Ezetimibe, Fenofibrate and Atorvastatin. The first plasmapheresis was performed on 06/28. There was an improvement in triglyceride levels and total cholesterol (740 and 155, respectively), but the patient evolved with anasarca, pulmonary congestion and pericardial thickening on CT, pancytopenia and elevation of AST and ALT. Statins and azole antifungals were stopped. Then she developed low systolic function, moderate pericardial effusion, oliguria and anasarca, followed by massive pericardial effusion with tamponade, cardiopulmonary arrest and death on 07/05/17. Hypertriglyceridemia is a complication of allogeneic bone marrow transplants, and GVHD is considered an independent risk factor for such post-transplant metabolic changes. The association between GVHD and the increase in triglycerides may be linked to immunosuppressive therapy. Sirolimus has hypertriglyceridemia as a side effect, and long-term treatment could lead to severe cases, with triglyceride levels above 1000 mg/dl. There is also evidence that its concomitant use with Ruxolitinib may contribute to an increase in the lipid pattern. First-line therapy is statin associated with clinical monitoring for drug interactions. In moderate to severe hypertriglyceridemia, the association of omega-3 and fibrates could be considered. Second-line therapies that may include niacin, Ezetimibe or Colesevelam. Many patients develop hypertriglyceridemia and hypercholesterolemia associated with chronic GVHD treatment, but at the levels of this report we have another case published also with extreme hypertriglyceridemia after use of this combination. Thus, caution is necessary when association therapy for GVHD is used and lipid levels have to be closely monitored.

TOTAL PARENTERAL NUTRITION-RELATED CARES IN PATIENTS POST-HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: Total parenteral nutrition (TPN) is indicated to patients who don't have a viable gastrointestinal tract (GIT) to administer an oral and/or enteral diet or to supply their nutritional requirements. These events can occur in patients submitted hematopoietic stem-cell transplantation (HSCT) due to conditioning regime complications, such as mucositis and intestinal poor absorption, as well as post-HSCT complications, such as graft-versus-host disease (GVHD), infections associated with gastrointestinal symptoms, among others.

AIM: To describe the care related to TPN in patients post-HSCT.

METHODOLOGY: Experience report

RESULTS: In order to obtain good results secondary to the use of TPN, interdisciplinary team perform cares such as: assessment and estimation of the patient's nutritional status and requirements and symptoms in the GIT, execution and verification of the prescription, preparation of the solution, adequate storage in system refrigerated and monitored through temperature control and periodic calibration, installation and systematic control of NPT with double checking by nursing staff and according to institutional standard operational protocol, care with central venous catheter - such as: observation and bandage application, registration of phlogistic signs, exclusive TPN infusion and closed system, avoiding pauses - records in the computerized medical record and continuity of care, as well as the assessment of tolerance and appropriate time for weaning from therapy.

CONCLUSION: the interdisciplinary team has a fundamental role in good practices. Acts actively from the prescription, passing through the administration, until the weaning of the TPN aiming at patient safety during this whole process.

USE OF PLERIXAFOR IN HEALTHY STEM CELL DONORS HEMATOPOIETICS WITH PRIMARY MOBILIZATION FAILURE

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OBJECTIVE: to describe two cases of healthy hematopoietic stem cell (HSC) donors who had primary mobilization failure and had peripheral blood HSC collected in satisfactory amount after the use of plerixafor. Methods: the information contained in this report was obtained through medical record review and literature review.

CASE REPORTS:

Case 1: This is female donor, 65 years old, hypertensive, dyslipidemic and with a history of previous infection by hepatitis B. On the D5 of mobilization with G-CSF 900mcg, the donor had <10 CD34 cells/uL in peripheral blood. She received plerixafor 0.24mg / kg on the night of D5 and the following day she had 18.9 CD34 / uL cells. It was submitted to collection by apheresis, resulting in a product with 2.8x10 * 6 / kg CD34 + cells. The recipient presented neutrophilic grip at D + 18 and platelet at D + 21.

Case 2: It is a 54-year-old male donor, previously healthy. D5 also presented mobilization, presenting 1.6 CD34 cells / uL. She received plerixafor 0.24mg / kg on the night of D5 and on next one had 18.8 CD34 cells / uL in peripheral blood. He was submitted to collection by apheresis, resulting in a product with 2.4x10 * 6 / kg CD34 + cells. The receiver presented neutrophilic grip at D + 17 and platelet on D + 19. Discussion: Mobilization failure is defined as CD34 + cell count less than 10 cells / uL in peripheral blood or collection yield less than 2x10 * 6 / kg. Many factors are associated, such as age over 60, advanced stage of the disease, platelets less than 100 thousand, greater number of chemotherapy and radiation therapy lines previous ones. The current indication for plerixafor is restricted to patients who have failed mobilization or its preemptive use in patients at high risk for failure. Use in healthy donors is poor described and restricted to clinical trials. Plerixafor is a reversible and specific receptor blocker chemokine of hematopoietic stem cells in their niches in the bone marrow stroma. The brake this connection allows HSC to migrate into the bloodstream, where they can be collected by apheresis. After this " mobilization ", the cells can be frozen and stored until they are transplanted. It is recommended to use the medication 6 to 11 hours before the start of each apheresis after 4 days of treatment with G- CSF, at a dose of 0.24mg / kg of weight per day, subcutaneously. The drug was studied in eight healthy family donors, who did not reach 50% of the CD34 + cells intended with the first collection. The use of plerixafor resulted in a triple of the number of CD34 + cells collected on the following day, with only mild adverse reactions. Grafting and incidence of graft versus host disease were similar to donors mobilized only with G-CSF. In the scenario of haploidentical donors, in which a high number of CD34 + cells is important to the success of the procedure, plerixafor associated with G-CSF was used in six donors and obtaining an adequate number of CD34 + cells. Another open clinical trial and conducted in 2012, established safety in the use of high-dose plerixafor for cell mobilization in healthy donors. Conclusion: Despite the lack of data on the use of plerixafor in healthy donors, it is a useful tool in the primary mobilization, ensuring a number of CD34 + cells suitable for grafting.

AUTOLOGOUS

AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IMPROVES SKIN FIBROSIS AND INDUCES CONNECTIVE TISSUE REMODELING IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Systemic sclerosis (SSc) is an autoimmune disease marked by immunological deregulations, vasculopathy, fibrosis of skin and internal organs. Autologous Hematopoietic Stem Cell Transplantation (AHSCT) has emerged as a treatment option for severe and progressive SSc patients. AHSCT contributes to clinical improvement, but the associated mechanistic effects are still not completely understood. Here, we aimed to analyze if AHSCT modifies the expression of molecules related to fibrosis and connective tissue maintenance in the serum of SSc patients and how these results correlate with clinical skin fibrosis. We retrospectively evaluated clinical outcomes of SSc patients (n=27) before (baseline) and at 6 and 12 months after AHSCT. Serum samples collected at the same time points were analyzed by Multiplex Assay, for COL1A1, COL4A1, FGF-1, MMP-1, MMP-3, MMP-12, MMP-13, PDGF-AA, PDGF-BB, S100A9 and TIMP-1. These results were compared to a healthy control group (n=10). Most participants were female (82%) with mean (standard deviation, SD) age of 36 (±9,9) years. After AHSCT, the modified Rodnan's skin score (mRSS) decreased at 6 and 12 months ($p<0.0001$) when compared to baseline. COL4A1 levels in the serum of SSc patients at baseline were higher ($p<0.05$) than in controls. After AHSCT, SSc patients presented reduction in serum levels of MMP-1 and S100A9 from baseline to 6 and 12 months after AHSCT ($p<0.05$). Serum concentrations of PDGF-AA and PDGF-BB decreased at 6 months as compared to baseline ($p<0.01$) and TIMP-1 concentrations decreased at 12 months ($p<0.05$) after AHSCT. Expression of COL1A1 increased at 6 ($p<0.01$) and 12 ($p<0.05$) months after AHSCT. COL4A1 concentrations decreased at 12 months when compared to the 6 month time point ($p<0.01$). MMP-3 serum levels increased at 6 months ($p<0.05$), but reduced to baseline levels at 12 months after AHSCT. MMP-12, MMP-13 and FGF-1 serum levels did not change after transplantation. However, MMP-12, MMP-13, FGF-1 and MMP-3 serum levels were higher ($p<0.05$) in patients with less severe skin involvement (mRSS>24) after AHSCT. AHSCT decreases skin fibrosis and modifies expression of molecules related to connective tissue maintenance, inflammation and endothelial damage, in SSc patients. We believe that the efficacy of AHSCT goes beyond control of immunological autoreactivity, also promoting changes in molecular mediators and, probably, in functional and phenotypic aspects of different cell populations.

AUTOLOGOUS STEM CELL TRANSPLANT IN A PATIENT WITH DOWN SYNDROME AND RELAPSED HODGKIN LYMPHOMA: A CASE REPORT

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INTRODUCTION: the occurrence of Hodgkin lymphoma (HL) in patients with Down Syndrome (DS) is rare and it is associated with high mortality. In refractory or relapsed disease, it is recommended to perform autologous stem cell transplant (ASCT) after salvage chemotherapy, but the literature is scarce on this subject, especially in the adults. Objective: to report the case of a patient with DS and relapsed HL who underwent ASCT.

METHODS: this report was written based on medical record review and literature review.

CASE DESCRIPTION: a 20-year-old male patient with DS was diagnosed with nodular sclerosis classical HL, stage IIIB, and was treated with ABVD. He relapsed 7 years after the treatment, with complete response after salvage chemotherapy and radiotherapy, but had a new relapse 4 years later, reaching complete response with 4 cycles of Brentuximab vedotin (BV). The patient was reffered for ASCT as consolidation therapy. He presented primary stem cell mobilization failure, however it was successful with the use of Plerixafor, obtaining a collection of 7,8 x 106 CD34+ cells/kg. The patient received LEAM conditioning regimen (lomustine 200mg/m^2 on day -6, etoposide and cytarabine 200mg/m^2 from days -5 to -2 and melphalan 140mg/m^2 on day -1). He experienced grade 1 mucositis, grade 1 serum transaminases elevations, grade 4 neutropenia, grade 3 anemia and thrombocytopenia. Neutrophil engraftment occurred on day +15 after ASCT and platelet engraftment on day +16. He is currently on follow-up, without signs of disease relapse. Discussion: despite the increase in the incidence of cancer in patients with DS, the occurrence of HL is rare in this population, and is associated with significant mortality (about 50%), a finding that contrasts with the high cure rate in the general population. In patients with relapsed or refractory HL, the standard management include the use of salvage chemotherapy followed by ASCT, which induces durable responses in about half of patients. Numerous salvage protocols have been described, such as ICE, DHAP or BV combined with nivolumab. BV is an anti-CD30 antibody drug conjugate and it can be used as monotherapy in patients who relapse after transplant, as well as a second-line drug before ASCT; it is generally well tolerated and allows adequate stem cell collection and engraftment. The literature is scarce on data regarding ASCT in the population with DS, particularly in adults. The available data show that these patients tolerate commonly used conditioning regimens, but with higher rates of fatal toxicity compared to the general population, mainly due to pulmonary complications. In a case report of a child with DS and HL, stem cell collection was performed without any difficulty and the patient tolerated conditioning regimen and ASCT without unexpected toxicities.

CONCLUSIONS: patients with DS and Hodgkin's lymphoma can safely undergo ASCT and are able to achieve a satisfactory response after the procedure.

EVALUATION OF GLOBAL SURVIVAL AND TREATMENT-FREE IN PATIENTS WITH MULTIPLE MYELOMA AFTER THE SECOND AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION - EXPERIENCE FROM A CENTER IN SOUTHERN BRAZIL

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INTRODUCTION: Multiple myeloma (MM) is a malignant neoplasm, chronic and incurable, characterized by clonality of plasma cells in bone marrow, whose repercussion in target organs reflects its clinical condition: cytopenias, bone fracture, hypercalcemia, and renal failure. In symptomatic patients under the age of 70 and favorable situations, a recommended therapy is chemotherapy, followed by autologous hematopoietic stem cell transplantation (AHSCT).

OBJECTIVE: To analyze the role of the second AHSCT in the MM scenario, based on the evaluation of treatment-free survival (TFS) after this and overall survival (OS).

METHOD: A descriptive and retrospective study, through the review of physical and electronic medical records of patients with MM who submitted to two AHSCTs, from 2000 to 2015, aiming to analyze the TFS and OS after the second AHSCT, followed up at a Center Southern Brazil. We included all those with an indication for a second transplant, regardless of the chemotherapy adopted in relapse or progression, conditioned under the protocol standardized by the institution with Melfalano. Risk stratification by cytogenetics was not considered due to the lack of resources and unavailability of the method.

RESULTS: Were selected 35 patients who submitted two AHSCT between 2000 and 2015. Of these, 50.1% were men, and the total sample's median age was 56 years. MM IgG was the most indicated at the second transplant. Based on the International Staging System (ISS) and Durie Salmon (DS), 57% were classified under ISS I and 51%, DS III (34% IIIA and 17% IIIB). After the second AHSCT, the median time of TFS was 12 months, and the OS, 26, with the transplant comparable to the currently available alternative therapies. The Memorial Sloan Kettering demonstrated TFS and OS similar to the present study (10.1 and 22.7 months, respectively).

CONCLUSION: It is known that AHSCT preceded by high doses of chemotherapy favors the control of the progression of the underlying disease, aiming at morphological remission and greater temporal increase without the need for exposure to drugs; therefore, is the most effective therapy as a first-line in the carrier population MM up to 70 years. However, prolonged TFS after the second AHSCT is uncommon. In our institution, the second transplant practice is adopted in the face of relapse or progression to control oncological disease, and the results were comparable to those obtained by a reference service, located in a developed country. Although, the advent of new drugs as a therapeutic alternative, even not always available, tests the real benefit of the modality represented by the transplant for MM's treatment.

IMPACT OF HIGH-DOSE CHEMOTHERAPY ON CONDITIONING FOR AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN OVERWEIGHT AND OBESE PATIENTS WITH HEMATOLOGICAL MALIGNANCY

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INTRODUCTION: the incidence of obesity has been increasing over the years, and is associated with a significant increase in morbidity and mortality. The American Society of Clinical Oncology recommends using real weight to calculate the dose for chemotherapy when there is a curative intention, although this might not be the case for autologous hematopoietic stem cell transplantation (aHSCT). Despite that, 80% of transplant centers use dose adjustment, but with no standardized pattern.

OBJECTIVE: to compare mortality and acute toxicities associated with aHSCT in overweight and obese patients with multiple myeloma (MM) and lymphoma, between groups with and without dose adjustment.

METHODS: this was a retrospective, single-center study using data from medical records of patients over 18 years of age who underwent first aHSCT for lymphoma or MM, between January 2018 and July 2019. Patient, disease and transplant data up to D+100 were collected. Patients were distributed into groups according to nutritional status and need for dose adjustment. ANOVA and Fisher's exact test were used for comparisons between groups. Survival curves were computed using Kaplan-Meier estimate, and compared by log-rank test.

RESULTS: among the 131 patients included, 78 (59.5%) had a diagnosis of MM and 53 (40.5%) of lymphoma. The median age was 56 years old (18 - 71) and the majority were male (74, 56.5%). A total of 39 individuals were obese and 48 were overweight, of which 19 (49%) and 11 (23%) had their conditioning drug doses adjusted, respectively. Median follow-up was 10 months, and when comparing the groups with and without dose adjustment, we found no significant differences in acute toxicities (nausea, vomiting, mucositis, diarrhea), mortality (p=0.831) and disease relapse (p=0.506). Only one death occurred before D+100, in the group with no dose adjustment. No significant diferences were found when comparing event-free survival between groups with and without dose adjustment, in overweight and obese patients (p=0.506, figure 1).

CONCLUSION: this study suggests that dose adjustment in conditioning regimen does not significantly reduce acute toxicities, and is not associated with increased disease relapse or mortality in patients with lymphoma and MM in the analyzed period. Obese, overweight and normal weight patients had comparable frequency of acute toxicities. In conclusion, dose adjustment based on ideal weight for overweight and obese patients seems to result in reduced drug costs with no negative clinical outcomes for these patients. This subject matter warrants more prospective, randomized studies with longer follow-up period, comparing different dose strategies between real weight and ideal weight, for more adequate management, based on robust evidence for these populations.

KEYWORDS: Drug dose calculations, conditioning regimen in aHSCT, mortality, adverse drug reactions.

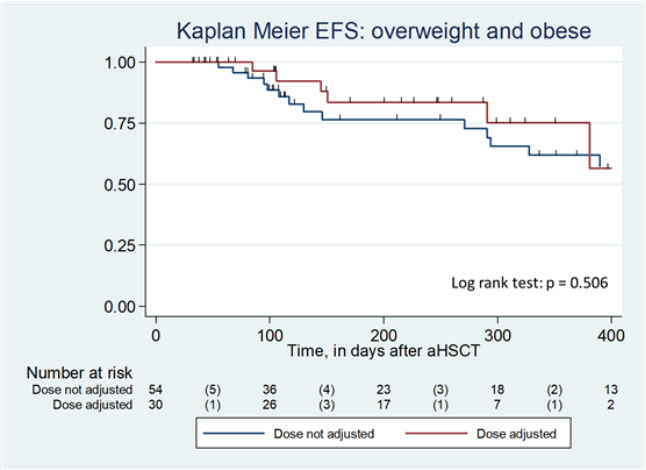

Figure 1. Event-free survival (EFS) in overweight and obese patients, by groups with or without conditioning regimen dose adjustment.

IMPACT OF THE ENUMERATION CD34+ CELLS PROTOCOL ON THE CORRELATION BETWEEN PRE-LEUKAPHERESIS AND POST-LEUKAPHERESIS IN THE CONTEXT OF AUTOLOGOUS HEMATOPOIETIC STEM AND PROGENITOR CELLS TRANSPLANTATION

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INTRODUCTION: The number of CD34+ cells is an important prognostic factor in hematopoietic stem and progenitor cells (HSPC) transplantation. The advancement and use of flow cytometry has become mandatory in clinical and laboratory practice in order to increase the accuracy in the identification and quantification of these cells, resulting in updating the ISHAGE protocol, allowing the use of a single device (single-platform) to determine the absolute number of viable CD34+ cells. In autologous transplantation, monitoring the number of CD34+ cells in the peripheral blood (pre-leukapheresis) has been mandatory to determine the onset of leukapheresis and a parameter to assess the effectiveness of the collection.

OBJECTIVE: To evaluate the efficiency of collections based on the experience of the Medcel Medicina Celular Laboratory with the ISHAGE protocol, single-platform, in the quantification of CD34+ cells.

METHOD: 108 samples, including pre- and post-leukapheresis, from 86 patients from different transplant units were evaluated. In the outsourcing phase of the CD34+ cell quantification tests, the result was based on the ISHAGE dual-platform methodology, that is, the absolute number of CD34+ cells depended on the leukocyte count obtained by a hematological counter. From the implementation of flow cytometry at the Medcel Medicina Celular Laboratory, the ISHAGE single-platform methodology was established, based on the BD SCE kit using the BD FACSCalibur flow cytometer. The statistical data were analyzed using the GraphPad Prism software, version 8.0. and EXCEL. Descriptive analysis and linear relationship by Pearson's correlation coefficient.

RESULTS: In the analyzes based on the dual-platform ISHAGE methodology, the medians were 21.0 CD34+/µL cells (7.0 - 70.0) in peripheral blood (pre-leukapheresis) and 1.75 x106 CD34+ cells/Kg (0.08 - 6.78 x106) in the collection (post-leukapheresis). The linear regression analysis showed a very weak correlation when comparing the results of pre- and post-leukapheresis ($r2 = 0.1363$; $p = 0.0137$), figure 1. In the single-platform analyzes, the medians were 32.9 CD34+/µL cells (3.6 - 166.0) in peripheral blood and 3.16 x106 CD34+ cells/Kg (0.21 - 15.96 x106) in collection. The linear regression analysis showed a moderate correlation when comparing the result of pre-leukapheresis and post-leukapheresis ($r2 = 0.5303$; $p < 0.0001$), figure 2. The median body weight of the patients was 72 kg (13 - 113 kg).

***C*ONCLUSION:** Our results showed that the single-platform approach based on ISHAGE protocol is the most appropriate methodology to guarantee the efficiency of collection from the dose of CD34+/uL cells in peripheral blood. In addition, the use of a single platform guarantees the Medcel Medicina Celular Laboratory a high level of standardization in the quantification of CD34+ cells, thus ensuring the quality of the graft of the samples handled for autologous HSPC transplantation.

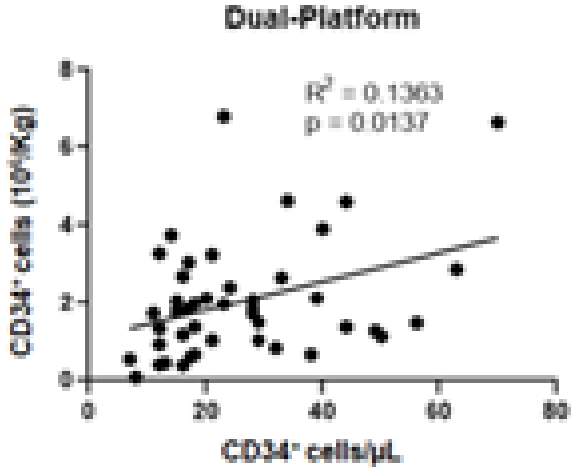

Figure 1. Correlation between the number of CD34+/µL cells and CD34+/ Kg cells obtained by dual-platform.

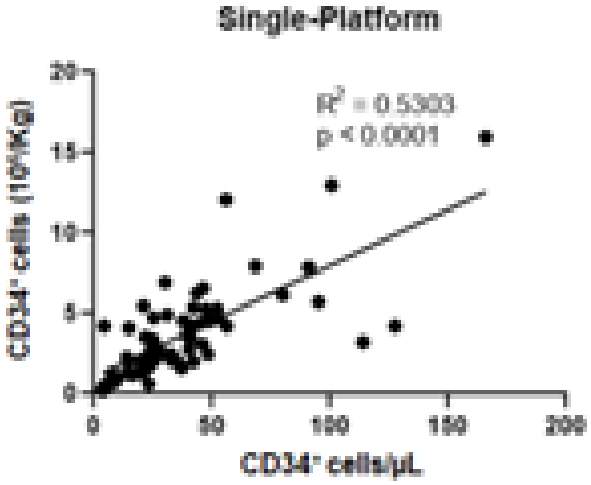

Figure 2. Correlation between the number of CD34+/µL cells and CD34+/ Kg cells obtained by single-platform.

PROPHYLAXIS OF FEBRILE NEUTROPENIA WITH LEVOFLOXACIN IN PATIENTS WITH MULTIPLE MYELOMA UNDERGOING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: Patients undergoing autologous hematopoietic stem cell transplantation (HSCT) are at high risk for febrile neutropenia (NF), which may be associated with increased morbidity and mortality, length of hospital stay and costs. Prophylaxis with fluoroquinolones (CF) in this context remains controversial.

OBJECTIVE: To compare NF rates in patients with Multiple Myeloma (MM) who underwent HSCT and received levofloxacin prophylaxis or not.

MATERIALS AND METHODS: Retrospective clinical and laboratory data were collected from 25 patients with MM who underwent HSCT between 2016 and 2020 at a single institution. 13 patients received prophylactic levofloxacin, while 12 received no prophylaxis. All patients were conditioned with Melfalano and received G-CSF from D +1. The groups with and without prophylaxis were compared regarding the development of febrile neutropenia during the aplasia period after conditioning. All statistical analyzes were performed using the statistical software R version 3.6.3 (2020).

RESULTS: Of the 25 patients evaluated, 19 (76%) developed NF: 12 in the group that did not receive prophylaxis and 7 in the group that received prophylaxis (100 x 54%; p = 0.015).

The groups were balanced in relation to potential confounding variables, such as age, comorbidities, number of CD34 cells infused and time of neutropenia.

All patients with fever started antibiotic therapy with cefepime. There was no significant difference in diarrhea episodes between groups and no infection with Clostridum difficile was documented. There were no deaths related to the transplant and all patients were discharged after hematological recover.

DISCUSSION: The risks and benefits of CF prophylaxis in oncohematological patients have been widely debated. A meta-analysis points to a reduction in the incidence of bloodstream infection during periods of neutropenia, but the results are difficult to generalize, as the populations studied are heterogeneous and include patients with acute leukemia in chemotherapy and patients undergoing different types of stem cell transplantation hematopoietic for the treatment of various pathologies. In addition, there is a potential risk of emergence of resistant bacteria if this practice is adopted more widely. Our study evaluated the development of NF in a specific group of MM patients undergoing HSCT. Despite its limitations, such as the retrospective design and the small number of patients evaluated, a significant reduction in NF episodes was evidenced in patients who received prophylaxis with levofloxacin.

CONCLUSION: Levofloxacin prophylaxis appears to be effective in reducing NF episodes in patients with MM undergoing HSCT.

TWO TRANSPLANTS IN THE MULTIPLE MYELOMA SCENARIO: ANALYSIS OF THE REASON THAT CORROBORATED FOR NOT PERFORMING THE SECOND AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PATIENTS ALREADY SUBJECTED TO COLLECTION

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INTRODUCTION: Multiple Myeloma (MM) is a proliferative disorder of clonal plasma cells in the bone marrow, with a very heterogeneous presentation clinical and biological which affects, above all, individuals over 65 years. The treatment approach for symptomatic patients with a recent diagnosis of MM is dictated by the eligibility - performance status, age, comorbidities - for autologous hematopoietic stem cell transplantation (AHSCT) and by disease risk stratification. Transplantation is a well-founded modality and established as first-line therapy in individuals with MM since it makes it possible to improve depth, duration of response, and overall survival. In the face of relapse, AHSCT can also be applied as rescue therapy for both patients who were never exposed to this procedure, and those who received hematopoietic stem cells (HSC) in the first treatment - cryopreservation allows their storage and use in relapse.

OBJECTIVE: To evaluate the factor that caused patients with MM, with HSC already collected for two AHSCTs, to not undergo the second transplant, in a Center in the South of Brazil, in the period from June 2000 to December 2015.

METHOD: Cohort, observational and retrospective study, which analyzed patients with MM who had HSC collected for two transplants and underwent only one, within the period of interest, at a center in southern Brazil.

RESULTS: Of the 317 patients with MM who collected HSC between 2000 and 2015, 147 (79%) met all the criteria for inclusion in this study. At the diagnosis of the underlying disease, the median age of the population was 54 years. Only 21% of myeloma patients underwent the second AHSCT, and 53.1% was represented by MM IgG - the most frequent subtype in the sample. The time between the oncological diagnosis and the first AHSCT was 19 months, with no statistical significance related to the average survival among transplant groups before and after this period. Considering the main reasons for not taking the second AHSCT: 28.6% of the patients progressed from the disease and died, 27.2% remained in remission, 12.2% persisted with stable pathology, 15.6% had the advance of MM allied to poor performance status, 9.5% died from other causes and 3.4% refused the second transplant.

CONCLUSION: The second AHSCT is a feasible option for patients with MM, often more economically viable and available when compared to new drugs, and which aims at progression-free survival and time without exposure to pharmacological therapy; however, considering the population eligible for this study, 79% were not submitted to the second AHSCT due to the evolution of the disease and associated mortality. Therefore, the option of collecting HSC must be individualized and aligned when making the treatment decision with this modality.

2. PEDIATRIC TRANSPLANT

AUTOLOGOUS

AUTOLOGOUS STEM CELL TRANSPLANTATION FOR CHILDREN WITH MALIGNANT CENTRAL NERVOUS SYSTEM TUMORS: A SINGLE CENTER EXPERIENCE

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INTRODUCTION: Central nervous system (CNS) tumors are the second largest category of neoplasms in children – after hematologic malignancies – accounting for 17 percent of childhood cancers. In the last two to three decades, several advances have been made in diagnosis and treatment, such as: greater accuracy of imaging methods, contributing to an earlier diagnosis; advancement in surgical and robotic techniques, enabling a more precise surgical approach, resulting in surgeries with gross total or near total resection (one of the most important prognosis factor); advances in radiotherapy (RT) techniques - even so, a method with several harmful late effects - such as radiation induced second malignancies, long term cognitive impairment, endocrine disorders, among others. However, even with these advances, survival rates remain unsatisfactory, especially in cases of incomplete tumor resection, or wheatear the tumor has spread, when RT is contraindicated (usually in children under 4 years of age, where the late effects are even more damaging) or if the tumor recurs. Reinforcing that prognosis in young children - where radiotherapy cannot be performed – and in patients with recurrent disease it is bleak. Certain pediatric brain tumors such as those of primitive neuroectodermal origin have demonstrated dose dependent chemotherapy responses. Considering those, treatment strategies using high-dose chemotherapy with autologous hematopoietic stem cell rescue have shown encouraging outcomes, being able to increase chemotherapy dose intensity, leading to a successful treatment; even making it possible to consider replacing irradiation in patients under 6 years of age, improving neurocognitive outcomes in the long term. Therefore, we need drugs that can cross the blood-brain barrier (BBB). Alkylating agents have been shown to be efficient on that task and given their dose-limiting toxicity is primarily hematologic, these are attractive agents for high-dose therapy followed by autologous stem cell

transplantation (ASCT). Among them thiotepa, specifically, has been shown to cross the BBB extremely efficiently. Thiotepa is an alkylating agent analogous to N, N ', N' – triethylenephosphoramid (TEEPA) that have been used to treat solid tumors and hematologic neoplasms since the 1950s. It is rapidly metabolized by cytochrome P450 to triethylene phosphoramide (TEPA) and both of them cross the blood-brain barrier – even reaching higher CSF concentrations than serum – leading the treatment options in CNS tumors. Unfortunately, it is not available in most Brazilian centers. Several studies have already shown an improvement in survival rates after the implementation of the autologous transplantation (single or tandem) using thiotepa-based regimens. Better outcomes are noticed in medulloblastoma (a cerebellum primitive neuroectodermal tumor), supratentorial primitive neuroectodermal tumor (PNET) and high-grade gliomas; ependymomas and germ cell tumors need to be better evaluated. There is no consensus on the superiority of treatment in terms of number of transplants (one, two or three cycles – tandem), however by using tandem transplants we are able to triple the dose of thiotepa given to the patient, making it possible to increase the treatment dose intensity. From November 2013 to June this year, our center performed ASCT in 9 patients diagnosed with CNS tumors, all of them with thiotepa.

OBJECTIVE: To describe all the autologous stem cell transplantations performed on pediatric patients with central nervous system tumors from November 2013 to June 2020 at our center.

Materials and methods: All 9 patients had their peripheral blood stem cells mobilization performed by administering granulocyte-colony-stimulating factor (filgrastim) and had their cells collected by leukapheresis, where the CD34+ cells target was 5x106/kg (per cycle). All the conditioning regimens were thiotepa based, generally associated with carboplatin – in one of the cases, bussulfan was chosen to be the drug association choice (for this patient only a single transplantation was planned); in 2 patients etoposide was added to the thiotepa and carboplatin combination (single transplantation planned for both as well). In the matter of infection prophylaxis, all patients took a combination of sulfamethoxazole and trimethoprim, acyclovir, fluconazole or micafungin – however any adjustments were made if the patient had a specific past infection or colonization. For hepatic veno-occlusive disease prophylaxis, ursodeoxycholic acid was given to all of them. To prevent CNS bleeding consecutive platelets transfusions were performed in the aim of keeping the counts higher than 50.000/mm3.

RESULTS: From the 9 patients that were treated at our center (Table 1), 4 of them (44%) had medulloblastoma, the most prevalent tumor in our population, followed by: atypical teratoid rhabdoid tumor (n=2), PNET (n=1), choroid plexus carcinoma (n=1) and a central nervous system germ cell tumor (n=1). Among them, 6 were male and 2 female. Their median age was 2 years (the youngest was 1 year old and the oldest 19 years old). Between them, 3 were in complete remission (CR), 4 had residual tumor <1,5cm, 1 had residual tumor >1,5cm and the last one had residual tumor >1,5cm associated with leptomeningeal dissemination. The first 3 patients that were submitted to transplantation the chosen strategy was a single cycle; for the other 6 patients the tandem strategy was preferred – accounting for a total of 18 transplants. However, in 3 patients that initially had 3 cycles planned we could only perform 2 cycles: one died after the first transplant due to disease progression; another one – which previously had epilepsy – triggered a status epilepticus before starting the third cycle; and the third one experienced a septic shock (this patient was colonized by a multi-resistant bacteria) after the second transplant – these last 2 had contraindications to procced to the last cycle. All the 9 transplants were performed with peripheral blood stem cells collected by leukapheresis. The most common complication was oral and TGI mucositis (which all of the 9 patients presented at some point of the process) followed by febrile neutropenia; and, due to the fact that the they all had CNS tumors, some patients had seizures (one of them even triggered a status epilepticus). The median time to neutrophil engraftment was 12 days. Platelets engraftment evaluation was imprecise as result of the frequent transfusions all of them needed to keep their platelet levels above 50.000/mm3. In addition to the ASCT strategy, 5 patients underwent radiotherapy as a consolidation therapy. During the time of the analysis, 4 patients died – all deaths caused by tumor progression. We did not experience any death due to transplant toxicity. The other 5 remain alive – 2 of them who underwent ASCT in complete remission did not relapse and 3 who had residual tumor (< 1,5cm) before transplant have no signs of disease progression.

CONCLUSION: CNS tumor patients with metastatic disease, subtotal resection or recurrent tumors have a poor prognosis. A thiotepa-based conditioning regimen followed by ASCT strategy has proven to be a safe and effective approach to them, as they have an efficient antitumor effect. Using a tandem approach, we are able to increase thiotepa dosing and enhance final results. And even reduce RXT late effects as we are capable of, in some cases, to avoid irradiation. The major prognostic factor definitely is tumor-status prior to the beginning of the transplant: patients that underwent gross total resection or with small residual tumor (<1,5cm) are the ones with better outcomes. On the other hand, the population with metastatic disease or residual tumor >1,5cm prior to the beginning of conditioning were the ones that went worse and ended up dying by disease progression. Nonetheless data shows that, even though the patient is not in complete remission, we can see benefits of undergoing ASCT. Regarding mobilization and graft choice, it is acknowledged that the administration of granulocyte-colony-stimulating factor followed by collection of peripheral blood stem cells by leukapheresis have positive results on the engraftment. Many studies prove that thiotepa-based conditioning regimens (especially when combined with carboplatin) have remarkably better results when compared to the ones without thiotepa. Regarding ASCT complications our data ended up being very similar to other studies, where mucositis is the leading issue, followed by febrile neutropenia. Reinforcing that there was no transplant toxicity or infectious related death in our patients. All of the 5 alive patients are doing well and have no signs of disease progression. Even though our numbers are not expressive we believe that high dose chemotherapy – using thiotepa – followed by ASCT have a significant role in the treatment of childhood CNS tumors and may be helpful on conquering an improvement of long-term survival rates for these patients. Therefore, enhancing the need of thiotepa standardization in our country so that all Brazilian centers would be able to offer it to their patients.

TABLE 1

ID	Diagnosis	Tumor site	Age at ASCT (years)	Disease status prior to ASCT	Number of cycles	Conditioning regimen	Post transplant radiotherapy	Outcomes
1	Choroid plexus carcinoma	Lateral ventricule	2	Complete remission	1	Thiotepa, carboplatin and etoposide	No	Alive and complete remission
2	CNS germ cells tumor	Pineal gland	8	Residual tumor >1,5cm	1	Thiotepa, carboplatin and etoposide	Yes	Death due to disease progression
3	Medulloblastoma	Cerebellum	13	Residual tumor plus leptomeningeal dissemination	1	Thiotepa and bussulfan	No	Death due to disease progression
4	Medulloblastoma	Cerebellum	2	Complete remission	3	Thiotepa and carboplatin	Yes	Death after relapse and further disease progression
5	Medulloblastoma	Cerebellum	2	Complete remission	3	Thiotepa and carboplatin	No	Alive and complete remission
6	PNET	Supratentorial	19	Residual tumor <1,5cm	2	Thiotepa and carboplatin	Yes	Alive and no signs of progression disease
7	Atypical teratoid rhabdoid tumor	Cerebellum	1	Residual tumor <1,5cm	2	Thiotepa and carboplatin	No	Death due to disease progression after 2nd ASCT cycle
8	Medulloblastoma	Cerebellum	2	Residual tumor <1,5cm	2	Thiotepa and carboplatina	Yes	Alive and no signs of progression disease
9	Atypical teratoid rhabdoid tumor	Cerebellum	1	Residual tumor <1,5cm	3	Thiotepa and Carboplatin	No	Alive and no signs of progression disease

TANDEM AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR GERM-CELL TUMORS: AN EXPERIENCE REPORT OF A PEDIATRIC HEMATOPOIETIC STEM CELL SERVICE

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INTRODUCTION: The germ-cell tumors (GCT) are unusual during childhood and tend to have a good prognosis. However, in rare events when there is an indication for autologous hematopoietic stem cell transplantation (aHSCT), the role of a Tandem (a planned second course of high-dose therapy and stem cell transplant) process has been studied in recent years attempt to gain benefits in patients' survival. OBJECTIVE: To describe the experience of a pediatric HSCT service of Tandem Autologous Transplantation in patients with GCT performance. CASE SELECTION: Five pediatric patients undergoing tandem HSCT in a pediatric HSCT service. METHOD: The review of index patients' charts was held. RESULTS: From 2017 to 2020, five patients of a pediatric HSCT service diagnosed with GCT were submitted to sequential transplantation in the following conditioning regimen: Carboplatin 500mg/m2 and Etoposide 400mg/m2 between D+4 and D+2, in intervals of 21 days among each HSCT conditioning beginning. Four of the five patients evaluated were submitted to three procedures and one female patient to two, this last one, due bordering mobilization of CD34+ cells. None of the patients has shown sinusoidal obstruction syndrome (SOS), grade 3 or 4 mucositis, infectious complications and severe blood cell diseases or the need of Intensive Care Unit admission. The first case selection patient, whose underwent a transplant in 2017, is alive and disease-free for 3 years. In relation to the other patients, it was not possible to describe the long-term outcome, since they underwent transplantation in 2020. DISCUSSION: The germ-cell tumors (GCT) are unusual during childhood and tend to have a good prognosis. However, in the events of high-risk diseases in first remission, relapsed patients and those who do not respond to conservative treatment, aHSCT can be considered a therapeutic alternative. The Tandem Autologous Transplantation accomplishment has been associated with less mortality rate related to HSCT, nevertheless, without any difference regarding to overall survival and free from patients' events when compared to only one myeloablative transplantation accomplishment. CONCLUSION: The development of this pediatric HSCT service's patients corroborate the literature studies with regard to lower incidence of secondary complications to conditioning toxicity of patients undergoing tandem HSCT. Due the follow-up time, the assessment of overall survival and free from reported patients' events has yet not been possible.

THE WELL-SUCCEED MOBILIZATION OF PERIPHERAL BLOOD HEMATOPOIETIC STEM CELLS WITH VINORELBINE IN POOR-MOBILIZER PATIENT: A PEDIATRIC PATIENT´S CASE REPORT

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INTRODUCTION: About 15% of patients with indication for autologous hematopoietic stem cell transplantation (HSCT) are poor mobilizer, which means they are not able to mobilize sufficient amount of CD34+ cells to perform the procedure. In these cases, we can consider the use of Plerixafor, however, this is an expensive medicine that is not always affordable in most of services.

OBJECTIVE: To describe the experience of a pediatric patient considered a poor mobilizer, who has shown a well-succeed mobilization after Vinorelbine using.

METHOD: The review of index patient's chart was held.

RESULTS: A 8-year-old female patient was diagnosed with germ-cell tumor (GCT) in the right ovary stage IV (pulmonary metastases) on December 2018. She was treated according to GCT Brazilian Protocol in the childhood with Cisplatin and Etoposide, in addiction of being submitted to ovarian tumor resection. It had full response, although, has progressed to pulmonary recurrence 2 months later the therapy ending. Thus, a rescue chemotherapy (TIP – Paclitaxel + Ifosfamide + Cisplatin) has started and autologous HSCT indication as consolidation. However, the patient presented two mobilization fails after chemotherapy and G-CSF use (granulocytes colony-stimulating factor). The first attempt of mobilization occurred after 2 cycles of TIP and G-CSF, collecting 1,27x106 cells CD34/kg during leukapheresis. The second attempt occurred after the fifth TIP cycle which leukapheresis was not performed, since the patient presented 3,92 cells/mm3 in the peripheral blood on the tenth day of mobilization. As the patient presented high-risk of recurrence without HSCT accomplishment and the service does not dispose of Plerixafor, opting for perform a new attempt of mobilization using Vinorelbine and G-CSF, obtaining 20,16x106 CD34/kg during leukapheresis. DISCUSSION: Patients who obtain <2x106 CD34/kg during leukapheresis are defined as "poor mobilizers". In these cases, should consider Plerixafor use, a drug that is a receptor CXCR4 antagonist, that enables the bone marrow's cells CD34+ mobilization into peripheral blood. The literacy shows clear advantage between Plerixafor and G-CSF mobilization compared to G-CSF and placebo. Nevertheless, the high-cost of such drug make it unavailable in most of Brazilian centers. The Vinorelbine use associated with G-CSF has shown efficacy greater than 90% in the mobilization of adult patients with multiple myeloma and lymphomas considered poor-mobilizers. There aren't any studies involving pediatric population.

CONCLUSION: Vinorelbine use could be an affordable alternative for patients who are considered poor mobilizers. However, studies about this sort of mobilization in pediatric population as well as comparative studies between mobilization effectiveness using Vinorelbine and Plerixafor.

AN ANALYSIS OF THE DEMOGRAPHIC CHARACTERISTICS OF A DECADE OF PEDIATRIC ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION AT A TRANSPLANT CENTER

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INTRODUCTION: Demography is the science and quantitative study of human populations that allows to understand the characteristics of a given population and its evolution over time. Objective: To analyze data from a decade of an allogeneic hematopoietic stem cell transplantation center and obtain demographic indicators.

CASE SERIES: The population is pediatric, ranging from infancy to adolescence, that has undergone allogeneic hematopoietic stem cell transplantation.

METHOD: The type of study is a retrospective cohort analysis with data stored and evaluated in a Microsoft® Office Excel® spreadsheet.

RESULTS: The hematopoietic stem cell transplantation center started activities for the allogeneic transplantation in May 2010 and by May 2020, 219 allogeneic transplants had been performed on 207 patients. Of these 207 transplant patients, 60% (n = 125) are male; this is because some of the pathologies transplanted in the analyzed period are X-linked recessive inheritance diseases. About the analysis of the patients' age, the minimum was 2 months of age; the median was 8 years old; the average age was 9 years old; and the most recurrent age was 1 year old, with 21 children of that age (also linked to the characteristics of the diseases treated). Although the mode is 1 year old and the median is 8 years old, when grouped by age, our largest audience, 32%, is between 10 and 14 years old (n = 67), followed by 26% being between 5 and 9 years old (n = 54). Regarding diagnostic stratifying, 56% of the cases were malignant diseases corresponding to the absolute number of 115. Of these malignant diseases, acute leukemias accounted for 36% (n = 42), acute myeloid leukemias accounted for 30% (n = 35), and myelodysplastic syndromes accounted for 9% (n = 10). In addition to attending to high-risk leukemias, when non-malignant diseases were evaluated, primary immunodeficiencies stood out with 53 cases, of which 38% (n = 20) corresponded to chronic granulomatous disease, 28% (n = 15) to hemophagocytic syndrome, 15% (n = 8) to severe combined immunodeficiency, and 4% (n = 2) to Wiskott-Aldrich syndrome. In relation to non-malignant diseases in the analysis of 39 other diagnoses in this subset, severe aplastic anemia represented 33% of cases (n = 13), followed by 28% (n = 11) of metabolic disorders, 18% (n = 7) of osteopetrosis, and 15% (n = 6) of inherited bone marrow failures.

CONCLUSIONS: Through the data it can understand the characteristics of the population served over the last decade and conclude that although the public is pediatric, there is heterogeneity in both the age group and in the transplanted pathologies. Having a database available is favorable for evaluating the characteristics and results of the service, and it is suggested that further analyzes, for example, socioeconomic, be carried out to obtain other details of this population.

KEYWORDS: demography, pediatrics, hematopoietic stem cell transplantation

DESENSITIZATION OF ANTI-HLA DONOR SPECIFIC ANTIBODIES IN PEDIATRIC BONE MARROW TRANSPLANTATION

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INTRODUCTION: The presence of anti-HLA donor-specific antibodies (DSA) in hematopoietic stem cell transplantation (HSCT) is related to high risk of primary graft failure (PGF). Causes of anti-HLA DSA development are pregnancy, blood product transfusion and previous transplantation. These antibodies can also be found as a result of cross reaction against environmental antigens. The mechanisms of PGF are associated to celular and humoral factors. Strategies described to lower DSA levels range from combinations of plasmapheresis, IV immunoglobulin, rituximab even to the use of bortezomib.

OBJECTIVE: To describe the experience of anti-HLA DSA desensitization in a pediatric patient.

MATERIALS AND METHODS: Review of the medical records of the index patient.

A 9 year old girl with refractory anemia with excess of blasts , a type of myelodysplastic syndrome, had during her workup for a 9x10 unrelated donor HSCT the finding of DSA MFI (mean fluorescense intensity) levels of 12954 and 9768 of DQB1*02:02 and DPB1*02:01, respectively. Her anti-HLA panel also consisted of 71 class I antibodies with MFI varying from 1534 to 12899 and 34 class II antibodies with MFI varying from 1912 to 17055. She received red blood cell transfusions 34 times before the HSCT. Since this was the better donor option based on her panel, it was opted for a desensitization strategy. Her desensitization protocol consisted of 3 days of plasmapheresis, 2 days of immunoglobulin, 1 day of rituximab and 1 day of buffy coat transfusion (table 1). After undergoing a conditioning regimen of busulfan, fludarabine, melphalan, ATG and GVHD prophylaxis with cyclosporine and methotrexate, she had neutrophil engrafment on D+18. On D+1 she had no signs of anti-HLA DSA. No major complications ocurred during HSCT. On D+100 had full donor chimerism with no citopenia and mild oral chronic GVHD.

DISCUSSION: The prevalence of DSA ranges between 10% and 21%. There are no specific data about the prevalence in pediatric patients. The MFI cut-off to determine the risk of PGF is not well known, but higher MFI levels are associated with greater risk of PGF. Some studies consider MFI levels above 5000 to be of high risk for PGF. The strategies to desensititize patients with DSA can be classified as: antibody removal, antibody neutralization, inhibition of antibody production and complement cascade blockage. The protocol of desensitization used in our patient included elements of all these characteristics. The engrafment sucess was problably reflected on the anti-HLA DSA elimination. There are no current data regarding the true effectiness of these desensitization strategies because most of the studies are case reports or analyses with limited number of patients.

CONCLUSION: Patients with significant transfusional history and others risk factors should be screened for anti-HLA DSA and, in the absence of a better donor, a desensitization strategy should be performed to avoid PGF.

TABLE 1

Day	D -15	D -14	D -13	D -12	D -11	D -10	D -9	D -8	D-7	D-6	D-5	D-4	D-3	D-2	D-1	D0	D+1	D+3	D+6
Plasmapheresis	■			■		■										Infusion			
Immunoglobulin							■												
Rituximab								■											
Busulfan										■	■	■							
Fludarabin										■	■	■	■	■					
Melphalan														■					
ATG											■	■	■	■					
Buffy Coat															■				
Cyclosporine													■						
MTX																	■	■	■

DONOR AND CELL SOURCE PROFILE: AN ANALYSIS OF A DECADE OF ACTIVITY AT A SINGLE PEDIATRIC CENTER IN ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: The hematopoietic stem cell transplantation is a therapeutic option used to cure different pathologies. In order to happen, it depends on a match donor available and a place to collect the material to be donated, with adequate resources and staff to attend the procedure for obtaining the cells, in which the source of the collection depends on each case. There is the collection of cells through peripheral venipuncture using a specific device that makes apheresis, a process that means separating the cells from the blood; through puncture in the pelvis bone specifically in the posterior iliac crest; and the donation of umbilical cord and placental blood. Regarding the type of donor, there is the related (including the haploidentical) and the unrelated.

OBJECTIVE: To analyze data from a decade of operation in a pediatric center for allogeneic hematopoietic stem cell transplantation and obtain indicators on the type of donor and the source of cells.

CASE SERIES: The population corresponds to donors of hematopoietic stem cells for allogeneic transplantation in which the recipients are pediatric patients.

METHOD: The type of study is retrospective cohort analysis with data stored and evaluated in a Microsoft® Office Excel® spreadsheet. Results: The hematopoietic stem cell transplantation center started activities for the allogeneic type in May 2010 and by May 2020, 219 allogeneic transplants had been performed. In relation to donors, the unrelated account for 36% (n = 78), related 28% (n = 62), haploidentical 23% (n = 50); in pediatrics, there is a more likely possibility of choosing a source of cells from umbilical cord and placental blood, and during the analysis period, 27 unrelated cords were used, which corresponds to 12% of the total number of transplants and 2 sibling cords, representing 1%. About the type of cell source, 82% (n = 179) were punctured from the posterior iliac crest (bone marrow), 12% (n = 27) umbilical cord and placental, 5% (n = 11) by apheresis of peripheral blood and 1% (n = 2) of mixed, bone marrow and umbilical cord and placental blood.

CONCLUSIONS: Through the data survey, it was possible to notice that there is a variety regarding the type of donor, something favorable to patients who need a transplant, because over the years the availability of new types of donors has proven to be feasible. For the type of cell source, there was a significant predominance for cells obtained by puncture of the posterior iliac crest and by umbilical cord and placental blood. The cases of collection by peripheral apheresis were related to the risk of the recipient's disease and refusal or comorbidity of the donor.

KEYWORDS: pediatrics, hematopoietic stem cell transplantation, source of cells

HEMATOPOETIC STEM CELL TRANSPLANTATION IN A PATIENT WITH MAJOR ALPHA TALASSEMIA ASSOCIATED WITH UNSTABLE HEMOGLOBINOPATHY VARIANT ZÜRICH-ALBISRIEDEN [ALPHA2 59 (E8) GLY>ARG (HBA2: C.178G>C)]: CASE REPORT

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INTRODUCTION: Unstable hemoglobins correspond to rare genetic conditions, of varying severity, with severe cases characterized by hemolytic anemia, hepatomegaly, splenomegaly and the need for red blood cell transfusion support. In this work, we report a case of allogeneic hematopoietic stem cell transplantation (HSCT) in a patient with alpha thalassemia caused by the presence of unstable hemoglobin variant Zürich-Albisrieden [α2 59 (E8) Gly>Arg (HBA2: C.178G> C)]. CASE DESCRIPTION: 5-year-old male patient, born at 32 weeks, cesarean delivery, hydrops fetalis, on transfusion support of red blood cells since birth and iron chelation with deferasirox in an optimized dose. On physical examination, he had short stature (<P3), cryptorchidism and hypospadias. Pre-HSCT exams showed normal echocardiogram, chest and sinus tomography without abnormalities, magnetic resonance of the heart with T2*=31.4 ms (without myocardial iron deposition), liver resonance with LIC=4.15 mg/g (mild hepatic deposition) and 2,542 ng/mL ferritin. A healthy 14-year-old sister donor was selected, without pathogenic mutation presented by the patient, identical HLA, ABO isogroup and Rh minor incompatibility (patient: AB, Rh positive, AB donor, Rh negative). Bone marrow was used as a source of progenitor cells and we used myeloablative conditioning regimen with intravenous busulfan 16 mg/kg and cyclophosphamide 200 mg/kg. Graft-versus-host

disease prophylaxis performed with Antithymocyte Globulin (ATG) 6 mg/kg, cyclosporine and methotrexate 4 doses. Total nucleated cells infused was 5.65 x 108 cells/kg, neutrophilic grafting confirmed at D+28 and platelet grafting at D+40. He presented Sinusoidal Obstruction Syndrome on D+15, being treated with methylprednisolone 500 mg/m^2 for 3 days and a favorable evolution. Currently, the patient is in D+250 post-HSCT, with complete donor chimerism and without clinical changes.

DISCUSSION: Unstable hemoglobinopathies can range from mild clinical changes to more severe conditions. The unstable Zürich-Albisrieden hemoglobin [α2 59 (E8) Gly>Arg (HBA2: C.178G> C)], described in 2004, presents a characteristic phenotype of major thalassemia, being considered an extremely rare genetic disease. Patients with major thalassemia have HSCT as their only curative treatment option. In this context, since the patient had an indication for HSCT due to transfusion dependence on red blood cells associated with iron overload and had a compatible related donor, we opted for the transplant.

CONCLUSION: To our knowledge, this is the first case report of allogeneic HSCT in a patient with alpha thalassemia associated with unstable hemoglobinopathies described in the literature. HSCT seems to be an acceptable therapeutic option in these patients, however new reports are needed to better understand the role of HSCT in unstable hemoglobins.

Age (years)	Donor	Graft	Conditioning	CD34/kg	Engraftment	GVHD
8	Unrelated	BM	Flu+Cy+ATG	6,14x10(6)	D+20	no
8	Unrelated	BM	Flu+Cy+ATG	3,60x10(6)	D+33	yes
4	Unrelated	BM	Flu+Cy+ATG +TBI200cGy	7,34 x10(6)	D+20	yes
12	Unrelated	BM	Flu+Cy+ATG +TBI200cGy	3,81X10(6)	D+21	yes
14	Unrelated	BM	Flu+Cy+ATG +TBI200cGy	6,21x10(6)	D+30	yes
8	Unrelated	PB	Flu+Cy+ATG +TBI200cGy	13,85x10(6)	D+15	no
2	Haploidentical	BM	Flu+Cy+ATG +TBI200cGy	14,3 x 10 (6)	D+19	yes
6	Haploidentical	BM	Flu+Cy+ATG +TBI200cGy	8,64x10(6)	D+15	yes
6	Haploidentical	BM	Flu+Cy+ATG +TBI200cGy	11,27x10(6)	D+14	no
8	Haploidentical	BM	Flu+Cy+ATG +TBI200cGy	4,76x10(6)	D+19	no
9	Haploidentical	BM	Flu+Cy+ATG +TBI200cGy	5,33x10(6)	D+21	yes

Patients with Severe Aplastic Anemia undergoing Allogeneic HCT from Alternative Donors

HAPLOIDENTICAL (HAPLO) COMPARED WITH UNRELATED DONOR (URD) HEMATOPOIETIC STEM CELL TRANSPLANTS (HCT) TO TREAT SEVERE APLASTIC ANEMIA IN PEDIATRICS

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INTRODUCTION: Unstable hemoglobins correspond to rare genetic conditions, of varying severity, with severe cases characterized by hemolytic anemia, hepatomegaly, splenomegaly and the need for red blood cell transfusion support. In this work, we report a case of allogeneic hematopoietic stem cell transplantation (HSCT) in a patient with alpha thalassemia caused by the presence of unstable hemoglobin variant Zürich-Albisrieden [α2 59 (E8) Gly>Arg (HBA2: C.178G> C)].

CASE DESCRIPTION: 5-year-old male patient, born at 32 weeks, cesarean delivery, hydrops fetalis, on transfusion support of red blood cells since birth and iron chelation with deferasirox in an optimized dose. On physical examination, he had short stature (<P3), cryptorchidism and hypospadias. Pre-HSCT exams showed normal echocardiogram, chest and sinus tomography without abnormalities, magnetic resonance of the heart with T2*=31.4 ms (without myocardial iron deposition), liver resonance with LIC=4.15 mg/g (mild hepatic deposition) and 2,542 ng/mL ferritin. A healthy 14-year-old sister donor was selected, without pathogenic mutation presented by the patient, identical HLA, ABO isogroup and Rh minor incompatibility (patient: AB, Rh positive, AB donor, Rh negative). Bone marrow was used as a source of progenitor cells and we used myeloablative conditioning regimen with intravenous busulfan 16 mg/kg and cyclophosphamide 200 mg/kg. Graft-versus-host disease prophylaxis performed with Antithymocyte Globulin (ATG) 6 mg/kg, cyclosporine and methotrexate 4 doses. Total nucleated cells infused was 5.65 x 108 cells/kg, neutrophilic grafting confirmed at D+28 and platelet grafting at D+40. He presented Sinusoidal Obstruction Syndrome on D+15, being treated with methylprednisolone 500 mg/m^2 for 3 days and a favorable evolution. Currently, the patient is in D+250 post-HSCT, with complete donor chimerism and without clinical changes.

DISCUSSION: Unstable hemoglobinopathies can range from mild clinical changes to more severe conditions. The unstable Zürich-Albisrieden hemoglobin [α2 59 (E8) Gly>Arg (HBA2: C.178G> C)], described in 2004, presents a characteristic phenotype of major thalassemia, being considered an extremely rare genetic disease. Patients with major thalassemia have HSCT as their only curative treatment option. In this context, since the patient had an indication for HSCT due to transfusion dependence on red blood cells associated with iron overload and had a compatible related donor, we opted for the transplant.

CONCLUSION: To our knowledge, this is the first case report of allogeneic HSCT in a patient with alpha thalassemia associated with unstable hemoglobinopathies described in the literature. HSCT seems to be an acceptable therapeutic option in these patients, however new reports are needed to better understand the role of HSCT in unstable hemoglobins.

HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) IN SEVERE COMBINED IMMUNODEFICIENCY (SCID): UNRELATED X HAPLOIDENTICAL DONORS

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HCT is the only available curative therapy for children with SCID. The HCT in these patients is a medical emergency. Haploidentical HCT has grown as a therapeutic option because donors are theoretically available to everyone. Due to the more recent use of haploidentical HCT with post-HCT cyclophosphamide for the prophylaxis of graft-versus-host disease (GVHD) in immunodeficiencies and the rarity of these diseases, the literature is still scarce on the results of these HCT. Thus, the aim of this study is to describe the experience with haploidentical and unrelated donor HCT and compare its outcomes.

PATIENTS: Six babies underwent allogeneic HCT for treatment of SCID, three with unrelated donor and three with haploidentical donors.

METHODS: Retrospective observational study comparing unrelated and haploidentical TCH regarding rejection, GVHD, the presence of severe complications and overall survival. For the unrelated HCT, the three patients received Bussulfan, Fludarabine and ATG or Alemtuzumab; for Haploidentical HCT, Fludarabine 150 mg/m2, Cyclophosphamide 25 mg/kg and TBI 200 cGy. Bone marrow as the stem cell graft in all transplants. Cyclosporine and Methotrexate and post-HCT Cyclophosphamide, Cyclosporine and Mycophenole mofetil were used for GVHD prophylaxis, respectively.

RESULTS: Six boys were transplanted, median age of 9 months at HCT. All had received BCG and had at least one recurrent or persistent viral infection before HCT, except one patient. The three patients with haploidentical HCT simultaneously had severe GVHD and secondary graft failure and died with numerous clinical complications including post-transplant lymphoproliferative disease and hemophagocytic lymphohystiocytosis. The three patients undergoing unrelated HCT had adequate engraftment and did not have GVHD. One patient has mixed chimerism since the 4th month post HCT, but is alive and well. The six patients had similar performance before HCT, including infectious complications and, therefore, we do not consider that this was a relevant factor in the differences in the outcomes between them. Conclusion: The three patients with SCID who had HCT from haploidentical donors have developed severe and, despite having received adequate cellularity, rejected the graft and died; on the other hand, the three patients who underwent unrelated HCT are alive, with excellent donor cell engraftment. Despite the small number of patients, the results of haploidentical HCT did not show good results in our patients. Multidisciplinary work and collaboration between centers of excellence are very important to achieve therapeutic success.

TABLE 1: PATIENTS WITH SCID UNDERGOING ALLOGENEIC HCT

Patient	Age (months)	Diagnosis	Pre comorbidities	Donor	Graft	Conditioning	CD34/kg	CTN/kg	Engrafment	Chimerism	Graft failure	GVHD	Death	Follow up (months)	Cause of death
1	9	SCID (T-B+NK-)	Vaccine Tuberculosis	Haploidentical	BM	Flu-TBI(200)-CyPost;Cy, Cyclosporine, MMF	13,5x 10(6)/ Kg	14 x 10 (8)/kg	D+15	Mixed	Secondary	Yes	Yes	11	PTLD
2	8	SCID (T-B+NK-)	Vaccine Tuberculosis Parainfluenza 3 Rhinovirus	Haploidentical	BM	Flu-TBI (200)-CyPost; Cy, Cyclosporine, MMF	10,4 x 10(6)/ Kg	6,4 x 10(8)/ Kg	D+17	Mixed	Secondary	Yes	Yes	7	Hemophagocytic lymphohistiocytosis
3	8	SCID (T-B+NK-)	Vaccine Tuberculosis Parainfluenza 3 Rhinovirus	Haploidentical	BM	Flu-TBI(200)-CyPost; Cy, Cyclosporine, MMF	10,0 x 10(6)/ Kg	6,3 x 10(8)/ Kg	D+18	Mixed	Secondary	Yes	Yes	9	Hemophagocytic lymphohistiocytosis
4	10	SCID (T-B+Nk-)	Vaccine Tuberculosis Metapneumovirus Coronavirus	Unrelated	BM	Bu+Flu+ATG	10,02x10(6)	8,35x10(8)	D+29	Mixed	No	No	Alive	28	Alive
5	5	SCID (T-/B-/ NK-)	Vaccine Tuberculosis Parainfluenza 3	Unrelated	BM	Bu+Flu+ATG	7,4x10(6)	8,32x10(8)	D+18	Complete	No	No	Alive	8	Alive
6	8	SCID (T-/B+/ NK+)	Vaccine Tuberculosis Cytomegalovirus Hemophagocytic lymphohistiocytosis	Unrelated	BM	Bu+Flu+Alemtuzumab	5,91x10(6)	9,86x10(8)	D+18	Complete	No	No	Alive	8	Alive

OMENN SYNDROME NEWBORN: A CHALLENGE IN DIAGNOSIS AND TREATMENT

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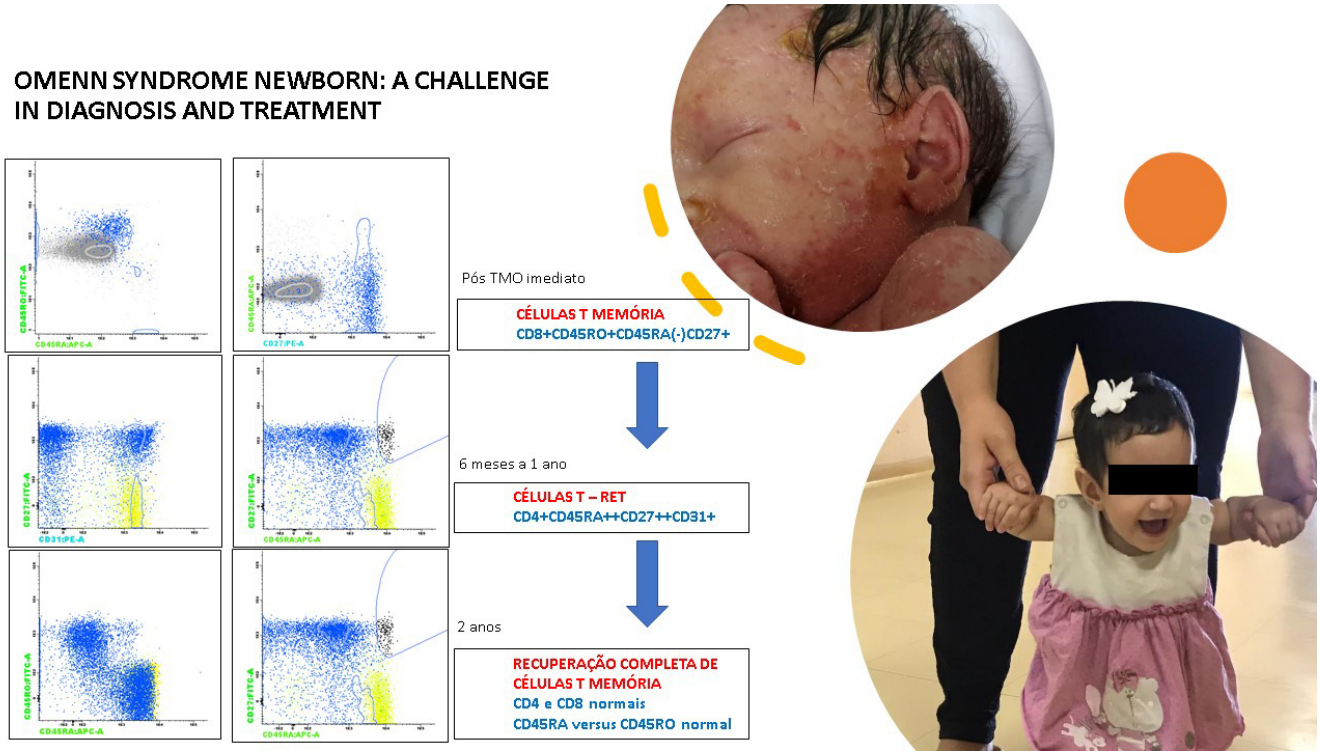

OBJECTIVE: To describe a newborn with Omenn Syndrome diagnosed by flow cytometry (CF) immunophenotyping and referred quickly to life-saving therapy Haploidentic Stem Cell Transplantation (HSCT).

INTRODUCTION: Omenn Syndrome is a rare form of Primary Congenital Immunodeficiency (PID) caused by the presence of RAG1 or RAG2 mutations, associated with high mortality. Its early recognition is necessary because time for donor research and patient preparation for transplantation is crucial to reduce mortality in this entity.

CLINICAL CASE: Female patient, daughter of non-consanguineous parents, presented widespread skin lesions with intense desquamation and ichthyosis / xerosis at birth. At 20 days of life, she had a fever, worsening of skin lesions and severe acute respiratory syndrome. She developed septic shock despite the use of broad-spectrum antibiotics and intensive care. In addition to skin lesions she presented moderate hepatosplenomegaly, altered liver and kidney functions, and a complete blood count with leukocytosis (32,820 / uL), increased neutrophils (8828 / uL), lymphocytes (15,294 / uL) and eosinophils (7,154 / uL), mild anemia and moderate thrombocytopenia (19,000 / uL). Flow cytometry showed T cell increased in absolute number (14,402 / uL), with normal CD4 / CD8 ratio, discrete B cell lymphopenia (260 / uL) and normal NK lymphocytes (658 / uL). The evaluation of lymphocyte subpopulations showed predominantly memory T cell phenotype (CD45RO++ CD45RA-CD27dimCD31-), and intense decrease in naïve T cell population (CD45RA+ CD45RO- CD27+ CD31+) in relation to normal values at this age. The dosage of immunoglobulins was low except for the presence of hyper-IgE (3,450mg / dl). Treatment with methylprednisolone, cyclosporine and immunoglobulin replacement (400mg / kg) was instituted, with progressive improvement of skin

lesions, liver and kidney functions. Despite clinical improvement, it was necessary to start conditioning for father haploidentical HSCT in an intensive care setting, under mechanical ventilation and renal replacement therapy. Patient had neutrophilic (D15) and platelet (D26) engraftment and was extubated on D20, discharged on D75. Immune profile of D101 showed lymphopenia (683 lymphocytes, 462 LT - 302 CD4; 123 CD8; 113 LB; 107 LNK) but with naïve T cell recuperation, and D90 chimerism with 89% donor cells. Mutation search confirming RAG2 mutation and serial assessments of lymphocyte subpopulations showed recovery of naïve T lymphocytes and memory, with subsequent normalization. The patient is currently 3 years post-transplant and is doing well.

CONCLUSION: We describe a case in which lymphocytosis with a predominance of memory T lymphocytes (CD45RO), decrease in B lymphocytes, eosinophilia and skin lesions raised the suspicion of Omenn Syndrome (SCID T+B-NK+). The great efforts of pediatric neonatal ICU teams and bone marrow transplantation played a crucial role in optimum outcome and survival of this child.

PERFORMING THREE CONSECUTIVE BONE MARROW TRANSPLANTS IN A CHILD DIAGNOSED WITH MUCOPOLYSACCHARIDOSIS: A CASE REPORT

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INTRODUCTION: M.L.S. patient, two years old, diagnosed with Mucopolysaccharidosis type IV. Mucopolysaccharidosis are metabolic diseases caused by metabolism error that leads to inadequate formation of enzymes found in lysosomes. The molecules accumulate in the lysosome and in organs such as skin, liver and spleen. It is classified into types I to VII. The type VI, has progressive multisystemic involvement, associated with a deficiency of the enzyme arylsulfatase B. Treatment options were limited, resulting in palliative behaviors in the face of complications, such as clinical and surgical support, but currently, treatment with BMT and enzyme replacement therapy brings new hope to these patients.

OBJECTIVES: To report the experience of nurses in the care of a pediatric patient with mucopolysaccharidosis in the performance of three consecutive TMOs. METHODS: This is a qualitative, descriptive, case study carried out in the unit of TMO and pediatric ICU, of a hospital in São Paulo in the period of 4 months.

RESULTS: The first TMO occurred in May 2019 by source of SCUP (umbilical cord) with grafting failure in 27/7/2019, being programmed new SCUP in 30/07/2019, new grafting failure in 25/08/2019, being accomplished the last TMO in 26/08/2019, haplo-idêntico of the father with neutrophilic grafting in 15/09/2019. During this period, there was only one transfer to the ICU due to reaction to Alentuzumab, and its main complications related to TMO were: grade II mucositis and mild VOD.

DISCUSSION: During the period of hospitalization, the parents were fully with the child, taking turns with the grandparents. With this stay, the nursing professionals created the ability to live with the sick family. The bond with the team during this period of hospitalization became closer and closer. Parents and nursing staff have at least one objective in common, the restoration of the child's health. Developing actions that allow greater autonomy of both in the relationship cannot be denied. We realized that throughout the treatment the parents increased their safety in relation to the work of the nursing team and the team performed a planned assistance, bringing comfort to the child.

CONCLUSION: In this way, despite the three transplants the child was discharged with an ambulatory return program just for control, no cognitive, intellect or motor function was altered or impaired during the hospital stay. It was a great challenge for the team a pediatric patient with a long period of hospitalization, but with knowledge and safety it was possible to negotiate more comprehensive assistance plans involving the care of the whole family.

PERIPHERAL VERSUS BONE MARROW GRAFT SOURCE IN HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANTATION: EXPERIENCE OF A PEDIATRIC UNIT.

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INTRODUCTION: Haploidentical hematopoietic stem cell transplantation (haplo-HSCT) is emerging as an alternative and curative option for children with hematological diseases due to the easier access to the donor and, consequently, the possibility of HSCT in less time. However, some studies have shown a higher incidence of graft versus acute host disease (aGVHD) severe and / or chronic (cGVHD) extensive in younger patients, which may be related to the source of the graft used. Thus, careful assessment is essential regarding transplant-related mortality (TRM), GVHD, overall (OS) and event-free survival (EFS), in order to improve the effectiveness of this modality.

OBJETIVES: To compare the results obtained in patients undergoing haplo-HSCT using bone marrow (BM) as the stem cell source for patients under 10 years old and peripheral blood (PB) in those over 10 years old.

METHODS: Retrospective cohort study of patients undergoing haplo-HSCT in a pediatric center.

RESULTS: From January 2019 to July 2020, 27 haplo-HSCT were performed – 7% of these patients were undergoing the second HSCT due to relapse. Sixty-three percent were male and the median age was 9 years. There was a predominance of ALL (52%), AML (30%), MDS (11%) and lymphomas (7%). Myeloablative conditioning was used in 85%. As for donors, 70% were male and the median age was 37 years. The group that used BM (G1) as graft corresponded to 56% and PB (G2) 44%. There were no primary or secondary graft failure in both groups. aGVHD occurred in 69% in G1 and 63% in G2 and, cGVHD in 23% in G1 and 36% ($p = 1.00$ and $p = 0.66$, respectively). G1 presented 100% of cases of aGVHD grade I and G2 86% grade I and 14% grade III ($p = 0.44$). The severity of cGVHD, was predominantly mild (G1: 100% and G2: 50%) 25% moderate and 25% severe in G2 ($p = 0.77$). Third-one percent of patients in G1 relapsed and only 9% in G2 ($p = 0.33$). There was a higher incidence of patients alive in G2 (G2: 92% and G1: 60%) ($p = 0.09$), with a median follow-up of 139 and 117 days, respectively. Among the causes of death, recurrence in G1 was the main cause (50%), TRM (33%) and infection (17%), and in G2 the only case of death was due to TRM ($p = 0.68$). At D + 100, OS was 87% (G1) and 92% (G2) ($p = 0.09$), and EFS was 90% (G1) and 100% (G2) ($p = 0.14$). However, there was a significant reduction in these rates from D + 150, with OS 62% (G1) and 92% (G2) and EFS of 68% (G1) and 86% (G2).

CONCLUSIONS: There was no statistically significant difference between the groups in the outcome of HSCTs, which is related to the small sample and time of follow-up of patients. Although G2 had grade III aGVHD and severe cGVHD, this group showed lower mortality rates and recurrence, as well as improved impact OS and EFS.

KEYWORDS: Hematopoietic Stem Cell Transplantation. Haploidentical Transplantation. Pediatrics. Bone Marrow. Stem cells.

Description of peripheral blood stem cell units intended for fresh use

Table 1: Products' characteristics

Data evaluated	Median	Range
Initial volume (mL)	284.9	(35.6 – 601.2)
Leukocyte count (WBC x10^6/mL)	289.2	(49.1 – 958.7)
Hematocrit (HCT %)	3.6	(0.5 – 13.2)

Description of peripheral blood stem cell units intended for fresh use

Table 2: Sub-group description stratified by products' leukocyte count

WBC x10e6/mL	Median	Range	Sample
<200	165.2	49.1 – 199.5	N=136 (23%)
>200 and <300	256.7	200.1 – 296.9	N=182 (31%)
>300 and <400	351.1	300.3 – 396.9	N=128 (22%)
>400 and <500	436.0	400.2 – 498.4	N=92 (16%)
>500	588.5	503.9 – 958.7	N=49 (8%)

PNEUMATOSIS INTESTINALIS AFTER STEM CELL TRANSPLANTATION FOR MYELODYSPLASTIC SYNDROME IN PEDIATRIC PATIENT

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INTRODUCTION: Pneumatosis intestinalis (PI) is defined as an accumulation of gas in the intestinal wall in the mucous and submucosal layers. It may present in several clinical conditions such as: intestinal obstruction, necrotizing enterocolitis, primary immunodeficiencies, infections, after abdominal procedures and as a hematopoietic cell transplantation (HCT) complication.

OBJECTIVE: To describe the experience of PI management in a HSCT pediatric patient.

Methods: Review of the medical records of the index patient.

RESULT: An 18 year old adolescent with an advanced myelodysplastic syndrome secondary to Emberger syndrome/GATA2 deficiency was submitted to a haploidentical HCT. Conditioning regimen consisted of busulfan, fludarabine and melphalan with cyclophosphamide post-transplant, cyclosporine and mycophenolate as GVHD prophylaxis. On day 156 evolved with an overlapping syndrome with involvement of skin, mouth, eyes and gastrointestinal tract. Diarrhea, and loss of weight were his intestinal presentation. Corticosteroid (CE) treatment was started. On day 238, as a screening for pulmonary GVHD, it was realized a thorax CT. This exam showed signs of PI which were better defined on an abdominal CT (images 1,2). The patient was asymptomatic and had a mild abdominal distention. He was admitted, fasted with parenteral nutrition and received meropenem and metronidazole for covering gram negative and anaerobic bacteria. During the CE withdrawn he evolved with diarrhea and enterorrhagia, requiring an increase in CE dose and extracorporeal photopheresis. After about 1 month post admission he evolved with clinical and radiological improvement making it possible to restart the oral diet.

DISCUSSION: There are four theories to explain PI: mechanical, pulmonary, bacterial and imunossupression. In the context of HSCT, the one that best explains this complication is that of imunossupression. CE administration and other immunosupressive drugs cause rapid constriction of lymphatic nodules with subsequent mucosal damage and aspiration of air from the bowel lumen. The incidence in pediatric allogenic HSCT is estimated in 10%. Due to the fact that most patients are asymptomatic or have mild symptoms, this incidence can be underestimated. The management of HSCT with PI varies from hospitalization with fasting, IV antibiotics and parenteral nutrition to a conservative approach with outpatient follow-up without antibiotics and with no changes in oral intake. HSCT patients with PI without signs of acute abdomen should not undergo surgical procedures. There seems to be a correlation between reduction in immunosupression and improvement in HSCT with PI.

CONCLUSION: PI is a HCT complication associated with longterm imunossupression. Beucase of that, it's commonly seen in patients with GVHD. The ideal treatment of these patients is still uknown, but a conservative management without drastic changes in diet and the attempt to reduce immunossupression seems reasonable.

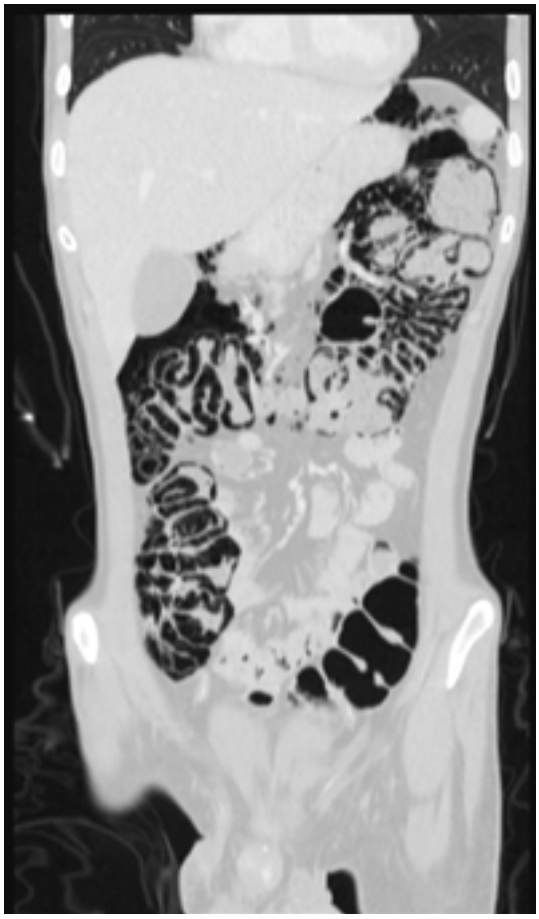

Image 1

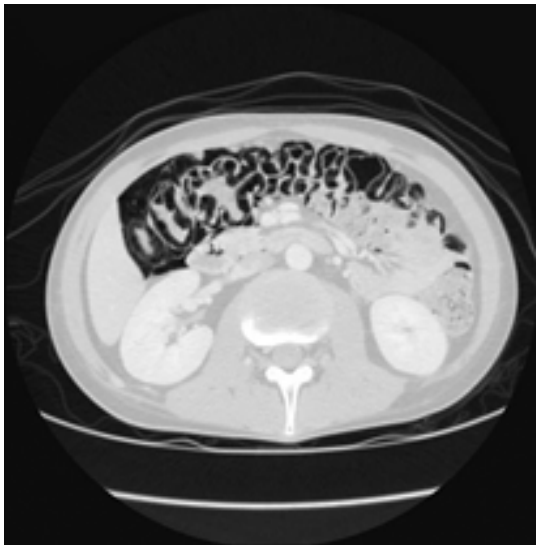

Image 2

REFRACTORY IMMUNE THROMBOCYTOPENIA AFTER HAPLOIDENTICAL CELL TRANSPLANTATION FOR WISKOTT-ALDRICH SYNDROME SUCCESSFULLY TREATED WITH VINCRISTINE

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INTRODUCTION: Hematopoietic cell transplantation (HCT) is the treatment of choice for many patients(pts) with primary immunodeficiencies. Auto immune complications after HCT are quite frequent in this group of pts especially when mixed chimerism is present.

OBJECTIVE: To describe a child with Wiskott Aldrich syndrome (WAS) who developed refractory immune thrombocytopenic purpura (ITP) after HCT

CLINICAL CASE: A 1-year-old boy with WAS (vasculitis, severe gastrointestinal bleeding, bacterial and viral infections) underwent a myeloablative transplant (Busulfan-fludarabine-ATG) followed by a haploidentical bone marrow HCT with post-transplantation cyclophosphamide, cyclosporine and mycophenolate. The HCT procedure was remarkable for acute renal insufficiency (not related to VOD) treated with peritoneal dialysis. He engrafted neutrophils on D+17, platelets on D+27 and donor chimerism at D+30 was 100%. No GVHD or viral reactivations occurred, and he was discharged on D+90 with 297.000/ul platelets and a split chimerism with 100% donor T and myeloid cells and 84% of B cells. On D+128 he was evaluated at the outpatient clinic with disseminated pruriginous lesions treated with topical steroids and platelets counts of 245.000/ul. On D+146 he was admitted to the HCT unit with an acute episode of severe gastrointestinal bleeding, disseminated petechiae and platelets of 11.000/ul. A bone marrow aspirate revealed many megakaryocytes suggestive of ITP and split chimerism showed total donor: 77%, T-cells 100%, B-cells 62% and myeloid 79%. To improve donor chimerism, cyclosporine was suspended but acute GVHD occurred, and this medication was reintroduced. Multiagent treatment for the ITP with IVIg, dexamethasone (4 days), eltrombopag, metilprednisolone (30mg/kg/day/4 days), rituximab was unsuccessful. He continued to have life-threatening bleeding episodes (platelets of 1.000/ul) and was submitted to an emergency splenectomy on D+174. Platelets increased to a maximum of 30.000/ul but two months later they were below 5.000/ul and he received another steroid pulse. Due to the lack of other options for pts treated in the Brazilian public health care system, he received weekly doses of vincristine(VCR) 1,4mg/m2. Platelets counts rapidly increased to > 200.000/ul in less than 14 days. Treatment plan will include 3-4 cycles of VCR and careful evaluation for peripheral neuropathy.

CONCLUSION: Options are limited for pts with refractory thrombocytopenia, although eltrombopag, azathioprine, cyclophosphamide, danazol and VCR have been used with limited success and usually transient improvement. Here we report a successful case of immediate response to VCR and this drug may be considered for refractory pts. The choice of VCR for our patient was based on accessibility, cost and the lack of severe side effects.

ROLE OF RUXOLITINIB IN GASTROINTESTINAL GRAFT-VERSUS-HOST DISEASE REFRACTORY TO MULTIPLE TREATMENTS: A CASE REPORT IN A PEDIATRIC PATIENT

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INTRODUCTION: Graft-versus-host disease (GVHD) occurs in 30-70% of patients in a hematopoietic stem cell transplant (HSCT), despite prophylactic immunosuppression. Systemic corticosteroids are the treatment of choice, but up to a third of cases will be refractory. As there is no standard 2nd line therapy, treatment of the corticorefractory form is a challenge. This report presents a case of acute corticorefractory intestinal GVHD with resolution after treatment with ruxolitinib.

CASE DESCRIPTION: Male, 8 years old, with M0 FLT3 + Acute Myeloid Leukemia, referred for HSCT 4 months after diagnosis. A haploidentical transplant was performed, donor the father, source of progenitor cells, bone marrow, myeloablative conditioning with Busulfan 16mg/kg, Fludarabine120mg/m2 and Melfalan 140mg/m2. Prophylaxis for GVHD with cyclophosphamide, cyclosporine and mycophenolate. Total nucleated cells of 5,8x106cells/kg and neutrophilic grafting on D+20. On D+22, the patient developed massive diarrhea (0.5-1L/day), confirming MAGIC 2 acute intestinal GVHD by colonoscopy and biopsy. Methylprednisolone 2mg/kg/day was started, but due to refractoriness, Basiliximab was administered, with a good initial response. However, 5 days later the diarrheal condition relapsed (> 1L/day), initiated budesonide orally (for 25 days), in addition to 2 mesenchymal cell infusions. Due to refractoriness, initiated on D+52 Ruxolitinib 2.5mg twice daily and after 5 days doubled dose. After a good response, a reduction in ruxolitinib was initiated at D+88, but due to intolerance, a previous dose was returned. Complete suspension of the corticoid at D+126 and weaning from ruxolitinib at D+146, with complete removal at D+174 without reactivation of GVHD.

DISCUSSION: Acute intestinal GVHD classically presents with diarrhea, the diagnosis is reinforced by histopathological examination and the severity is grad-

ed by the diarrheal volume. The reported case had prolonged volumes greater than 40 mL/kg. Patients with moderate or severe forms (grades II to IV) and refractory to the first line of treatment with corticosteroids, have a poor prognosis, with high mortality. If there is progression in the first 3 days, or it does not improve after 7 days, the disease is considered corticorefractory and a second line is indicated. In view of the refractoriness, Ruxolitinib, a Janus Kinase inhibitor, who acts on GVHD by inhibiting the expansion of donor T cells and the production of inflammatory cytokines, is effective and safe for corticorefractory GVHD, with an overall survival of up to 69,5%, even in intensely pretreated samples, as the case reported. **CONCLUSION:** Ruxolitinib was recently the first drug approved by the FDA for second-line treatment of corticorefractory GVHD. The reported case reaffirms the data published in the literature, illustrating the efficacy of Ruxolitinib, given the complete resolution of the condition and allowing the withdrawal of immunosuppression.

SINGLE CENTER EXPERIENCE WITH ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PEDIATRIC PATIENTS.

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INTRODUCTION: Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a therapeutic modality used in malignant and non-malignant hematological diseases, the results of which have been improving due to advances in knowledge. Thus, it is essential to assess its results in order to improve efficiency according to the center's expertise.

OBJECTIVES: To describe the patient profile and results of allo-HSCT.

METHODS: Retrospective cohort study of patients undergoing allo-HSCT in a pediatric center.

RESULTS: From January 2019 to December 2019, 85 HSCTs were performed, 55% were allogeneic - 6% of these were patients undergoing 2nd HSCT. Of those, 49% were unrelated donor (UD), 32% haploidentical (haplo) and 19% matched related donor (MRD). Predominated the use of bone marrow (BM) (85%) as graft source and peripheral stem cells (PSC) was used only in some cases of haplo- HSCT (BM: 53%, PSC: 47%). Patients were predominantly male (62%) with a median age of 9 years. There was a higher frequency of ALL (53%), followed by AML (22%), MDS (9%) and others (16%). Median time between diagnosis and the first visit in the transplant center was 1 year, with a maximum of 10 years for patients who were in CR>3. Median time between diagnosis and HSCT was 1.7 years - however, time was significantly lower for patients with aplasia. Eighty-five percent used myeloablative conditioning and 15% reduced intensity. There was a higher incidence of live patients in UD-HSCT and MRD-HSCT (78% each), and a higher death rate in haplo-HSCT (40%). However, 33% of deaths in haplo-HSCT were from patients undergoing the 2nd HSCT due to recurrence of disease, which corroborates this higher incidence. Among the causes of death, transplant-related mortality (TRM) was higher in UD-HSCT (60%), haplo (n = 3; 50%, 67% of these patients were in 2nd HSCT) and MRD-HSCT did not show any case; relapse was greater in MRD-HSCT (50%), followed by UD-HSCT (40%) and haplo (33%); infection occurred only in one case (17%) in haplo and, unknown cause in MRD-HSCT (n = 1, 50%). When detailing the causes of TRM, there was predominance of sinusoidal obstruction syndrome (UD-HSCT: 33% and haplo-HSCT: 33%), infection (UD-HSCT: 33% and haplo-HSCT: 33%), graft versus host disease in UD-HSCT (33%) and hemorrhage (33%) in haplo-HSCT. Overall survival (OS) was 73% in one year, without statistical difference (p=0.97) between the HSCT modalities. Patients with ALL had a higher OS (77%), followed by other diseases (69%), AML and MDS (67% each), also without statistical difference (p = 0.88).

CONCLUSIONS: There was a higher occurrence of UD-HSCT, using myeloablative conditioning regimen, and PSC was used only for some cases of haplo, according to the patient's age group. There were more causes of death by TRM in the UD-HSCT. OS was 73% in one year, without statistical difference when comparing the type of HSCT performed.

KEYWORDS: Hematopoietic Stem Cell Transplantation. Allogeneic Transplantation. Pediatrics.

TREATMENT OF HEPATIC VENOCCLUSIVE DISEASE (VOD)/ SINUSOIDAL OCCLUSION SYNDROME (SOS) AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) WITH DEFIBROTIDE ASSOCIATED WITH PULSE STEROIDS

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VOD after HCT has a very variable incidence, between 8% and 40%, but children are much more affected than adults. It is one of the main causes of early death after TCH, in addition to infections and graft-versus-host disease. Patients with moderate or severe VOD who develop multiorgan failure have up to 80% mortality.

OBJECTIVE: To compare the results of the treatment of VOD with defibrotide, as an isolated therapy, and defibrotide associated with pulse steroids.

PATIENTS: Between January/2015 and September/2020, 125 children were underwent HCT in two centers, 84 of them boys; 16 (13%) presented DVO, treated with defibrotide (N=4), defibrotide and pulse steroid (N = 9), or only with supportive care (N= 3).

METHODS: All patients received ursodiol as VOD prophylaxis since the beginning of the conditioning therapy and most also heparin 100 U/kg/day continuous VI, that was discontinued when defibrotide was initiated. The diagnosis of VOD was clinical, based on the presence of painful hepatomegaly, refractoriness to platelet transfusions, edema,1 ascites and thickening of the vesicle wall and perivesicular edema at ultrasound (Figure 1).2 Defibrotide was promptly initiated and the pulse steroids, when used, was associated before the following day. The clinical data of the patients were retrospectively collected from the medical records. Results: 16 of the 125 patients (13%) developed DVO (Table 1), 14 boys. The median age was 4.8 years in the whole group and 3 years in those who developed DVO. The underlying diseases were acute (11) and chronic (1) leukemias, non-Hodgkin lymphoma (1) and hemophagocytic lymphohistiocytosis (1) in allogeneic HCT, central nervous system tumor (1) and renal sarcoma (1) in autologous HCT. All had myeloablative conditioning regimens based on busulfan (N=10), total body irradiation (N=2) or others (N=4). Diagnosis was made in a median of 9 days after HCT, excluding 3 cases of delayed VOD associated with the use of inotuzumab to treat ALL recurrence after 1st HCT. The characteristics of the DVO are described in Table 2. Among the 4 children with severe VOD treated with defibrotide, all died, 3 of them as a direct consequence of VOD and one due to cerebral bleeding. Among the 9 children treated with defibrotide and pulse steroids, 3 died from DVO, 2 from other causes and 4 had completely

recovered. Conclusions: VOD is a frequent and serious complication in children undergoing HCT. The association between the pediatric EBMT diagnostic criteria and specific imaging findings (Doppler ultrasound) allows early diagnosis and treatment. Despite high morbidity and mortality, patients who received the combined treatment (defibrotide and corticosteroid pulse) had higher resolution of the VOD and survival.

1.Corbacioglu et al. BMT, 2018

2. Lassau et al. Transplantation 2002

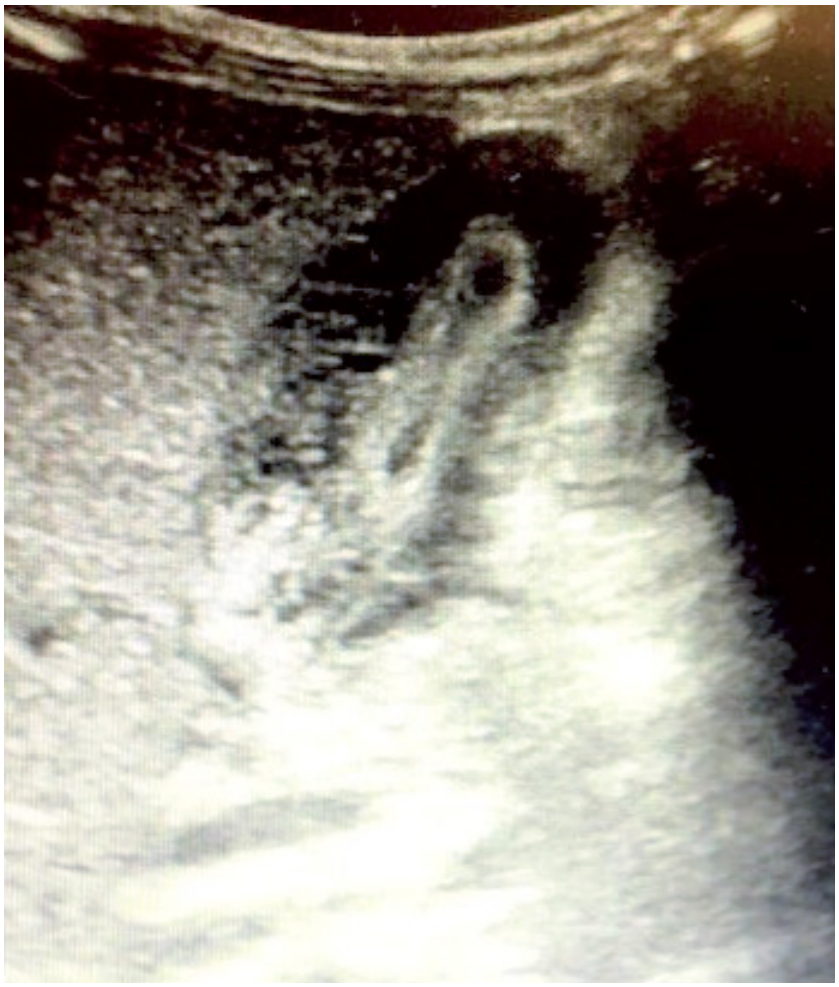

Figure 1: Edema of the gallbladder wall, suggestive of the diagnosis of venocclusive disease.

TABLE 1 – PATIENTS CHARACTERISTICS

Patient	Diagnosis	Age (years)	Gender	HCT	#HCT	Myeloablative agent	Stem cells
1	AML	9	M	Allogeneic	2o	Mel	PB
2	AML	1	F	Allogeneic	1o	Bu	BM
3	NHL	12	M	Allogeneic	1o	Bu	SP
4	HLH	2	M	Allogeneic	1o	Mel	UCB
5	CML	12	M	Allogeneic	1o	Bu	PB
6	AML	1	M	Allogeneic	1o	Bu	PB
7	AML	< 1	M	Allogeneic	1o	Bu	PB
8	Renal tumor	5	M	Autologous	2o	Bu	PB
9	ALL	3	M	Allogeneic	1o	Mel	PB
10	ALL	7	M	Allogeneic	1o	TBI	PB
11	ALL	3	F	Allogeneic	1o	Bu	BM
12	ALL	5	M	Allogeneic	1o	Bu	PB
13	ALL	1	M	Allogeneic	1o	TBI	PB
14	AML	1	M	Allogeneic	1o	Bu	PB
15	AML	< 1	M	Allogeneic	1o	Bu	BM
	Brain tumor	< 1	M	Autologous	2o	Mel	PB

AML=acute myelogenous leukemia; ALL = acute lymphoblastic leukemia; CML = chronic myelogenous leukemia; M = male; F=female; TBI= total body irradiation; Bu= bussulfan; PB= peripheral blood stem cells; BM= boné marrow; UCB=umbilical cord blood.

TABLE 2 – CHARACTERISTICS OF THE VOD ACCORDING TO THE THERAPY GIVEN

	Supportive Care N=3	***Defibrotide N =4***	***Defibrotide + Pulse Steroids N=9***
Hepatomegaly	2	4	9
Abdominal pain	3	2	9
Encephalopathy	1	1	2
Portal vein flow			
- normal (hepatopetal)	2	4	7
- reversed (hepatofugal)	1	0	2
Edema around the gallblader	2	2	9
Ascitis			
abscent	1	2	1
mild	1	1	6
moderate	1	1	0
severe	0	0	2
Bilirrubin			
< 5mg/dl	0	0	1
5-10mg/dl	1	1	6
10 – 20mg/dl	2	1	1
>20mg/dl	0	2	1
Hyperamonemia	1	1	8
Platelets			
< 10.000/mm^3	2	1	2
> 10.000/mm^3	1	3	7
D-dimer			
< 5.000 ug/L	1	1	0
5.000-10.000 ug/L	1	0	1
> 10.000	1	3	8
Death	3	4	5
- due to VOD - MOF	1	3	3
- other causes	2	1	2

MOF= multiorgan failure

TREATMENT OF PEDIATRIC RELAPSED ACUTE LYMPHOID LEUKEMIA AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION WITH BLINATUMOMAB

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OBJECTIVE: To describe the experience with the use of blinatumomab as a rescue treatment in children and adolescents with Acute Lymphoid Leukemia (ALL) and early recurrence after Allogeneic Hematopoietic Stem Cells Transplantation (HSCT) in two Pediatric Oncology services.

MATERIALS AND METHODS: Children with ALL who were transplanted in advanced disease stages or with aggressive disease were evaluated monthly for the presence of Minimal Residual Disease and chimerism. In each bone marrow assessment was analyzed the CD19 and CD22 antigens in the residual disease panels to determine the possibility of using blinatumomab and inotuzumab, respectively. Once the relapse was diagnosed, blinatumomab was administered as a continuous infusion as recommended in the label. Forty-eight hours after its onset, with clinical symptoms associated with the release of cytokines resolved, four of the patients with available donor and without graft versus host disease (GVHD) also received a staggering dose of donor lymphocyte infusion (DLI). The DLI was administered at the beginning of each blinatumomab cycle until the patient presented with complete remission and/or some evidence of acute or chronic GVHD.

RESULTS: Seven children and adolescents with ALL who had relapsed after HSCT were treated with blinatumomab. The median age was 9 years old, ranging from 3 to 16 years old, five of the patients were males. None of them presented symptomatic tumor lysis syndrome, bleeding, or sepsis. Six patients (85%) had cytokines release syndrome, all of them with fever and 57% with hypotension. Only one patient had drug-related toxicity in the central nervous system. Three patients received low-dose chemotherapy or mini-HyperCVAD, and one patient received ponatinib that was withdrawn at the end of blinatumomab cycles due to ischemic stroke. Four patients received DLI with acute (N = 1) and chronic (N = 3) GVHD; Two of four patients remain alive, one without any additional treatment for five years after bone marrow disease recurrence and one after the association of inotuzumab, radiation therapy, and tyrosine kinase inhibitor for compassionate use. This patient is currently 2 years with disease remission. None of the patients died due to Blinatumomab or DLI related toxicity. In total, 71% of the patients achieved complete remission. Overall

survival was 28%, with a median of 47 months of follow-up. Discussion and

CONCLUSIONS: The most post-transplant recurrences occur early when the toxicity of a 2nd TCH is prohibitive. Patients are, in general, referred for palliative care. Our experience has shown that the use of blinatumomab associated or not with other therapies was effective and safe, with disease remission in the majority of the patients treated and with low toxicity when considering the experience of the service in handling the cytokines release syndrome that was observed only in the first days of the 1st cycle of blinatumomab. Also, our data suggest a potent graft versus leukemia effect with the association of the DLI, a strategy that is being studied in prospective international trials.

AN ANALYSIS OF THE HOSPITALIZATION PERIOD FOR PERFORMING PEDIATRIC ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTS: EXPERIENCE OF A SINGLE CENTER

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INTRODUCTION: The hematopoietic stem cell transplantation is a complex, therapeutic option used to cure different pathologies. It requires hospital monitoring through hospitalization, in which the length of stay can vary based on the needs and complications depending on each case.

OBJECTIVE: To analyze data from a decade of operation in a pediatric center for allogeneic hematopoietic stem cell transplantation and obtain indicators on how long patients stay at the hospital, who underwent the transplant.

CASE SERIES: The population is pediatric from the infant stage to the adolescent stage who underwent allogeneic hematopoietic stem cell transplantation.

METHOD: The type of study is a retrospective cohort analysis with data stored and evaluated in a Microsoft® Office Excel® spreadsheet.

RESULTS: The referred center is inserted in a tertiary, a public and large health care service with demand from supplementary health. It started the allogeneic hematopoietic stem cell transplantation activities in May 2010 and by May 2020, 219 procedures of this type had been performed on 207 patients. For them to occur, 210 hospitalizations were necessary. Data analysis revealed that the average length of stay in the unit in the last decade was 54 days, the median was 53 days and the maximum length of stay was 388 days. Only hospitalizations in a controlled environment using positive pressure filtered air were considered and the time of intensive care when necessary was also counted (the period in which the patient receiving care in the intensive care unit, had the bed of the transplant center reserved for when they returned). In this survey, readmissions for transplant-related demands and those occurring after discharge from the hospital were not considered.

Conclusions: Through these data, we can understand the estimated length of stay for the population analyzed and conclude that the unpredictability of the treatment and the necessary care for this population require a prolonged period of hospitalization. This long hospital stay should be considered to estimate the number of beds available for the pre-, during and post-transplant phases, contributing to the evaluation of the need to expand the number of beds targeting to this population.

KEYWORDS: pediatrics, hospitalization, hematopoietic stem cell transplantation

3. SICKLE CELL DISEASE
(INCLUDING TOPICS RELATED OR NOT TO HSCT)

ADOLESCENTS DIAGNOSED WITH SICKLE CELL ANEMIA UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION: POST-TREATMENT EXPERIENCES

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INTRODUCTION: Sickle Cell Anemia is a genetic disease that belongs to the group of sickle cell diseases and is characterized by the form of greater clinical severity, being also the most prevalent. The only treatment with a curative perspective is Hematopoietic Stem Cell Transplantation (HSCT), a procedure that significantly impacts the quality of life of patients. Each individual will experience this complex procedure in a unique way, according to their previous experiences, the sources of social support to which they have access during the process and their moment of life. In view of this, it is known that adolescence is a stage of human development characterized by a series of biological, psychological and social transformations, being experienced in a unique way by each individual. In this context, the question of the present study emerges: what is the perception of adolescents diagnosed with Sickle Cell Anemia about HSCT and its possible impacts and unfoldings in their development process?

OBJECTIVE: to understand the perception of transplanted adolescents regarding the HSCT process and pos-treatment, including physical, psychological and social aspects, as well as the main changes and difficulties faced during the procedure.

METHODOLOGY: this is a qualitative, transversal and descriptive study, with the design of multiple case studies. The sample consisted of five adolescent patients (12-18 years), of both sexes, have been transplanted at least one year ago. For data collection, a semi-structured interview script and an Economic Classification instrument were used. The content of the interviews was transcribed and submitted to thematic content analysis. The results were organized in three categories: "Living with the diagnosis", "Surviving the transplant" and "Surviving that follows: living in post-HSCT".

RESULTS: The results show that the decision to undergo transplantation was guided by the expectation of benefits, either the hope of cure and/or interruption of conventional treatments. The greatest difficulties faced during hospitalization are related to the need for protective isolation in the infirmary, with consequent restriction of social contact, interruptions in school life and pleasurable activities. After the HSCT the patients are able to gradually recover some of the interrupted activities and present plans for the future. The treatment is meaningful as a positive experience, despite the risks, difficulties and sufferings involved.

CONCLUSIONS: In general, the treatment was dimensioned as a positive experience, in spite of the hardships experienced in its arduous and painful journey. It is hoped that understanding the experience of normalization and gradual resumption of daily life by adolescents survivors of HSCT can contribute to the development and improvement of strategies of interventions implemented by the multiprofessional team. (FAPESP, process number 2019/19419-8)

HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT) IN THE TREATMENT OF CHILDREN WITH SICKLE CELL ANEMIA

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Sickle cell anemia (SCA) is associated with significant morbidity and mortality in childhood despite the best support measures. HCT is the only curative option available. Many patients do not have a fully related HLA compatible donor, and non-myeloablative haploidentical HCT may be an option for patients with sickle cell anemia associated with serious clinical complications. Patients and caregivers must be well prepared for the procedure, so that the HCT is carried out in the best possible conditions, to avoid a greater risk than the benefit for the children.

METHODS: Following the Brazilian USP-RP recommendation, the conditioning therapy for related HCT was Fludarabine 120mg /m2, Busulfan 3.2mg /kg/day for 4 days with AUC 4,000 per day, and ATG 5 mg/kg. Cyclosporine and methotrexate were used for graft-versus-host disease (GVHD) prophylaxis. The haploidentical HCT conditioning included Fludarabine 150mg/m^2, Cyclophosphamide 29mg/kg, ATG 4.5mg/kg and total body irradiation (TBI) 400cGy or TBI 200cGy and Thiotepa 10mg/kg. GVHD prophylaxis for the haploidentical HCT used post-transplant cyclophosphamide (100mg/kg), sirolimus and mycophenolate mofetil. The bone marrow was the stem cell graft, with a target dose of 5 x 106 CD34/kg.

PATIENTS: Four female patients with sickle cell anemia were transplanted, two with an HLA-compatible sibling donor, and two with haploidentical fathers.

RESULTS: The first patient received the related transplant at 10 years of age due to extensive previous strokes treated with hypertransfusion. The second related was a 16-year-old girl with recurrent acute chest syndrome and pain crisis and no response to hydroxyurea. The most important HCT toxicities in the 1st patient was hypertension, cytomegalovirus reactivation, and probably viral pancreatitis, with no GVHD. The patient received cyclosporine for 2.5 years for mixed chimerism, but is now three years and nine months after HCT with complete chimerism, asymptomatic, and normal Hb electrophoresis. The second patient, an adolescent, had grade 3 mucositis, febrile neutropenia, viral hepatitis, reactivation of cytomegalovirus and herpes zoster, and maintenance of painful crisis repeatedly due to multiple avascular necroses, without detectable HbS. Acute GVHD of the gastrointestinal tract responded promptly to corticosteroids; chronic GVHD in the eye and mouth were treated with sirolimus and total lymph node irradiation, achieving a complete response. She is four years post-HCT with stable mixed chimerism> 70% and the absence of HbS.

Both patients who had haploidentical transplantation are nine months after HSCT. The 1st 3-year old girl had severe pain crises, splenic sequestration, acute chest syndrome, and incipient Moya-Moya, treated with hydrea without improvement. She received thiotepa and 200cGy of TBI, 10x106CD34/kg, and developed skin and gastrointestinal GVHD with a good response to steroids. She also had CMV reactivation treated with foscarnet and is currently asymptomatic, on sirolimus with complete chimerism, without HbS. The 2nd patient with haploidentical HCT is 14-year-old, prior history of Moya-Moya and stroke. TBI was 400cGy, and the chimerism was complete four months post HSCT, but since then progressively decreased to 70% (94% lymphocytes and 61% neutrophils) and is currently stable after donor lymphocyte infusion 1x106CD3/kg eight months after transplantation and increased Sirolimus dose. The patient remains well, with no HbS, and developed mild chronic skin GVHD.

CONCLUSION: The overall survival was 100%. One patient in each group have mixed chimerism. Despite the small number of patients, haploidentical HCT proved to be feasible in the absence of a compatible donor. Multidisciplinary work and collaboration with centers of excellence are important to therapeutic success.

4. COVID-19: FACING THE CRISIS

ADEQUACY OF PHYSIOTHERAPEUTIC TREATMENT TO ONCO-HEMATOLOGICAL PATIENTS IN PANDEMIC TIMES

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COVID 19 is a viral disease caused by the coronavirus SARS COV-2, with varied clinical conditions. Patients may be asymptomatic or even develop severe respiratory infections. Presence of comorbidities such as chronic lung diseases, systemic arterial hypertension, diabetes mellitus, oncological and onco-hematological diseases, are risk factors for the evolution of the most severe form of the disease. Due to these factors, and the current pandemic, it was necessary to develop safe measures to provide physiotherapeutic treatment to onco-hematological patients who need chemotherapy and hematopoietic stem cell transplantation (HSCT).

OBJECTIVES: To describe the experience of the physiotherapy team in adopting preventive measures in the treatment of onco-hematological patients undergoing treatment during the pandemic. Material and methods: Experience report, by the physiotherapy team, on restructuring the treatment service, in COVID-19 times, for patients admitted to an onco-hematology unit in a private hospital in southern Brazil.

RESULTS: Physiotherapy is part of the multidisciplinary team that assists patients with hematological diseases that need treatment and, due to the pandemic, we needed to make some adjustments in services provision to ensure these patients' safety. Among the adopted measures are: when there is a need for guidance/assistance, before and after transplantation (before admission or after discharge), it is done by telephone or telemedicine. Reinforce educational measures (multidisciplinary team, patient to family members) such as periodic individual training on hand washing, COVID-19 symptoms and cough etiquette. The physiotherapy team wears protective equipment (mask and glasses, or faceshield) throughout the assistance, and there is a permanent physical therapist in the onco-hematological unit, and, at the need for this professional to assist other units, onco-hematological patients are treated first, thus avoiding greater transit of people around the onco-hematological unit. Physiotherapeutic care before the pandemic was carried out in several places: the patient room, the unit's corridor, or in the "movement room" (a specific place where there was a series of devices); after the pandemic, the treatment takes place only in the patient room. Patient's individual exercise kits were made available, consisting of: shin guards, dumbbells and a cycloergometer, distributed when the patient starts physiotherapy, and they are used according to the individual's functional condition and blood count.

CONCLUSION: The physiotherapy team restructured the service in order to prevent coronavirus spread during treatment. We were able to minimize patient exposure without jeopardizing care. The measures were adopted based on available scientific evidence, which is periodically updated, and on the team's experience with hematological and bone marrow transplant patients.

KEYWORDS: Hematopoietic Stem Cell Transplantation; onco-hematological diseases; Coronavirus; COVID-19; physiotherapy


MATERIAIS
FISIOTERAPIA

ADJUSTMENTS OF NUTRITIONAL SERVICE IN HEMATOPOETIC STEM CELL TRANSPLANTATION (HSCT) DURING THE COVID-19 PANDEMIC

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INTRODUCTION: The nutritional status must be monitored during all the treatment of Hematopoietic Stem Cell Transplantation (HSCT), once it is related to the greater number of complications and worse clinical outcomes. Thus, the monitoring and nutritional follow-up of these patients become essential, even in the most vulnerable moments for achievement of outpatient nutritional assistance, such as the present, during the COVID-19 pandemic.

OBJECTIVE: To approach the adjustments made by the nutrition team in nutritional assistance to patients undergoing HSCT, during the COVID-19 pandemic.

METHODOLOGY: Narrative review of the nutritional practices involved in assistance to patient, appropriate to the pandemic period, for the prevention of COVID-19.

RESULTS: The nutritional assistance to patients undergoing HSCT includes risk screening, assessment of nutritional symptoms repercussions, nutritional diagnosis, adequacy of dietary prescription according to needs, offering of food and preparations by the hospital's nutrition and dietary service. The characteristic recommendations of the period are related to greater attention to the rules of vestiment in face-to-face assistance, the cleaning of anthropometric assessment instruments, and the sanitary control of food and nutrition resources for hospitalized patients or outpatients.

CONCLUSION: The nutritional care to monitor the patient's evolution, adopting necessary hygiene care for the professional and when manipulating anthropometric instruments; the clarification on the nutritional needs of macro and micronutrients, valuing the intake of vitamins and minerals through food, as well as reinforcing the guidelines for safe food consumption, from acquisition, handling to food intake.

ASPECTS OF NURSING MANAGEMENT IN THE FACE OF THE COVID-19 PANDEMIC

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KEYWORDS: pandemic, transplantation of hematopoietic stem cells, nursing

INTRODUCTION: The COVID-19 pandemic has been a unique challenge in the transplant setting. Hematopoietic stem cell transplant (HSCT) recipients are at a higher risk of severe disease. Before HSCT, risk is increased due to myelosuppression caused by previous treatment of the underlying disease; post-HSCT, due to the slow marrow recovery, prolonged use of immunosuppressants or complications, such as the development of graft versus host disease.

OBJECTIVES: To describe the strategies proposed during COVID-19 pandemic at the HSCT Service of Amaral Carvalho Hospital in Jaú.

METHODS: Descriptive study reporting the actions established from March to September 2020.

RESULTS: At first, the medical visits of HSCT recipients in long-term follow-up were postponed for 60 days. Screening by telephone call was performed for patients scheduled at the outpatient clinic and who were in support homes, on a weekly follow-up or in day- hospital care. All patients, donors and new cases were called on the eve of the appointment by the nurses from the HSCT outpatient clinic, and asked about respiratory symptoms. In case of a positive answer, the patient was instructed to appear in the outpatient waiting room with a surgical mask, at 9:30 am. Upon arrival, the patients were evaluated individually, and with contact, droplets and aerosols precautions. The exams were collected locally, and the patient was quickly evaluated and referred for admission or released with appropriate recommendations. In the event of a negative answer, the normal routine was maintained. The seats in the waiting room were marked to assure safe distance, and companions were allowed only in case of children, the elderly or in special situations. The outpatient reception generated the day-hospital visits to prevent the patient from moving to the main hospital reception. In the care of symptomatic patients with suspected COVID infection, sets of personal protective equipment (PPE) were made available containing: 01 waterproof disposable apron, 01 procedure glove, 01 N95 mask, 01 cap and 01 face shield. Employees received training in the proper use of PPE and all wore private uniforms provided by the institution. Symptomatic recipients considered suspected of COVID were hospitalized in the COVID wards or in the ICU, and those who did not require hospitalization were isolated in support houses or in inns. Non-urgent HSCT have been postponed, especially for non-malignant diseases. The pre-HSCT recipients and donors were instructed to keep home isolation for 14 days and were tested by RT-PCR for SARS CoV-2 before being admitted for the HSCT. PCR tests were performed every two weeks in health professionals, and weekly in patients admitted for HSCT and respective companions until hospital discharge. Employees with respiratory symptoms were removed from work activities until RT-PCR was negative. The difficulties encountered were: low compliance with the established measures by the recipients, donors and caregivers; uncertainty and fear of health professionals regarding contamination of themselves or their families; and reduction in the number of health professionals, especially nurses with expertise in the assistance of HSCT recipients.

CONCLUSIONS: We concluded that the impact of COVID-19 pandemic on the HSCT process implied the immediate need to readjust the routines of HSCT centers, to decrease the number of procedures and to learn how to manage a new and serious disease. Further studies on the effectiveness of these measures and a comparison with populations from other sectors of the institution will be necessary.

BIOLOGICAL TISSUE CENTER OF MINAS GERAIS / HEMOMINAS FOUNDATION - CENTER FOR CELL PROCESSING AND AUTOLOGOUS BONE MARROW TRANSPLANTATION IN THE STATE OF MINAS GERAIS / EVOLUTION OF PRODUCTION AND IMPACT OF THE CORONAVIRUS PANDEMIC

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INTRODUCTION: The Cell Processing Centers (CPC) in operation in Brazil cover the performance of quality control, processing and cryopreservation procedures for hematopoietic progenitor cells for autologous and allogeneic bone marrow (BMT) transplants, as well as procedures relevant to umbilical cord and placental blood banks. The availability of cryopreservation laboratories in a given location has the potential to enable and/or increase the performance of autologous bone marrow transplantation in the region covered by the service.

OBJECTIVE: To compare the evolution of the number of patients seen at the Cell Processing Center of the Biological Tissue Center of Minas Gerais/Hemominas Foundation, through the cryopreservation of hematopoietic progenitor cells and the number of patients undergoing autologous bone marrow transplantation in the State , in order to detect a similar trend in the period.

CASUISTRY: All patients seen at the service from 01/01/2013 to 06/30/2020 were analyzed.

METHOD: Retrospective analysis of medical records was performed, observing age, sex, informed diagnosis and transplant center of origin and comparing with the number of autologous bone marrow transplants reported and notified to the Brazilian Transplant Registry, of the Brazilian Association of Organ Transplants.

RESULTS: A total of 833 patients were seen in the CPC / Cetebio period, from six transplant centers in the State of Minas Gerais, with a total of 2,042 cryopreserved hematopoietic progenitor cell bags, with an increase in the number of patients seen at each year from 2013 to 2018 and a decrease in the years 2019 and 2020. The average age of the patients was 43 years, 378 (43.16%) were female and 456 (56.84%) were female male. The most frequent diagnosis were multiple myeloma (479 patients, 57.57%), lymphomas (287 patients, 34.5%) and leukemias (22 patients, 3%). It was observed in the period from 2013 to 2018 a progressive increase in the absolute number of patients undergoing autologous bone marrow transplants in the State of Minas Gerais, with a decrease in the years 2019 and 2020.

CONCLUSIONS: The growing data presented by the service coincided with a progressive increase in the number of autologous bone marrow transplants in the State of Minas Gerais, suggesting a possible correlation between the availability of the service in the State and the increase in the number of transplant patients. In the years 2019 and 2020, the reduction in the number of patients was related, respectively, to the decrease in activities in one of the transplant centers, plus the impact of the pandemic by Sars-Cov-2 in 2020. The availability of the cryopreservation laboratory in the locality, together with the good results presented in relation to the product made available, possibly had a role in increasing the realization of the autologous BMT in the State.

CARE STRATEGIES FOR COPING WITH COVID-19 PANDEMIC DEVELOPED BY NURSES IN A HEMATOPOETIC STEM CELL TRANSPLANTATION SERVICE

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BACKGROUND: Coronavirus Disease 2019 (COVID-19) has raised a series of questions, which remain unanswered, as well as has pushing the development of transmission containment strategies on an emergency basis. Although several issues related to the pathophysiology of the disease are not well understood, it is known, with the available evidence, that patients with chronic diseases (hypertension, autoimmune diseases and cancer) are more likely to develop the disease in its severe form with a worse prognosis, with risk of death (KMIETOWICZ, 2020). Several studies which are being conducted around the world have shown that the patients diagnosed with hematological cancer, especially those who are being treated with high doses of chemotherapy, such as hematopoietic stem cell transplant (HSCT) recipients, may be at high risk due to the increase of the immunosuppression (ADDEO, FRIEDLAENDER, 2020). Thus, besides the complexity that the transplant imposes, the pandemic involves unique challenges related to the care strategies that must be developed in order to minimize risks.

OBJECTIVE: To describe the care strategies developed by nurses for coping with the COVID-19 pandemic at the HSCT Service during the hospitalization period.

METHOD: Descriptive case report study on care strategies developed by nurses from HSCT Service during the COVID-19 pandemic in the hospitalization period, from March to August 2020.

RESULTS: The HSCT Service performs autologous and allogeneic high complex HSCT, and is a reference Service in the Latin America. It was developed the following strategies, which occurred simultaneously and according to the emergence of scientific evidence: a) compilation of the World Health Organization (WHO), Ministry of Health (MS) and specific health organizations recommendations; b) development of a care protocol according to the specificity of the HSCT Service; c) assessment of the degree of urgency for HSCT in order to avoid possible exposures; d) testing for SARS-CoV-2 in pre-hospitalization patients, suspected cases, donors and multidisciplinary team e) definition of a ward for isolation of the cohort; f) initial and continuous training of the multidisciplinary team according to the update of the protocol; g) resizing of the team.

CONCLUSION: It is considered that the strategies developed for coping with COVID 19 at the HSCT Service were effective, since all the tests performed on the hospitalized patients, from March 2020 until the completion of this case report, were negative for SARS-CoV- 2.

KEYWORDS: Nursing. Hematopoietic Stem Cell Transplantation. Coronavirus infections.

Referências: KMIETOWICZ, S. Covid-19 Highest risk patients are asked to stay at home for 12 weeks. BMJ; 368, 2020. doi:https//doi.org/10.1136/bmj.m1170. ADDEO, A.; FRIEDLAENDER, A. Cancer and COVID-19: Unmasking their ties. Cancer Treat Rev. 88, 2020. doi:102041. doi:10.1016/j.ctrv.2020.102041

IMPACT OF COVID-19 PANDEMIC IN THE NUMBER OF HEMATOPOIETIC STEM CELL TRANSPLAT (HSCT) PERFORMED IN A PEDIATRIC HSCT CENTER

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INTRODUCTION COVID-19 pandemic has had a major impact on the health of the general population. It is known that its transmission happens quickly through contact, inhalation of droplets and aerosols. Complications related to the disease are associated with the host's immune response. This response causes a storm of cytokines and, consequently, progression to systemic disease of great impact. We are facing a scenario of difficult control and currently without specific antiviral treatment and without a vaccine. In this new pandemic scenario for COVID-19, adjustments in transplantation schedules took place at our transplant center. We went through changes that led to the reduction of transplant patients. Some of the alternatives adopted were the replacement of unrelated donors by haploidentical or Umbilical Cord Stem Cells. PCR test for COVID-19 of patients and their companions, regardless of symptoms were obtained before admission. For patients coming from other cities or states, we request the test of the patient and companion before coming to our center. In cases where the patient tested positive for COVID-19, the schedule was postponed up to 28 days and two new tests were performed confirming the negativity, with a minimum interval of 24 hours between them, following the Brazilian HSCT Society recommendations.

OBJECTIVE To assess the impact of pandemic COVID-19 in the number of patients undergoing HSCT in a single pediatric unit.

MATERIAL AND METHODS Retrospective cohort study of patients scheduled to undergo HSCT (autologous, related, unrelated, haploidentical and Umbilical Cord Cells) during COVID-19 pandemic.

RESULTS We compared the number of HSCTs performed in two different periods of time – from January, 2019 to May, 2019; and from January, 2020 to May, 2020. In the first period (2019) 34 HSCT were performed, and in the further period there were only 22 HSCT´s. There were 5 HSCT in January 2019, and 5 in January 2020 (no decrease); eight HSCT in February 2019 and 5 HSCT in February, 2020 (37.5% less procedures); nine HSCT in March, 2019 and 3 HSCT in March, 2020 (66.7% less procedures); six HSCT in April, 2019 and 4 HSCT in April, 2020 (33.3% less); six HSCT in May, 2019 and 5 HSCT in May, 2020 (16.7% less). In a general comparison of the impact of the number of HSCT in the period from January to May in the years 2019 and 2020, there was a decrease of 35.3% in the number of transplants performed, opposite to the trend of increasing procedures observed in our center in the last few years.

CONCLUSION There was an important decrease in the number of HSCT performed in our center in the period from January to May 2020 due to COVID-19 pandemic. Many adaptations were made following Brazilian HSCT Society recommendations in order to prevent infection of the patients, and all patients had to continue chemotherapy while they had to wait for their HSCT, even though patients were all in complete remission of the underlying disease. Despite the reduction in the number of HSCT, there was not a single positive case of COVID-19 in the HSCT patients.

COVID-19 AND SOCIAL ISOLATION: PERCEPTIONS OF CHILDREN AND ADOLESCENTS SUBMITTED TO HEMATOPOETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: World Health Organization, on March 11, 2020, declared a pandemic due to the outbreak of the new coronavirus (SARS-Cov-2) that caused Covid-19. In this new context, health authorities have suggested the implementation of contingency plans, indicating the identification and quarantine of those infected, hygiene habits and social distance between members of society. In view of this, many hospitals and health centers have suspended tests and consultations without urgency to reduce the spread of the new coronavirus.

OBJECTIVE: In this context, the objective of the present study emerges: to understand the perception of transplanted children and adolescents in relation to the period of quarantine and social isolation caused by the pandemic of the new coronavirus, encompassing aspects of physical, psychological and social health.

METHODOLOGY: it is a qualitative, transversal and descriptive-exploratory study. The sample consisted of six child and adolescent patients, aged between 5 and 15 years, of both sexes. For data collection, a questionnaire prepared by the present study was used, and the application was carried out in a virtual manner.

RESULTS: In general, all patients are respecting social isolation, leaving their home only for health-related commitments. With regard to feelings, the responses were varied, indicating tranquility with regard to isolation due to the habit of leaving little home, concern with the suspension of routine exams and consultations and withdrawal from school social life. Regarding the changes, the general complaint was about breaking the freedom to leave the house freely without concern with health protocols. With regard to food, most patients did not report changes. Finally, some patients complained about insomnia and nightmares, claiming to feel the need for medical, educational, psychological care, among others.

CONCLUSIONS: Despite the reported difficulties, all patients remain in social isolation indicated by the health authorities, reporting difficulties related to the changes brought about by the pandemic, such as leaving school, work and leisure activities, changing the routine with flexible schedules and concerns about the continuity of treatment due to the suspension of hospital monitoring. In turn, due to social isolation being also a crucial measure in the performance of transplant, the participants were used to staying at home and using distraction strategies such as the use of cell phones and video games. It is expected that understanding the perceptions of transplanted children and adolescents about the time of the new coronavirus pandemic can contribute to the development and improvement of intervention strategies implemented remotely by the multiprofessional team. (Programa Aprender na Comunidade - USP, process number 18.1.17601.1.0).

COVID-19 INFECTION IN PATIENTS UNDERGOING ALLOGENEIC TRANSPLANTATION: EXPERIENCE FROM A BRAZILIAN CENTER

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COVID-19 pandemic has brought new challenges to the management of patients undergoing hematopoietic stem cell transplantation. According to Brazilian Society of Bone Marrow Transplantation (SBTMO), only transplants considered to be urgent should be performed, especially involving onco-hematological diseases. Patients and donors should be subjected to tests with rt-PCR before hospitalization.

The aim of this study was to report our experience and the consequent outcome of patients infected with COVID-19 after allogeneic bone marrow transplantation.

Four patients who underwent allogeneic transplantation for malignant hematological diseases between January and April 2020 were evaluated. Observational retrospective analysis. Patients were screened for Sars-Cov-2 using the rt-PCR technique of material collected by nasal swab and oropharynx who presented respiratory, gastrointestinal symptoms, suggestive radiological changes or reports of infected contacts.

All patients were male between 33 and 66 years old. All diagnosed with high-risk hematological neoplasms and immediate indication for transplantation, 1 acute myeloid leukemia and 3 acute lymphoid leukemia. Among the modalities, one underwent haploidentical transplantation and others received a graft from HLA-identical sibling donor. Bone marrow was the source of one patient, while three received peripheral blood mobilized. All conditioning was myeloablative, with three CyTBIATG and one BuFluTBI PTCy.At the time of the COVID-19 infection, all were using immunosuppressants. One with Tacrolimus and the other with Cyclosporine. 50% of patients had positive minimal residual disease and, as a prophylactic strategy, received DLI aliquots 2 weeks prior to infection. One of the patients was using Dasatinib.Only one patient presented evidence of graft versus host disease grade I, according to Glucksberg classification, with cutaneous involvement undergoing topical therapy.At the time of COVID-19 diagnosis, the mean D-dimer value was 5108 ng/ml, while neutrophils was 3548 (51-8709/mm^3) and lymphocytes 3159 (7-10686/mm^3). Regarding therapy, studies were recent, still with no evidence of the best choice. All patients received methylprednisolone. One patient used Hydroxychloroquine for 5 days, as well as received convalescent plasma. Two patients were treated with Ivermectin.One patient developed bilateral pneumonia and respiratory failure with major alveolar bleeding, progressing to death on D+24. The others did not present serious complications related to SARS-COV-2 infection. One patient died on D+161 due to complications secondary to graft rejection.

The study demonstrates experience of a transplant center through COVID 19 pandemic. All patients were using immunosuppressors, with risk factors for severe progression. The mortality rate for Sars-Cov-2 was 25%. It is essential to follow the guidelines of public health agencies, in order to guarantee early diagnosis and effective assistance to such patients.

DATA REPORT AUDIT ON HEMATOPOIETIC STEM CELL TRANSPLANTATION (HCT)

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Training data managers (DMs) to understand and report TCH correctly is a major challenge, but it is the only way we may understand the results of HCT. The information is complex and there are not enough professionals in to fulfill this mission. Thus, we developed a DM Training Course in HCT to qualify professionals and an educational audit to evaluate their performance.

OBJECTIVE: To use the educational audit to evaluate the accuracy of data collection in HCT.

SAMPLE: Thirty institutions performing unrelated donor HCT participated in the DM training and educational auditing.

METHOD: The 100% online course was taught in 2019 and 2020 with Pronon - Ministry of Health support. Each student collected data between August and December, 2019 and sent spreadsheets exported from the "Data Back to Center" (e-DBtC) programs of CIBMTR, Access, REDCap or Excel. Five medical records were selected for audit, including different diagnoses and types of HCT. The fields for auditing were based on the "essential data" of CIBMTR (Table 1). The data from the spreadsheets were compared with the documents and records of the medical records. With the Covid-19 pandemic, this process became 100% virtual. The data were categorized in: compliant, non-compliant, missing information and not applicable. The errors were considered systemic when related to the service processes and, consequently, frequently repeated. Non-systemic errors were disagreement or absence of the data in the medical records. A report was forwarded to each center so that the DM and the responsible physicians could analyze the findings.

RESULTS: All 30 participating Centers were audited. The number of auditable fields ranged from 25 (e-DBtC) to 55 (Excel and Access). A total of 129 data fields from 129 medical records were audited and 1,011 discrepancies were identified (Table 2), the most frequent: comorbidities (6%), total nucleated cells (6%), history of fungal infection (5%), conditioning classification (5%), cell viability (4%), donor blood type (4%) and history of intubation (4%). Data on bone marrow collection, cell count and infusion often remain in medical records of hemotherapy, not integrated into the hospital's computerized system. The centers praised the program and planned improvements, recognizing the relevance of this activity. Some services improved medical records to always include the necessary information. CIBMTR/FACT requires a maximum of 3% errors, while we observed 18%, but the data is checked by the system in real time, even before the audit.

WE CONCLUDE: that the audit program is essential to ensure the quality of data in TCH, especially because this is a new activity and so important for the entire community that works for the continuous improvement of the results of the transplants performed in our country.

TABLE 1: KEY HSCT DATA USED IN AUDITS

HSCT type	Allogeneic HSCT subtype	Current HSCT number	Previous HSCT type	Sex
Age to HSCT	Patient Blood Type	Date of birth	Race/ Color	Origin: State or Country
Diagnosis	Date of admission to the HSCT	Date of Diagnosis	HSCT pre status	Time since Diagnosis (days)
HSCT Date	HSCT Year	Conditioning Protocol	Conditioning Classification	Neutrophil engraftment (Yes/ No)
Neutrophil engraftment date	D+ Engraftment	GVHD prophylaxis	Acute GVHD	Acute GVHD Date
D+ Acute GVHD Diagnosis	Maximum Acute GVHD Grade	Maximum Grade GVHD Acute Date	D+ Maximum Grade Acute GVHD	Chronic GVHD
GVHD -Chronic Date	D+ GVHD -Chronic	GVHD -Chronic Grade	GVHD -Chronic Severity	GVHD -Chronic Maximum Grade Date
D+ GVHD -Chronic Maximum Grade	Current Disease Status and Date	Stem Cell Source	CD34+	Number of nucleated cells
Cellular Viablity	Follow-up Date	Current Status	Date of Death	Primary Cause of Death
Cause of Death	Survival (days)	Relapse (Relapse)	Date of Recurrence	D+ Relapse
Graft rejection	Graft failure	Date Graft rejection	D+ of Graft rejection	New neoplasm
Date new neoplasm	Diagnosis of new neoplam	D+ New neoplasm	Donor Sex	Donor Age
Donor Blood Type	Relationship	HLA matching	Comorbidities	CMV pre Patient
CMV Pre Donor	Intubation History	Previous fungal infection	MRD pre	% positive MRD
AML - Classification	ALL - Classification	Other Leukemia - Classification	SAA - Transfusions	CML - Response level
CML - Current cytogenetics	MDS Diagnosis (WHO/WHO)	MDS risk group	Hodgkin lymphoma	Non-Hodgkin Lymphoma (NHL)
MM - Classification	MM - Light chain	MM - Durie & Salman	MM - ISS	Other Malignancies
Date Chimerism	% Chimerism Donor Cells	Chimerism Result	2nd HSCT	Date 2nd HSCT

TABLE 2: DESCRIPTION OF EDUCATIONAL AUDITS CARRIED OUT IN 30 HSCT CENTERS IN BRAZIL, 2020

Center	Total of Audited Fields	Conformes	Conformes (%)	No Conf.	# Conf. (%)	Inf. Out	Inf. Absent (%)
1	265	250	94.3	3	1.1	12	4.5
2	329	259	78.7	38	11.6	32	9.7
3	136	123	90.4	0	0	13	9.6
4	276	252	91.3	7	2.5	17	6.2
5	315	260	82.5	19	6	36	11.4
6	252	217	86.1	5	2	30	11.9
7	261	227	87.0	5	1.9	29	11.1
8	50	43	86.0	0	0	7	14
9	87	14	16.1	72	82.8	1	1.1
10	76	40	52.6	36	47.4	0	0
11	231	202	87.4	8	3.5	21	9.1
12	135	124	91.9	2	1.5	9	6.7
13	263	227	86.3	15	5.7	21	8
14	293	262	89.4	7	2.4	24	8.2
15	54	31	57.4	2	3.7	21	38.9
16	265	225	84.9	10	3.8	30	11.3
17	273	235	86.1	10	3.7	28	10.3
18	214	209	97.7	0	0	5	2.3
19	285	276	96.8	9	3.2	0	0
20	279	219	78.5	22	7.9	38	13.6
21	278	236	84.9	27	9.7	15	5.4
22	293	249	85.0	12	4.1	32	10.9
23	295	277	93.9	11	3.7	7	2.4
24	282	259	91.8	3	1.1	20	7.1
25	175	151	86.3	13	7.4	11	6.3
26	272	184	67.6	41	15.1	47	17.3
27	129	111	86.0	4	3.1	14	10.9
28	170	122	71.8	6	3.5	42	24.7
29	166	145	87.3	7	4.2	14	8.4
30	172	131	76.2	28	16.3	13	7.6
Total	**6571**	**5560**		422		589	
Mean	219	185	81.7%%	14	8.6%	20	9.6%

EDUCATION SESSION IN HEMATOPOETIC STEM CELL TRANSPLANTATION: ADAPTATIONS PERFORMED IN TIMES OF COVID-19

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INTRODUCTION: For the therapeutic success of hematopoietic stem cell transplantation (HSCT), it is essential to involve the patient-family binomial in patients care. One way to carry out this practice is through an education session, an event held by the multidisciplinary team that aims to know and evaluate the patient, educate about the phases of the transplant, the care needed at each moment, the adverse effects of the drugs, as well as specific actions for prevention of COVID-19. As a result of the pandemic, adaptations in the process were necessary to maintain safety and minimize the patient's exposure to SARS-VOC-2.

OBJECTIVES: To describe the adaptations made by the multidisciplinary team to cope with the pandemic.

METHOD: Experience report on the adjustments made in the education session in a bone marrow transplant center in the south of the country. The study participants were patients with HSCT indication and their families between the period from May to July 2020. The education session was performed in a virtual and face-to-face manner by the multidisciplinary team.

RESULTS: Previously, the patient attended the hospital, before admission, on a predetermined day to receive the team's instructions. Considering the new pandemic scenario, we divided the reception into two stages: virtual - performed by the nurse and in person - performed at the hospital by the multi-professional team. Due to its deepening in more information about the whole process, it was understood that nursing should keep the orientation prior to hospitalization, and this started to be carried out in a virtual way by video call. One week before the hospitalization, the nurse makes a phone call with the patient, creating a bond, and schedules the virtual orientation, in addition to sending informative material about the transplant by email. During the tele orientation, information is passed in an enlightening way, and its understanding is verified. It also addresses the need to perform the pre-admission RT-PCR test and the preventive care of COVID-19. The face-to-face education session performed by the multi-professional team takes place in the patient's room on the second day of hospitalization.

EACH PROFESSIONAL: psychologist, pharmacist, nutritionist, physiotherapist, dentist, social worker, pastoral team and blood bank explain their work in each phase and answer questions. In the stipulated period, eight education session were carried out, 75% in the new format, including the nursing video call, and 25% with the entire team in person during hospitalization due to specific situations and conditions of each patient.

CONCLUSION: The adaptations of the orientations in the face of the pandemic brought positive results, as they allowed the transmission of the guidelines related to the transplant in an enlightening and safe way. There was an acceptance and understanding of the needs for changes and the understanding that the use of technology benefits communication between all.

KEY WORDS: bone marrow transplantation, education session, COVID-19

EMOTIONAL AND SPIRITUAL SUPPORT FOR THE ONCOHEMATOLOGICAL PATIENT AFFECTED BY COVID-19: ALTERNATIVES FOR CARE

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INTRODUTION: the emergence of a new vírus, highly contagious and of uncertain consequences to the humanity has been causing important emocional repercussions to the population in general. If the uncertainties brought by a pandemic scenario turned out in anxiety to a healthy person, it is not hard to imagine how challenging it has been for the onco hematological patient, who has exactly his imune system sick, to deal with this threat. Having the vírus diagnosis, overlaid to the oncological diagnosis, reverberates for stricter isolation measures during hospitalization, even making it impossible the presence of team members who are not essential for the organic treatment of the disease. Therefore, the psychology service along with the pastoral service has drawn alternative ways to guarantee that the patients and their families could keep having these carings.

OBJECTIVE: describe the experience of alternative communication with patients with covid-19 during oncohematological treatment at a private hospital in Southern Brazil.

METHOD: telephone contact with patients and their families, with frequency defined according to the demand of each case.

RESULTS: the telephone contact has been presented as an important tool to maintain the bond with the team, once the patient with active covid leaves the onco hematological unit, which he would only return after being completely heald from the vírus. Through phone calls, the patients could verbalize the importance of keeping conected with the home team and the feeling of security this possibility has brought. Besides that, in the face of the unavoidable lonelyness, expressed in their reports, they recognized the importance of having their fears and

yearning welcomed and validated, considering that they couldn't always express them to their families, who were also frightened. They also reported strangthening of faith and hope through spiritual support, that enabled moments of prayer and blessings. The telephone contacts with the families, besides giving them the same kind of support, has also been useful as an important bridge of communication with the team, especially in cases where the patient needed mechanical ventilation, being unable to communicate.

CONCLUSION: the telephone service has been showd source to maintaining both emotional and spiritual supports for these patients and their families. However, there were many challenges to effectuate these carings, among them, the locking of non-verbal communication, which is only possible on a presential contact. From this experience many lessons were learned, maybe the most valuable of them was about the importance of not stopping in the face of the impossibility of an ideal scenario, because the willingness to operate in the logic of what is possible has opened unknown paths, allowing to redefine care as the act of being together, even when it was not possible to be.

EVALUATION OF THE IMPACT OF THE PANDEMIC COVID-19 IN THE ROUTINE OF CONFIRMATORY TYPING EXAMS AT THE HLA-UERJ LABORATORY

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INTRODUCTION: The pandemic of the respiratory syndrome COVID-19 caused by the SARS-CoV2 s has affected the Brazilian and worldwide scenario in several aspects, in particular, remodeling the work routines. Some diagnostic laboratories, such as the Histocompatibility and Cryopreservation Laboratory (HLA-UERJ), maintained their face-to-face work routine, even expanding the volume of tests performed due to the inclusion of new tests or even the centralization of tests already performed, such as the confirmatory molecular typing (CT) of genes in the HLA system of potential bone marrow donor and recipient individuals.

OBJECTIVE: The present study aims to assess the impact caused by the pandemic COVID-19 on several parameters of the routine of carrying out confirmatory typing tests by NGS of the HLA-UERJ Laboratory.

CASE SERIES: 156 CT exams requested by the REDOME-REREME systems before 03/13/2020 and 91 exams after the decree closing non-essential commercial establishments in the city of Rio de Janeiro were included in the assessment.

METHOD: The examinations were performed from DNA samples extracted from blood and / or oral swab from individuals, processed by new generation sequencing (NGS) using the commercial kit Omixon Holotype HLA NGS (Omixon Inc .; Budapest, Hungary) for sequencing of HLA-A, -B, -C, -DPA1, -DPB1, -DQA1, -DQB1 and -DRB1 loci in races on MiSeq and HiSeq 2500 equipment (Illumina, Inc .; San Diego, CA, USA). Statistical calculations were performed using SPSS v20 software (IBM Corp. Armonk, NY, USA).

RESULTS: There was no difference between the time required to release the test result since its arrival at the laboratory (17.9 ± 8.9 days before x 17.5 ± 8.4 days after 3/13/2020; $p = 0.78$). The volume of requests for CT exams dropped slightly after the deadline used (0.68 exam / day before x 0.62 exam / day after).

CONCLUSIONS: The HLA-UERJ Laboratory maintained its commitment to carrying out confirmatory typing exams by NGS in partnership with REDOME-REREME systems to promote bone marrow transplants even in a pandemic period when problems with suppliers were faced and care for employees' working conditions remained at the forefront. During this period, the laboratory kept receiving the same volume of requests for CT examination and delivering the results in the same time.

FACING THE PANDEMIC WITH SARS-COV-2: AN EXPERIENCE REPORT

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INTRODUCTION: SARS-CoV-2 is the etiological agent responsible for the well-known COVID-19, which originated in China, being the first case notified in Brazil in February. It has a high mutation rate, adapting to the hosts, which may justify its great proliferation curve. Its symptoms are similar to flu like fever, cough, dyspnea, hypoxia, gastrointestinal symptoms (nausea, diarrhea), neurological symptoms (anosmia, ageusia, cephalea) and can be asymptomatic. Most infections are mild, but in groups considered at risk such as the elderly, smokers, carriers of chronic diseases, immunosuppressed or oncologic are more severe, evolving rapidly from respiratory failure to pneumonia, septic shock and multiple organ failure. The best form of precaution in a hospital environment is to prevent transmission between patients and health professionals.

OBJECTIVE: To report the experience of the nursing team and the care related to TMO patients in the pandemic.

METHODS: This is a report of experience carried through in a hospital of São Paulo, pioneer in the care of COVID-19, in a unit of TMO (autologous and allogenic) with 14 beds.

RESULTS: Since the beginning of the pandemic several trainings and cares are being carried through for the safe practice in the unit of admission of TMO. It is mandatory the use of disposable mask for all employees during the dependency in the hospital and temperature assessment. A specific flow for patients submitted to BMT and an addendum to the consent form explaining the specificities during the pandemic period were performed. At the end of the evaluation and pre exams, the patient and the companion (who will remain during the whole hospital stay) must perform social isolation for 14 days. On the tenth day they can choose to collect the PCR for COVID-19 via home, or on the first day of hospitalization in a specific room with negative pressure and adequate precautions. Visiting or changing a companion is forbidden. The companion is screened daily for signs and symptoms, performs the temperature check twice a day, remains with a full time surgical mask and inside the patient's room.

DISCUSSION: The adaptations on a safe environment have been taking place progressively. Due to the exposure of the virus in a hospital environment, it is important to recapitulate the knowledge of biosafety in a continuous process of education emphasizing the adoption of good practices such as the use of personal protective equipment. It is important to use information materials (posters, brochures) and update standard operating protocols.

CONCLUSION: We did not have any infection in patients and companions during BMT. As a result, they felt safer for the continuity of treatment, the same with health professionals bringing well-being, confidence and a safe environment.

FREQUENCY OF COVID-19 AMONG HEMATOLOGICAL PATIENTS: RESULTS OF A BROAD SCREENING PROGRAM IN A TRANSPLANT UNIT DURING THE PANDEMIC

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ABSTRACT: Since February 2020, cases of COVID-19 have been rapidly spread throughout Brazil with severe health and economic impacts. Profound changes in health services structures have been necessary to deal with the number of cases, and one of the most important strategies for controlling the pandemic is the extensive testing of the population.

In onco-hematological settings, the pandemic times bring two import issues: risk for the development of severe COVID-19, and the second: oncological therapy cannot be postponed for most patients. Several measures have been addressed to maintain safety for oncological patients during their treatments, including environmental control, education, and training (for patients and HCW), viral diagnosis, and intense screening by SARS-CoV 2 RT-PCR.

Herein we present results from an extensive screening for SARS-CoV 2 by RT-PCR in hematological patients within the first five months of the pandemic in Brazil.

The Hospital developed a broad institutional protocol against COVID-19, including, RT-PCR screening in onco-hematologic patients in the following indications: for all symptomatic respiratory patients, for patients with any other symptoms of infection (extended fever protocol), in asymptomatic patients before stem cell transplant (SCT) (autologous or allogeneic SCT donors and receptors), and at new admissions regardless the reason for hospitalization.

A total of 108 RT-PCR tests were performed in the period. The indications for testing were in the order of frequency: 46 SCT recipients, 37 symptomatic respiratory patients, ten new admissions, eight patients in investigation of infection by extended fever protocol, and seven allogeneic SCT donors. Eleven tests were positive (10%). 22% of patients screened due to respiratory symptoms, and 12.5% of those screened in the extended fever protocol were diagnosed with COVID-19. Among asymptomatic individuals, SARS-CoV2 was detected in 4% of patients tested before SCT. We did not obtain positive screening in SCT donors, or at new admissions.

The eleven symptomatic COVID-19 patients were treated outside the Transplant Unit, due to the risk for local transmission as the unit has HEPA filter and positive air pressure. Patients who returned after COVID-19 for cancer therapies were admitted in the Transplant Unit only after clinical and virologic confirmation of cure (2 negative RT-PCR SARS-CoV 2).

Asymptomatic patients had their SCT deferred for at least 14 days. The readmission was only performed after confirmation of the virologic cure.

In our experience, the frequency of SARS-CoV2 detection by RT-PCR was directly influenced by the presence of symptoms, being around 22%, 12%, and 5% in respiratory symptomatic, symptomatic without respiratory symptoms, and asymptomatic onco-hematological patients, respectively. During the pandemic, the maintenance of extensive testing is justified and necessary in this immunosuppressed population to maintain safety during their treatments.

HEMATOPOIETIC STEM CELL TRANSPLANTATION, SCHOOLING PROCESS AND COVID-19

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INTRODUCTION: Hematopoietic stem cell transplantation (HSCT) is a treatment that could need hospitalization for the entire variable HSCT process, it depends on the patient's specific characteristics like the type of transplant, and potential clinical complications. As the literature suggests, it takes an average of a year away from school. The basic education schooling process has a predictable time and age. The one goes from the 1st year of Elementary School (first grade at 6 years old) to the last year of high school (twelfth grade at 17 years old). The new 2020 restrictions of personal contact between hospital teachers and student-patients undergoing treatment by the HSCT, requested flexibility in the school curriculum, for its timeline and age rigidity, in addition to those previously carried out in the same hospital since this study begins (an infant and juvenile care center for neoplastic patients in a city in São Paulo city).

OBJECTIVE: The main objective is to answer the question: What curriculum flexibilities were carried out due to the 2020 pandemic? We defined the months between March and August 2020 as the study period. We inform that, during this period, the classes continued individually, however, we started to operate with a virtual class platform.

CASUISTIC: Sixteen (16) student-patients who start treatment in the period considered and seven (7) who were continuing BMT performed in 2019, have the function of parameter for the analysis of those who start studying in the hospital in times of pandemic.

METHOD: Exploratory research of a predominantly qualitative nature. RESULTS: (1) Adherence to the continuity of studies(7/16 = 43.75%). (2) Non-adherence due to: (a) clinical status(3/16 = 18.75%); (b) Return in 2021 (2/16 = 12.50%); (c) Non-enrollment(2/16 = 12.50%); and (d) Difficulty with technology (2/16 = 12.50%). (3) Curricular Flexibility occurred according to (a) Context of performance; (b) School learning from the instructional to the interactionist; (c) Hospital classes operationalization process.

CONCLUSIONS: Curricular flexibility regarding the context of performance: (a) The culture that predominates is family and not that of the school institution, since classes took place in 33.3% of homes. (b)The developed school skills are those of the school year of age and enrollment, however, the axis is not instructional, but of the interactions with school culture developed in the home environment, with that, patient students do not stop learning. While in 2019, the percentage of students who perform HSCT and do not adhere to the continuity of the school year was 2.5%, now 12.5%. (c)The process of operationalizing the classes in the remote format included the technological literacy of the mothers and / or grandparents who accompany the patients, with this; the management of the school curriculum is decentralized from the school and now has health teams, school and family. This study suggests continuity with the analysis of the reception of the schools of origin in relation to the curriculum practiced in the hospital.

KEYWORDS: Severely ill student. Curricular flexibility. Pandemic 2020. Literacy in technology

IMPACT OF COVID-19 PANDEMIA ON A BLOOD MARROW TRANSPLANT UNIT IN A PUBLIC UNIVERSITY CENTER

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INTRODUCTION Hematopoietic Stem Cell Transplantation (HSCT) is a possible curative treatment option in several hematological conditions. HSCT is an overly complex procedure in which the patient is submitted to conditioning consisting of chemotherapy and/or radiotherapy, infusion of hematopoietic progenitor cells (HPC) and long-term use of immunosuppressants. Therefore, its performance requires an apparatus with pre-hospitalar, hospital, laboratorial and multiprofessional care. For this reason, the global pandemic of the new coronavirus (SARS-CoV-2) has brought many challenges for the Bone Marrow Transplantation Unit (BMTU) and Cellular Therapy, such as rearrangements in the flow of outpatients, inpatients and in the Day-Care Hospital, aimed at the protection of patients, donors and staff. Due to the SARS-CoV-2 pandemic, several adjustments were implemented according the recommendations of the Brazilian Bone Marrow Transplantation Society (SBTMO), the American Society for Transplantation and Cellular Therapy (ASBMT), the European Society for Blood and Marrow Transplantation (EBMT) and the National Agency of Sanitary Vigilance (Technical Note No 36/2020-CGSNT/DAET/SAES/MS).

PURPOSE: Demonstrate the impact of the adaptations of the BMTU that aim at preventive and safety measures in face of the COVID-19 pandemia, notably upon pre transplantation consultation, indication of transplants and long-term follow-up of patients.

METHOD: A retrospective analysis of the number of admissions for TCPH in the first half of 2020 was performed, whose data were compared with the period of 2017-2019.

RESULTS: There was a reduction in the number of hospitalizations in the BMTU in the first semester of 2020 (57), compared to the years of 2019 (68), 2018 (77) and 2017 (81), a decrease of 16%, 26% and 29,3% respectively. There was an increase in the number of emergency transplants. In comparison with previous years, 2020 had 87.5% of emergency transplants, 2019 with 84%, 2018 with 78.7% and 2017 with 86.1%. A reduction in outpatient visits, compared to the same period of the preceding year, with a reduction of 72% in the appointments in April, 75% compared to May, and 66% in relation to June 2019.

DISCUSSION: The reduction in the numbers of care in this period was the result of strategies to prevent infection by SARS-CoV-2, aiming at the safety of donors and patients who urgently need the services provided by the BMT team. We must emphasize that, as it is a critical area and urgent treatment, there was no reduction in the proportion of transplants of this modality in comparison with previous years. The same outcome was observed in other transplant centers unit in countries that were also targets of the COVID-19 pandemic.

KEY WORDS: bone marrow transplant; pandemia; COVID-19.

REFERENCES:

1. BRASIL. DECRETO N.º 80.281 DE 5 DE SETEMBRO DE 1977. Regulamentação da Residência Médica. Ministério da Educação. Acesso em 15 jun. 2020.
2. NEBRASKA. International standards for hematopoietic cellular therapy product collection, processing, and administration accreditation manual. Foundation for the accreditation of cellular therapy, and Joint accreditation committee. Sétima edição, 2018.
3. BRASIL. Nota Técnica Nº 1/2020/CNRM/CGRS/DDES/SESU/SESU. Processo Nº 23000.015323/2020-55. Comissão Estadual de Residência Médica. Acesso em 15 jun. 2020.

TABLE 1 – Reduction in the number of hospitalizations in the first semester

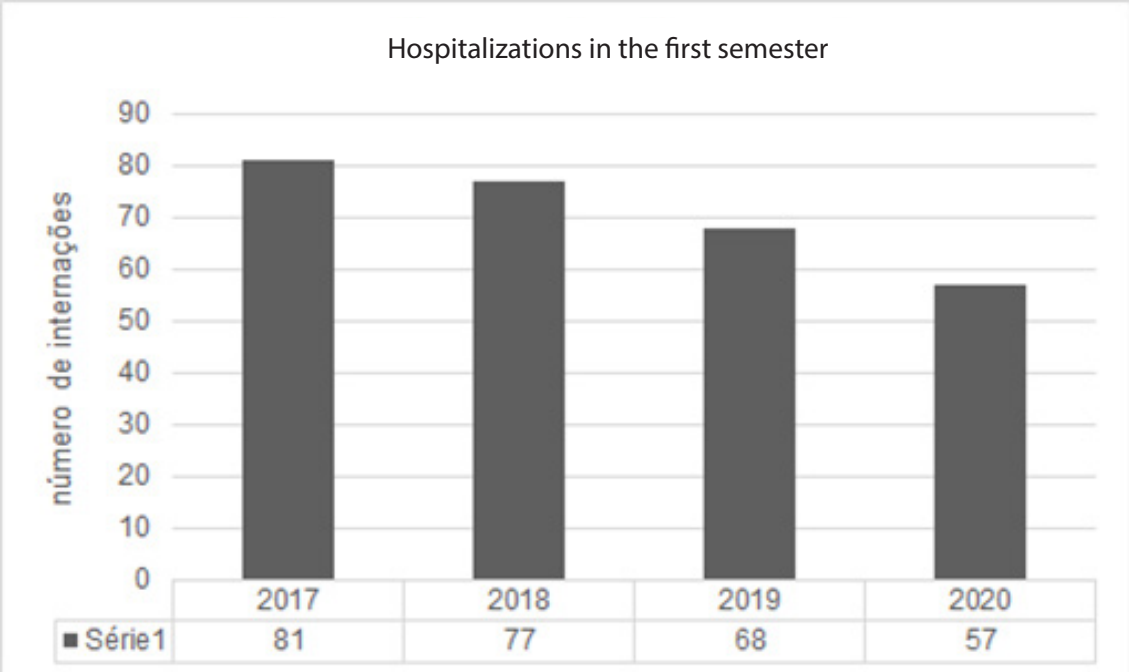


TABLE 2 - Increase in emergency transplants.

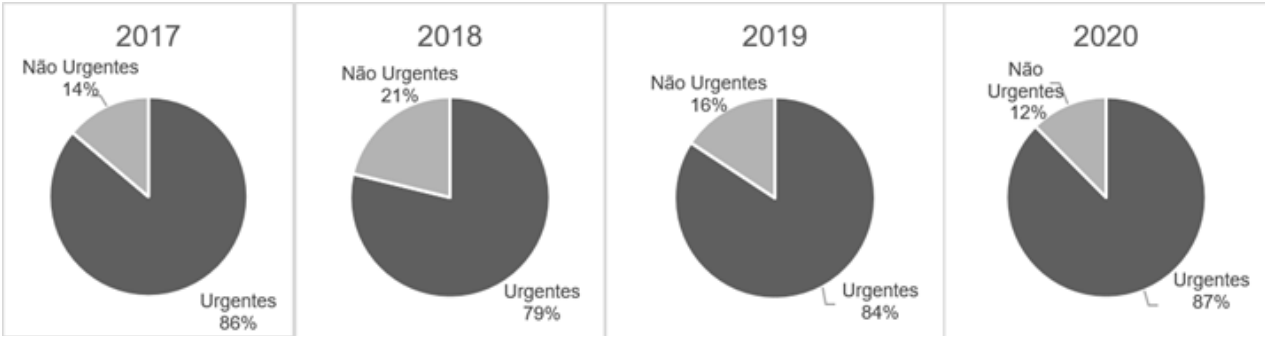
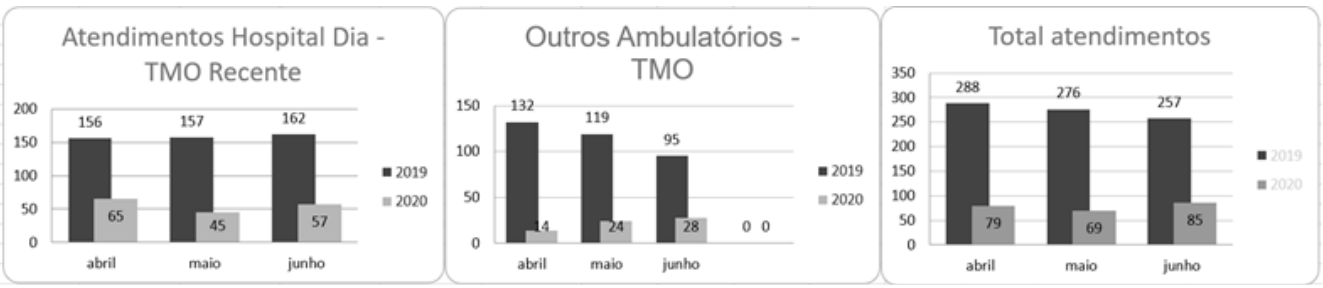


TABLE 3 - Number of face-to-face consultations and comparison with the same period in 2019.



IMPLEMENTATION OF AN ACADEMIC LEAGUE OF HEMATOLOGY, HEMOTHERAPY AND BONE MARROW TRANSPLANTATION

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INTRODUCTION: Academic Leagues (AL) are extracurricular student corporations, with a focus on Teaching, Research and Extension, non-profit[1], whose purpose is to perfect specific skills related to the medical course, in addition to integrating academics and inserting the student in an interactive environment between academia and society[2]. In this context, the objective of the aforementioned work was to create a Hematology and Hemotherapy League, aiming at further theoretical deepening in these areas, with a focus on Bone Marrow Transplantation, since it is a topic rarely addressed in the academic scenario, in addition to practical experiences to provide experiences in this environment.

CASUISTICS AND METHODS: This is a descriptive and observational study, with the purpose of documenting the creation of a League called the Academic League of Hematology / Hemotherapy of Unichristus (LAHEM), in the medical course of Unichristus College, as well as documenting the first studies approached by the League, from July to September 2020. It is noteworthy that the elaboration of the League was carried out remotely due to the pandemic caused by COVID-19 infection. During this period, weekly, online meetings were held to discuss aspects related to the role of the League of Hematology and Hemotherapy, in the clinical, propaedeutic and treatment of COVID-19. Among the topics addressed by the League, the importance of D-dimer measurement as an early marker of fibrinolysis[3] and the use of convalescent plasma as therapy for COVID-19 infection.

RESULTS: As a result we have the creation of LAHEM, which was composed of 13 members and 6 positions. Initially, a schedule was built that mainly aimed at face-to-face social actions, such as encouraging blood and bone marrow donation, with the impossibility of presential contact due to the COVID-19 pandemic, these were replaced by online activities, such as Lives, Podcasts and Classes remote.

The creation of LAHEM provided a greater engagement of the students of the Centro Universitário Unichristus with undergraduate teaching and deepening of knowledge in Hematology and hemotherapy. In addition, LAHEM enabled greater insertion of students in research and extension activities, as well as interactions with other institutions in the area. LAHEM presents proposals that integrate extension, research and teaching, in order to contemplate society and the academic environment, thus exercising the primary function of university extension: disease prevention and health promotion.

CONCLUSION: LAHEM certainly provides many achievements to the academic community, since it is an opportunity to address topics that have been neglected in the academic curriculum. In addition, it allows members to enter the medical and scientific class, but also social integration and life experiences.

MEASURES IMPLEMENTED IN A PANDEMIA SCENARIO OF COVID-19 IN A HEMATOPOETIC STEM CELL TRANSPLANTATION UNIT

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INTRODUCTION: Hematopoietic stem cell transplantation (HSCT) is a complex treatment that has high rates of morbidity and mortality. During this process there is a significant increase in the risk of infections by different pathogens, including COVID-19, a virus first detected in December 2019 in China. The World Health Organization (WHO) declared a coronavirus pandemic in March 2020 with the growth in the number of cases, deaths and affected countries. It is an infectious disease, with high transmissibility and without pharmacological alternatives for its prevention until now. Thus, hospital institutions have transformed their routines and work processes to enable the best results for patient care, the maintenance of the physical and psychological safety of professionals and the mitigation of disease in healthcare environments. It is not clear yet whether the course of COVID-19 in HSCT patients differs from the general population, but probably these patients are more vulnerable to contract the Sars-CoV-2 virus and developing severe forms, evolving to death.

AIM: Describe the measures implemented in a HSCT Unit of a university hospital during the COVID-19 pandemic.

METHOD: Experience report.

RESULTS: According the guidelines of the Bone Marrow Transplantation Brazilian Society and Hospital Infection Control Committee the Institution, the actions adopted were: postpone non-urgent transplants; ensure the availability of stem-hematopoietic cells by freezing them before conditioning; screening patients by phone before admission to track signs and symptoms, testing all candidates for coronavirus; prohibit or restrict visits to the maximum (keeping companions only for children, the elderly or patients with clinical indication) and guide the universal masking of patients and companions. The team has received individual protection equipment, training about care and RNA-CRP collections of suspected or confirmed cases of COVID-19. Employees who had symptoms of COVID-19 or direct contact with confirmed cases were referred to the Occupational Medical Service, tested and removed from their activities until symptom improvement or negative RNA-CRP result.

CONCLUSION: It was possible to maintain the quality of care for patients who needed to undergo HSCT based on implemented actions. It is also worth mentioning the commitment of the nursing team in a time of so many changes, in managing new routines, allocating resources and training the team, prioritizing patient safety, but not forgetting their own.

KEYWORDS: Nursing, COVID 19, Hematopoietic stem cell transplantation.

MULTISYSTEM INFLAMMATORY SYNDROME RELATED TO CORONAVIRUS IN A PEDIATRIC PATIENT AFTER BONE MARROW TRANSPLANTATION: A CASE REPORT

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INTRODUCTION: Acute coronavirus infection (COVID 19) has less impact on the pediatric population than on adults; however, it is responsible for a serious disease in children: the multisystem inflammatory syndrome related to the coronavirus (MIS-C).

OBJECTIVE: To report the case of MIS-C in a child after hematopoietic stem cell transplantation (HSCT), using immunosuppressive therapy (IST) for graft versus host disease (GVHD).

MATERIALS AND METHODS: Descriptive study of a 10-year-old male patient, with acute lymphoblastic leukemia in remission, submitted to unrelated allogeneic HSCT. Taking tacrolimus, he developed grade III hepatic GVHD after 43 days. Methylprednisolone, mycophenolate and basiliximab were associated due to refractoriness. After improvement on liver function tests, immunosuppression was maintained with tacrolimus, mycophenolate and reduction of corticosteroids. During IST, 8 months after transplantation, he developed a frontal headache, otalgia and dry cough, without fever. Amoxicillin-clavulanate was given and after 3 days, he developed fever and lung crackles. CT scan showed bilateral ground-glass changes and pulmonary consolidation on the middle lobe and right lower lobe. Worse of liver function tests were also presented. He was positive for COVID-19 test on naso-oropharyngeal swab (RT-PCR SARS-CoV2). He was hospitalized, although hemodynamically stable and eupneic. IST was continued. He developed rhinorrhea, a purulent cough, abdominal pain and diarrhea. He was treated with cefepime and azithromycin. Despite symptomatic improvement, his transaminases worsened, reaching 40 times the normal value, in addition to worsening renal function and increased inflammatory markers, with ferritin up to 26,246 (baseline 5,000). D-dimers were 0,55 and C-reactive protein remained within normal range. Mycophenolate was maintained, tacrolimus dose adjusted for high serum level and, considering reactivation of hepatic GVHD related to MIS-C, methylprednisolone 2mg/kg/day was started. The patient's laboratory tests gradually improved, without the need for supplemental oxygen during the 21 days of hospitalization. After hospital discharge, there was a reduction in IST, without reactivation of GVHD, maintaining a positive COVID 19 RT-PCR 8 weeks after initial testing.

Discussion and conclusion: The worldwide incidence of inflammatory syndrome in pediatrics has increased due to the relationship identified with the new coronavirus in this age group. Most affected patients are previously healthy, but there are cases in children with chronic diseases, especially immunosuppressed. MIS-C is a new entity, and further studies are needed to understand the pathophysiology and appropriate treatment. It usually occurs after acute COVID-19, but it can occur during infection. Its association with GVHD is little known. The safety and indication of IST applied to GVHD is well established, but its use associated with MIS-C requires further studies.

PROTECTED ONCOLOGICAL FLOW FOR PATIENTS UNDERWENT TO HEMATOPOIETIC STEM CELL TRANSPLANTATION (TCTH) DURING THE NEW CORONAVIRUS PANDEMIC (SARS-COV-2).

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BACKGROUND: On February 26, 2020, in São Paulo, Brazil, the first case of infection with the new coronavirus, SARS-COV-2, was confirmed, whose disease was named COVID-19. Cancer patients undergoing chemotherapy, radiotherapy, surgical procedures and Hematopoietic Stem Cell Transplantation (HSCT) are at higher risk of infection by SARS-Cov-2, with a poor outcomes. n addition, "social distance" strategies are not always possible due to the frequent need to be in the hospital for cancer treatment. However, whenever the clinical / oncological conditions of the patients allow, consideration should be given to postponing the HSCT, otherwise, prior to admission, a nasal swab RT-PCR for SARS-CoV-2 shoud be performed, even when they are asymptomatic. The negative result is a condition to proceed with HSCT.

OBJECTIVE: To describe the experience of the Hematopoietic Stem Cell Transplant Service at a Cancer Center during the SARS-CoV-2 pandemic.

Methods: For all patients who underwent HSCT, a follow-up was started 30, 15 days and 72 hours before admission to the hospital, and a respiratory symptoms questionary was done and a guidance about social distance was advised, for patients and also for theyr relatives who live at the same residence. For all patients, after admission to the Stem Cell Transplant Unite, a RT-PCR for SARS-CoV-2 was collected, according to the institutional protocol, and was repeated when the infection was suspected. Although there are no reports of transmission of respiratory virus infections from donor to the recipient, all donors performed the RT-PCR for SARS-CoV-2 at admission to the hospital at a isolated floor for SARS-CoV-2 screening for pre surgical procedure.

RESULTS: Between March and August, 35 patients underwent HSCT, 10 (29%) allogeneic and 25 (71%) autologous, all with negative RT-PCR. During this period, 65 collections were performed, following institutional protocols for surgical procedures, all with negative results. In the same period, 5 patients presented clinical suspicion, which were ruled out after negative RT-PCR.

CONCLUSIONS: The COVID-19 pandemic required efforts to seek solutions aimed at prevention. In the context of the patient undergoing HSCT, due to the vulnerability, the protected oncological flow, developed by the health care workers from HSCT, Infectious Diseases team and Infection Control Service, contributed to mitigate the risks and ensure quality and risk-free care for patients and donors.

PSYCHOSOCIAL IMPACT OF THE COVID-19 PANDEMIC ON BONE MARROW TRANSPLANT PATIENTS: SUBSIDIES FOR INTERDISCIPLINARY CARE PLANNING

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INTRODUCTION: Due to the high rate of transmissibility and lethality, the SARS CoV-2 virus is a potential threat to the health of the transplanted patient.

OBJECTIVE: To understand the perception of patients undergoing Bone Marrow Transplantation about COVID-19.

METHOD: This is a cross-sectional, descriptive-exploratory study, with a quantitative approach. The convenience sample consisted of 30 patients, 19 of whom were women, the highest rate of single people (37%), without children, with mean (SD) age of 31.9 (10.6) years, with a family income of up to two minimum wages (44.8%). For data collection, an online form was used. The content of the responses was submitted to quantitative analysis, through the SPSS Program.

RESULTS: Most patients were not acting professionally (80%). Six patients were dismissed during the pandemic period or had the family's main financial provider discharged from work. Regarding the risk of infection by the new coronavirus, 12 said they did not have enough knowledge about how the SARS-CoV-2 behaves in transplanted patients and nine considered that they were not properly cared for to avoid infection; of these, six stated that they had already been exposed to risk, because they believed in fake news, with WhatsApp being the main source of access to (dis)information. The main adopted health care behavior was social distancing. Although half stated that their quality of life did not change, 19 reported increased anxiety and 14, sadness, 13 began to think more about death, eight spoke of worsening family conflicts and four reported suicidal thoughts. Almost half of the sample (n = 13) had previously been diagnosed with a psychiatric disorder. The mostly used strategies to deal with dysphoric feelings were: relaxation techniques, use of faith and seeking support from the health team. Five were contacted by call centers and rated the experience very positively, although the majority (66%) did not trust their effectiveness. Five received face-to-face assistance and assessed that the professionals were more objective and less attentive, feeling little protected.

DISCUSSION: The results show the impacts on the emotional and financial health of the pandemic in transplant patients. Considering the context of pre-existing psychiatric disorders, the indicators of emotional distress need to be carefully evaluated and taken care of, especially the presence of suicidal ideation. Patients believe they do not have enough information for self-care and, on the other hand, the source where they seek knowledge about the disease is not reliable. In addition, they report not trusting the effectiveness of the call centers, but on the other hand they fear contamination during the face-to-face meetings. In this scenario, it is urgent that the health team takes into account such ambivalent and / or contradictory attitudes when planning intervention strategies, both therapeutic and informative.

RISK OF COVID-19 TRANSMISSION IN BONE MARROW TRANSPLANT: A CASE REPORT

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INTRODUCTION: It is well known that in COVID-19, virus transmission occurs mainly from human to human through respiratory droplets but its RNA has also been found in feces, urine, plasma, serum, or whole blood (although usually with a very low viral load). Moreover, the SARS-CoV-2 RNA can be detectable in nasopharyngeal swab long after the resolution of symptoms in a significant percentage of previously diagnosed individuals with no clinical relevance. Several specific recommendations have been issued by the bone marrow transplant community to decide whether to postpone these procedures or not and on the clinical management of recipients and donors exposed to the disease.

OBJECTIVE: To report a case of an asymptomatic related bone marrow donor who tested positive for COVID-19.

METHODS: Data were collected from the patient and donor medical records.

RESULTS: We report the case of a 52 year-old female patient diagnosed with acute T lymphoblastic leukemia who underwent haploidentical hematopoietic stem cell transplant (HSCT) with reduced-intensity conditioning. The donor was her 31 year-old son, who, despite being healthy, had a history of rhinorrhea and anosmia around 30 days before the final evaluation. As the donor's symptoms had completely resolved several days before, and the risk of blood transmission of COVID-19 is known to be very low, the schedule was kept once the HSCT couldn't be postponed. On the day of peripheral blood stem cell collection, a reverse transcription-polymerase chain reaction (RT-PCR) assay from nasopharyngeal swab for SARS-CoV-2 was collected from both the donor and the patient, but the results were available only the day after: the donor was positive and the receptor was negative. We followed the patient closely, but her blood RT-PCR assay three days after the infusion was negative and she had no symptoms of the disease during the first 100 days after HSCT with negative nasal swab RT-PCR throughout the period.

CONCLUSIONS: Less than 1% of blood donors infected by SARS-CoV-2 present viremia. Complementary researches show that the correlation between the presence of viral RNA in a biologic sample and infectivity requires a minimal RNA load, which is rarely observed in blood components. Besides, the infectivity of positive plasma was not evidenced in cell culture experiments, suggesting that although SARS-CoV-2 transfusion-transmission risk cannot be excluded, the presence in the plasma of RNA related to emerging viruses for which transmission by blood is not the natural mode of contamination does not necessarily imply a threat to blood safety. So far, there is no proven SARS-CoV-2 transmission by transfusion. This case report supports the currently available evidence that SARS-CoV-2 transmission through blood products is unlikely. However, given the significant mortality and morbidity rates worldwide, objective donor screening methods are needed to decrease the risk of viral transmission, especially in pandemic situations.

KEYWORDS: Bone Marrow Transplant. COVID-19. Coronavirus. Transmission. Blood safety. Donor. Viremia.

TELENUTRITION FOR PATIENTS POST-HEMATOPOIETIC STEM CELL TRANSPLANTATION DURING THE COVID-19 PANDEMIC

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INTRODUCTION: Hematopoietic Stem Cell Transplantation (HSCT) is a treatment performed in patients diagnosed with hematological diseases, malignant or non-malignant, with high morbidity and mortality during treatment. Among the factors that influence the prognosis of these patients is the nutritional status, being an independent risk factor during treatment. The nutritional follow-up of outpatients in the post-transplantation aims to assess nutritional status, physical performance, the effects of HSCT and medications, to manage symptoms of graft-versus-host disease and to provide guidance on diet and good handling practices. However, with the Covid-19 pandemic, outpatients follow-up were canceled in order to reduce the exposure of patients to the virus, in consequence of immunosuppression.

OBJECTIVE: To describe the nutritional follow-up of patients undergoing HSCT in a referral hospital in southern Brazil, through telenutrição, during the Covid-19 pandemic.

METHODOLOGY: Descriptive study about the telenutrition to post-HSCT patients undergoing outpatient follow-up.

RESULTS: In order to reduce the exposure of immunosuppressed patients to the Sars-Cov-2 virus, nutritional follow-up by telephone was started. For this, a questionnaire was developed, with open questions to carry out the nutritional assessment, pre-established for care. After prior scheduling, on the day of the appointment, the nutritionist contacts the patient. The materials required for these appointments are equipment with access to the internet network, with access allowed to the patient's medical record. In addition, a room is needed where there is no outside interference.

DISCUSSION: Among the obstacles found in the consultations performed are the failure to perform anthropometric assessment and physical examination, with only the data reported by the patient. It is still possible to question gastrointestinal tract symptoms, question physical performance, assist the patient in the management of symptoms, clarify doubts and advise on diet and good handling practices. From the consultations already carried out, a positive feedback was obtained from the patients, referring to feeling at ease during the service, safer and less exposed to the virus, managing to solve their doubts and appreciate the nutritional follow-up, even if at a distance.

CONCLUSION: Therefore, the telenutrition enables the nutritional follow-up of patients after HSCT, providing specialized and quality care even if remotely. In conclusion, it is a new type of healthcare that makes it possible to continue patient care at a time of such importance during treatment, while also reducing exposure to Sars-Cov-2.

5. MULTIDISCIPLINARY

ARSENIC TRIOXIDE AND THE IMPORTANCE OF MONITORING CARDIOTOXICITY: A CASE REPORT

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INTRODUCTION: Arsenic trioxide (ATO) is an extremely old drug and previously known as a poison that has been reintroduced in modern medicine for its potent and specific action in adult patients with Acute Promyelocytic Leukemia (APL). Several for the purposes are related to the use of ATO and among these cardiac toxicity, one of the most important that cause changes in electrocardiogram (ECG), with consequent arrhythmias and sudden death have been reported.

METHODS: Case report referring to a patient diagnosed with low-risk APL, treated with Transretinoic Acid (ATRA) + ATO as induction therapy in a private onco-hematological therapy unit in southern Brazil Information was obtained through collection data in electronic medical records. The data survey was conducted in August 2020.

RESULTS: A 46-year-old female patient diagnosed with low-risk APL underwent induction with ATRA + ATO, started immediately after diagnosis. Nursing care during daily infusion was checking vital signs every 15 minutes in the first hour of infusion and every 30 minutes in the second hour, daily electrolyte control and replacement, weight control twice a day, blood glucose control and electrocardiogram every 48 hours. At D14, the patient has symptomatic supraventricular tachyarrhythmias (nausea and palpitations) 12 hours after the end of the medication infusion. There was spontaneous improvement in symptoms, even so she was referred for observation at the intensive care unit (ICU) and medication suspended for grade 2 cardiotoxicity for three days.

DISCUSSION: Serious adverse events attributed to treatment with ATO include fluid retention, differentiation syndrome, peripheral sensory neuropathy, electrocardiographic abnormalities and sudden death. Tachycardias are described as unusual ATO reactions, but their importance as a potential cause of modification of the therapy of patients with ALI, causes cardiological evaluation to be performed frequently. It is recommended that during therapy, serum potassium concentrations should be maintained around 4.0 meq / L and magnesium concentrations around 2.0 mg / dL. Maintaining an adequate level of hemoglobin and oxygenation is also important to reduce cardiac toxicity. The onco-hematological nursing team must be aware of the effects related to the use of ATO, as well as recognize and promote routine care with vital signs, physical examination of the patient, collection and replacement of electrolytes and must also recognize patients in need of more intense cardiac monitoring.

CONCLUSION: Knowledge about cardiac effects related to the use of ATO and the need for specific monitoring routine by nursing staff during and after ATO infusion is fundamental for the success of the treatment of patients with APL.

DESCRIPTORS: Leukemia, Promyelocytic, Acute. Drug-Related Side Effects and Adverse Reactions. Arsenic Trioxide.

REFERENCES:

GRIJALBA, Paola Andrea Cuestas et al. Evaluación económica del trióxido de arsénico para el tratamiento de leucemia promielocítica aguda. Revista Neuronum ISSN: 2422-5193 (En línea), v. 6, n. 4, p. 199-218, 2020.

DEVELOPMENT OF A MULTIPROFESSIONAL OUTPATIENT CLINIC FOR THE CARE OF GRAFT VERSUS HOST DISEASE PATIENT: A SINGLE CENTER EXPERIENCE

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INTRODUCTION: Allogeneic hematopoietic stem cell transplantation (HSCT) is a curative option for several malignant and non-malignant diseases. Graft versus host disease (GVHD) is considered the main post-HSCT complication, affecting 30 to 70% of patients. These present a decrease in quality of life, besides being associated with a significant impairment of physical, social and emotional aspects, in such a way that, in order to accelerate the resumption of its activities, multidisciplinary follow-up is considered essential. The aim of this study is to present the experience of a university hospital, in São Paulo state, in the organization of an outpatient clinic specialized in the multidisciplinary care of patients with GVHD.

MATERIAL AND METHODS: Analysis of activities developed by the multidisciplinary team and the number of visits performed between May 2019 and March 2020 was performed. Data were retrospectively evaluated and compared with the same information corresponding to the year prior to the development of the outpatient clinic.

RESULTS: From May 2019, the GVHD outpatient clinic, which took place on one day of the week in the afternoon, was expanded to the morning, with multiprofessional following this line of care: in the morning, evaluation with the nursing team, physiotherapy, dentistry, nutrition and ophthalmology; in the afternoon, medical consultation with HSCT team, psychological evaluation and completion of activities by the nursing team. When necessary, patients are referred to other specialties such as pulmonology and dermatology. At the end of the morning, a meeting with the entire multidisciplinary team is held, with discussion of clinical cases, articles and protocols. In the first 10 months of activities, there were 148 face-to-face visits with an average of 14.8 visits per month. A total of 16 patients were followed, with several visits per day, according to demand, with a median (variation) of 9 (2-18) visits per patient. Compared to data from the same period of the previous year, we found similar numbers. A total of 148 visits were made in the period, with an average of 14.8 visits per month. Twenty-two patients were attended, the median number of visits (range) was 5 (1-17) per patient, but they were evaluated only by the medical and nursing group. The evaluations with the other professionals were carried out on other days and places.

CONCLUSION: The organization of the multidisciplinary outpatient clinic, in which the patient is treated following the line of care described above, allows patients to be evaluated by different professionals on the same day and place, besides enabling the realization of projects related to teaching, care and research, which are the pillars of our institution. Future studies may evaluate the impact of this line of care on the quality of life of patients and the knowledge of the entire team.

EXTRACURRICULAR INTERNSHIP OF UNDERGRADUATE NURSING IN A BONE MARROW TRANSPLANT UNIT: EXPERIENCE REPORT

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INTRODUCTION: The extracurricular internship is a milestone of great importance for nursing students, as it demonstrates the beginning of professional life, stimulating the teaching-learning relationship with practical, educational, formative training and promoting benefits to patients. It improves the student, respecting the ethical basis of the profession. When performing this internship in a Bone Marrow Transplant unit, as it becomes much greater. We are students of the eighth semester of undergraduate nursing and since the beginning, we were interested in the area of ??Onco-Hematology, however, throughout the course, we obtained superficial opportunities related to it, nothing that was compared to what we enjoyed during this internship period. For this reason, we decided to carry out an experience report on the period of extracurricular internship at the BMT unit.

OBJECTIVE: Report the experience obtained in a year of extracurricular internship in Undergraduate Nursing in a BMT unit and how it influences the training of young nurses.

METHOD: This is an experience report about the extracurricular internship of the undergraduate nursing course in a BMT unit, in a large private hospital, located in the city of São Paulo, from January 2020 to the present date.

RESULTS: Initially, developing clinical reasoning linked to practice was very complex, as we had difficulties in both. In addition, the pathologies, clinical and emotional condition of patients at this stage are delicate and are generally affected during treatment. For this reason, the differential of our internship was the Par Magnet project, which allows the monitoring of reference nurses in the area throughout the teaching-learning process, resulting in progressive improvement, both in the technical and scientific spheres. During this period, we have evolved a lot, we have learned to work as a team and have seen the role of nursing in a complete way. We accompany the patient in all stages related to BMT, starting with conditioning, infusion, aplasia, neutrophilic grafting and the post-transplant period. We perform private nurse procedures, improve our clinical reasoning, and learn to organize assistance by prioritizing integrated care.

CONCLUSION: During the internship, we noticed the importance of the nurse, both in humanized care for the patient and in decision making during BMT. This period was essential for our training because, as it is a highly complex area, it justifies the need for nurses to provide comprehensive care to the patient. In this way, we experience in practice the gold standard of excellence, which we will certainly take into our professional life.

HEMATOPOIETIC STEM CELL TRANSPLANTATION NURSING: BIBLIOMETRIC STUDY

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INTRODUCTION: Hematopoietic Stem Cell Transplantation has currently been considered an alternative treatment for onco-hematological diseases and autoimmune diseases, demonstrating a high probability of cure and/or significant increase in disease-free survival. Peripheral stem cell sources can be bone marrow, peripheral blood, or umbilical and placental blood.

OBJECTIVE: This study aims to analyze the scientific production on the guidelines adopted in Brazil for the care of the transplanted patient.

METHODOLOGY: Review the literature in order to identify the publications of nurses between the years 2010 and 2020.

RESULTS: Data were collected in July and August 2020, 254 articles were selected, which after analysis and discussion, included 34 articles that brought the object of study; the results showed that the south and southeast regions currently have higher numbers of scientific publications.

CONCLUSION: It was found that the production in this area is still incipient, in Brazil has increased in recent years the centers of bone marrow transplants, in view of the above the study made us reflect on the importance of including other themes related to transplanted patients little explored by the scientific community.

KEY WORDS: Nursing. Hematopoietic stem cell transplantation. State of the Art Review.

Periódico	n	%
Revista de Enfermagem referência	1	2.94
Revista Enfermagem EFPI	1	2.94
Revista Cuba Enfermagem	1	2.94
Texto e amp: contexto enfermagem	3	8.82
Cogitare enferm	4	11.76
Revista RENE	1	2.94
Acta Paulista Enfermagem	3	8.82
Revista enfermagem Uerj	3	8.82
Reme revista min. Enfermagem	2	5.88
Revista Brasileira de Enfermagem	4	11.76
Revista Latino-americana de Enfermagem	3	8.82
Revista Gaúcha de Enfermagem	2	5.88
História enfermagem Revista eletrônica	1	2.94
Revista Brasileira cancerologia	1	2.94
Ciências cuid saúde	2	5.88
Research Society and development	1	2.94
Revista Eletrônica de Enfermagem	1	2.94

Table 1: Periodicals from January 2010 to July 2020.

HUMANIZATION AT HSCT: FROM WONDER WOMEN TO THE BALLET NURSE

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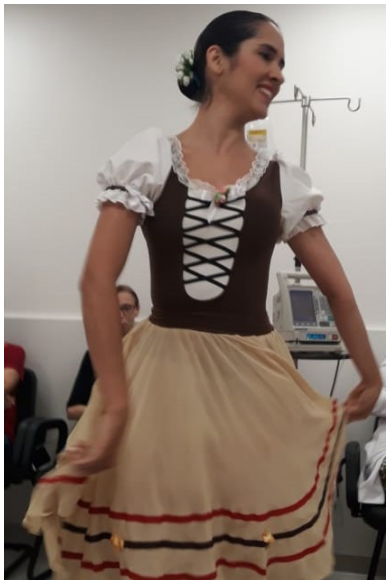
INTRODUCTION: Within the patient care process, actions of engagement and promotion of differentiated experiences have gained strength and prominence in the treatment of patients within the hospital environment. In the transplantation of stem-hematopoietic cells (HSCT), patients, family members and a multidisciplinary team are intensely involved and prolonged hospitalization generates emotional distress. The interaction and interaction within an onco-hematology and bone marrow transplant unit cannot be limited to technologies. Transfusing, giving antibiotics and chemotherapy, check vital signs, despite being part of the care, in some way all its meaning, making the rescue of human interactions essential and an objective as much as the remission of hematological diseases. Special moments, such as celebrations and meetings, reiterate personalized care in health care.

METHODS: Describe humanization actions carried out in 2019 in the onco-hematology sector.

RESULTS: On Women's Day celebrated on March 12, the multiprofessional team organized a tribute for women patients, family members and professionals in the sector, where the central theme was "wonder women", all received a "hair ornament" for characterization. The entire team was mobilized, nutrition organized snacks, there was a musical presentation with a saxophonist, homage posters made by the hospitalized patients themselves and the distribution of personalized memories. In the Christmas week, a "closing" of the year was organized in the sector, with a fraternization of all inpatients, family members and employees in the sector. The team was involved with the organization of decorations, snacks, souvenirs and the presentation of live music by an instrumentalist and one of the nurses in the sector, who performed a classical ballet presentation.

DISCUSSION: The care process permeates all interpersonal relationships and the way it is developed can facilitate or hinder the patient's and family's trust and bond with health professionals. The humanization of the hospital environment must be assumed as a process of participatory construction that requires respect and appreciation of the human being being cared for. The proposal of events in the sector made it possible to redefine humanization, rescue moments of relaxation and team / patient / family interaction, in addition to relieving physical and emotional pain.

CONCLUSION: It was observed by the team that after the events the patients reported less physical pain, were happy and had more interaction with the team. It was also observed that the music did bring good memories, emotional moments between patients and family members. For the health professionals involved, in addition to stimulating creativity, it also brought a new meaning to the whole care work carried out throughout the year.



NEUROLOGICAL TOXICITY RELATED TO THE USE OF BLINATUMOMAB, PERSPECTIVE OF ONCO-HEMATOLOGICAL NURSING: CASE REPORT ABOUT TWO PATIENTS.

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INTRODUCTION: Blinatumomab is a member of a new class of bispecific antibodies, it is a bispecific anti CD19 / CD3 antibody. This antibody is directed against the B cell differentiation antigen, CD19 and has been widely used in the treatment of B cell malignancies. Among the various paraffects related to Blinatumomab, the most clinically relevant are neurological toxicity (including, headache, aphasia, ataxia , drowsiness, tremors, disorientation, convulsions), cytokine release syndrome (SLC) and infections related to neutropenia.

METHODS: Case report of two patients diagnosed with ALL who received Blinatumomab in a private onco-hematology unit in southern Brazil. The information was obtained through data collection in electronic medical records. The data survey was carried out in August 2020.

RESULTS: Patient A, male, 43 years old, diagnosed with Ph + ALL, underwent treatment with GRAAL protocol, positive DRM, indication of allogeneic pre-HSCT blinatumomab. On D1, a full dose (28 mcg) was initiated in the first 12 hours of infusion, the patient presented with limb paresis, mild dysarthria, headache and hyperthermia. After 24 hours of infusion, symptoms worsened and medication suspended due to grade 3 neurotoxicity. After 72 hours of pause, medication was restarted at a dose of 9 mcg. Progresses to full dose at D8 and D10 starts with paresthesia in the lower limbs, after 24 hours of symptom resumption, grade 3 neurotoxicity medication suspended. Patient B, male, 36 years ALL, post haploident HSCT, negative post D + DRM 100, indication of maintenance due to extremely high risk of relapse. D1 started with full dose of medication (28 mcg), in the first 12 hours of infusion, presents paraesthesia, dysarthria, ataxia and aphasia, medication suspended with 24 hours of infusion due to neurotoxicity grade 3. After 72 hours, restarted with a reduced dose (9mcg) and 20 mg dexamethasone daily for 10 days, he presents only fine extremity tremors. Progress to full dose at D9, completing 28 days of infusion.

DISCUSSION: One of the main causes of dose interruption or discontinuation of blinatumomab use is neurological toxicity and prompt recognition of these toxicities is mandatory within the onco-hematology unit. The two patients described had significant neurological toxicity in the first 24 hours of infusion and nurses were the first to detect the initial changes leading to dose changes, use of medications and interruption of medication when important toxicity. Given the importance of early identification of adverse reactions, the routine of daily assessment of the patient's writing was established to detect early neurological changes.

CONCLUSION: It is vitally important that the onco-hematological nursing team is prepared to recognize signs and symptoms related to the use of new therapies such as Blinatumomab.

NURSING CARE IN THE ADMINISTRATION OF ALEMTUZUMAB IN A PATIENT WITH PURE RED CELL APLASIA

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INTRODUCTION: Alemtuzumab is a monoclonal antibody that acts directly on a non-modular antigen, CD52, which is expressed on the normal and malignant surfaces of T, B lymphocytes, Natural Killer cells (NK), monocytes and macrophages. The main complications of alemtuzumab infusion are: hypotension, fever, chills, hives, nausea and bronchospasm. In the meantime, nursing must endeavor to carry out best practices in the infusion of medication in the face of possible adverse reactions.

OBJECTIVE: to report the nursing experience in the administration of Alemtuzumab to a patient with Pure Red Cell Aplasia (PRCA) treated at a spinal failure clinic.

METHOD: Experience report.

RESULTS: The patient in this study was the only one to receive alemtuzumab for the treatment of APSV so far. He has been diagnosed with PRCA and treated with immunosuppressants for 2 years and is 40 years old. He received seven doses of alemtuzumab, once a week between April and June 2020, in an attempt to stimulate spinal function, he was prescribed for intravenous administration, with a recommended infusion time of 2 hours. Prior to the first dose, diphenhydramine and paracetamol were administered, but the patient still experienced nausea, vomiting and malaise, in which the patient was medicated with ondansetron. In the second dose, in addition to the symptoms mentioned above, the patient presented postural hypotension at the end of the infusion. In view of this, there was a change in the medical prescription, with pre-infusion medications being replaced by hydrocortisone, dexchlorpheniramine and paracetamol, with improvement of symptoms in subsequent infusions. Among the nursing care performed, the following are mentioned: performing peripheral venipuncture, with permeable access; monitoring the patient throughout the infusion with regard to the development of adverse reactions and communication to the doctor, if necessary; verification and control of vital signs (blood pressure, heart rate, saturation and temperature) before, during and after the infusion; administration of pre-infusion medications and alemtuzumab; in addition to advising the patient on the main reactions that may happen, even late. From the late complications, the patient had fever at home after the second dose of the medication, and positivized Cytomegalovirus that can be expected with the treatment. The increased risk of infection is mentioned, therefore, the nurse must guide care to prevent infections.

CONCLUSION: the nurse is responsible for the care before, during and after the administration of alemtuzumab, ensuring patient safety in its administration, therapeutic effectiveness, as well as identifying and managing adverse reactions. Its performance in health education is emphasized, in this context, in which there should be guidance on home care for this patient, in terms of drug therapy and infection prevention.

NURSING CARES VERSUS CUTANEOUS EFFECTS ASSOCIATED WITH THE USE OF THIOTEPA FOR AUTOLOGOUS STEM-CELL TRANSPLANTATION (SCT) CONDITIONING: EXPERIENCE OF A PEDIATRIC SCT UNIT

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INTRODUCTION: High dose Thiotepa (TT) is used in combination with other chemotherapies as part of the conditioning regimen for autologous hematological stem-cell transplantation (HSCT) for solid tumors patients. It is a alkylating agent known to cause skin reactions consistent with toxic erythema from chemotherapy, including erythema and hyperpigmentation in areas of occlusion, skin peeling, blistering, and elevated skin temperature.

OBJECTIVE: To identify nursing care for pediatric patients who underwent high dose Thiotepa in conditioning for autologous HSCT.

MATERIAL AND METHODS: Retrospective cohort study of patients undergoing autologous HSCT in a pediatric center.

RESULTS: From April 2019, to July 2020, 20 autologous HSCT´s were performed with the use of TT. 55% percent of the patients were male, 45% female and median age was 2.5 years.There was a predominance of central nervous system tumors (55%) and retinoblastoma (45%).Conditioning regimen with TT in 100% of patients. 90% percent of the patients were in complete remission of the underlying disease and 10% had active disease or partial remission. As for race, 45% were white, 30% were black, 20% brown and 5% albino.Regarding skin lesions, we noticed that 100% had hyperpigmentation and slight peeling of the skin after using TT, mainly in areas of folds and armpits, being of greater perception in patients of brown and black race. 5% percent of the patients had diffuse scaling lesions, intense itching and a crust on the lip region associated with TT. Also, 5% of patients developed dermatitis in the perianal and perineal regions. We did not evidence any patient in this period with bullous manifestations or serious injuries as mentioned in the literature. The increase in skin temperature was observed in 100% of patients and there was a need for measurement by an auricular thermometer. All the patients received nursing care on the days of TT administration and 48 hours after the end of the infusions, thus: three daily baths; three daily changes of bed linen; changing the catheter dressing after bathing; use of a partially-implanted central venous catheter or porth-a-cath dressing as small as possible and sufficient to cover the insertion area (with the use of gauze and micropore); diaper elastics are removed and remain opened during use in children; use of mineral water and cotton for perianal and genital region hygiene after intestinal and bladder eliminations; elastic clothing is not allowed; avoid skin rubbing and occlusions of skin areas; guidance for the mother in case of breastfeeding to clean the halo with mineral water and cotton; and attention to skin temperature and use of auricular thermometer (-0.5 °C in relation to the axillary temperature) until skin improves.

CONCLUSION: TT is a chemotherapy still not very often used in Brazil mainly because of its elevated costs and absence of reimbursement by the Public Health System.

NURSING CONSULTATION FOR THE ELDERLY IN POST-AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION: A PROPOSAL FOCUSED ON THE CONTEXT OF ACTIVE LEARNING METHODOLOGIES

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INTRODUCTION: According to the World Health Organization (WHO), an elderly person is every individual aged 60 or over. The projection of the Brazilian population released by the Brazilian Institute of Geography and Statistics (IBGE / Census 2020) is that Brazil has more than 28 million people in this age group, a number that represents 13% of the country's population. And that percentage tends to double in the coming decades. According to data from the National Cancer Institute José Alencar Gomes da Silva (INCA), the incidence and mortality from cancer has been increasing worldwide, partly due to the aging population, as well as due to changes in habits and due to the prevalence of cancer risk factors. In Brazil, for the 2020 - 2022 biennium it is estimated that 625 thousand new cases of cancer will occur each year. About 70% of cancer cases are diagnosed in individuals aged 60 and over. In our daily practice, some pathologies that affect this elderly population call our attention, among which we highlight Multiple Myeloma due to its incidence, aggressiveness and difficulty in establishing the diagnosis. Multiple myeloma mostly affects patients older than 65 years. Being included in the category of chronic non-communicable and irreversible diseases, of long clinical course, being commonly associated with the natural organic fragility of elderly individuals. Concomitant with this information, we realize that the elderly have a diversified and directed demand for services, products and health care. This new epidemiological scenario brings important and real challenges for the health sector, especially for the Unified Health System (SUS) due to its demand.

OBJECTIVE: To develop educational strategies based on the problematization methodology for the nursing consultation with the elderly and their family members / caregivers, in the immediate and late autologous post HSCT (hematopoietic stem cell transplantation).

METHOD: This is a retrospective study, from the last two years, using the database of the Post HSCT nursing consultation of patients with Multiple Myeloma undergoing autologous HSCT in a public service in the State of Rio de Janeiro. Developed based on the methodological framework of problematization, in order to promote learning opportunities and transition of care. Therefore, we use the active learning methodology, based on the teaching and learning process centered on the reality in which they are inserted, that is, focusing on the comprehensive and individualized care of the elderly in the post HSCT.

RESULTS: Data were collected between March 2018 to March 2020, during this period we evaluated 58 patients, of which 52 (90.4%) were over 65 years old, 38 (65.5%) affected were men, 52 (89, 3%) were of African American descent, 52 (90.3%) had characteristic symptoms such as: Bone pain due to lytic bone disease, Weakness and fatigue due to anemia, Weight loss, constipation due to increased calcium levels in blood, kidney problems, infections caused by non-functional immunoglobulins and motor deficit.

DISCUSSION: Through the nursing consultation after HSCT, the elderly patient with multiple myeloma has a personalized service, where we carry out the systematization of nursing care, with one or more services, accompanied by a family member or person responsible for the patient, the consultation being private in a public service in the State of Rio de Janeiro. The service is based on a complete anamnesis, based on the Nursing Care Systematization. Nurses who work in the Post HSCT outpatient clinic are based on scientific evidence, always being able to plan and perform the best possible care related to the patient and his / her family / caregiver, seeking to adapt to the social context of this. Conclusion: Outpatient care after autologous HSCT is an

assessment directed at a multiprofessional / patient / family team, where we can measure, through statistical data, the decrease in readmission related to the lack of adherence to treatment after discharge, schedule specific care for each patient / caregiver / family, promoting symptomatic comfort, symptomatic, reaching full according to his possibilities and limitations imposed by his underlying disease, after his discharge from hospital. From the above, it is evident the importance of planning the nursing consultation in order to carry out a prophylaxis of possible complications related to treatment / illness.

NURSING INTERVENTIONS IN AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR TYPE 1 DIABETES MELLITUS

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INTRODUCTION: autologous hematopoietic stem cell transplantation (AHSCT) has been studied over the past decades as a promising treatment for autoimmune diseases, such as type 1 diabetes mellitus. However, the immunosuppressive conditioning regimen required before the infusion of the stem cells, which involves chemotherapy and rabbit anti-thymocyte globulin (ATG), can cause an important procedure-associated toxicity that requires specific nursing interventions to avoid or minimize undesirable outcomes related to the treatment. Objective: to identify nursing interventions for AHSCT in type 1 diabetes mellitus.

CASE SERIES: patients diagnosed with type 1 diabetes mellitus undergoing AHSCT from January 2004 to December 2018.

METHOD: retrospective, cross-sectional study. All patients received cyclophosphamide and ATG for 4 consecutive days, followed by a dose of ATG on the fifth day. Data were collected from patients' medical records and descriptive statistics was used for data analysis.

RESULTS: of the 23 patients, 16 (70%) were men, with a mean (standard deviation) of 18 (4.4) years old and none of them used steroids as prophylaxis for anti-thymocyte globulin-associated allergic reactions, since steroids may be toxic to the pancreatic insulin-producing beta cells. The most frequent nursing interventions were: blood culture collection and administration of antibiotic therapy in febrile episodes - more than 60% of patients had a fever every day of the conditioning regimen; interruption or reduction of the ATG infusion rate; administration of opioids such as Pethidine in cases of shivering related to ATG infusion; administration of analgesic and antiallergic medications due to the presence of skin rash; administration of antiemetic medications in situations of nausea and vomiting. The assessment of vital signs and water balance occurred in 100% of patients every day of the conditioning regimen, according to the treatment protocol.

CONCLUSIONS: nursing interventions for diabetic patients undergoing AHSCT involve the administration of medications to reduce the discomfort caused by anti-thymocyte globulin-associated allergic reactions, in addition to nursing care related to the fever and infections complications.

5.2 PHARMACY

MULTIPROFESSIONAL EVALUATION OF INTERACTIONS BETWEEN DRUGS AND DIET IN PATIENTS SUBMITTED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTODUCTION: Hematopoietic Stem Cell Transplantation (HSCT) is a potentially curative treatment carried out, in most cases, in patients with onco-hematological diseases. It is a procedure with high morbidity and mortality due to post-transplant complications. These patients require complex health care and need the attention of the entire multidisciplinary team, as they are polymedicated and often have important changes in their nutritional status. Many of the drugs these patients take may interact with diet, which can lead to some loss in their action, as well as in nutritional status due to fasting periods. Team work of pharmacists, nutritionists and nurses is essential for identification and correct management of these cases.

OBJECTIVE: In this paper, we report the experience of these three professional categories in assisting patients undergoing HSCT, focusing on the identification of interactions between drugs and diet to adjust their administration.

METHOD: This work is a descriptive observational study. Results: Some examples of drugs that HSCT patients commonly use and are not recommended to be taken concomitantly with any or some types of food or diet are: tacrolimus (immunosuppressant), voriconazole (antifungal), deferasirox (iron chelator), and eltrombopag (platelet stimulating factor). Voriconazole has its absorption impaired when taken with food, as well as tacrolimus which can have its absorption reduced by up to 27%. Deferasirox has a very large variation in bioavailability when administered concomitantly with diet. As for eltrombopag, it has its absorption reduced when administered with diets rich in calcium (>50 mg of calcium). In addition, long periods of fasting for medication can impair nutritional therapy when poorly planned. Patients who receive an enteral diet, when in disagreement with medication schedule, may not receive up to 40% of the estimated needs. In such cases, it is necessary to make changes in the schedule of the diet and / or medication and dilution of the volume of the diet that is not administered at other times. Likewise, the same must be done to patients who receive only oral diet, so that the supply of food is not less than indicated. In the health care routine, the pharmacist identifies patients who are taking any of these medications and notify the nutritionist, so that they can arrange combinations about the medication and diet administration schedules, together with the nurse, who organizes the medication and diet schedules according to established arrangements.

CONCLUSION: Therefore, multiprofessional work allows the safe drug administration to the patient, without prejudice to medication and nutritional therapy.

5.3 PHYSIOTHERAPY

CHARACTERIZATION OF THE FUNCTIONALITY OF INTERNAL PEDIATRIC PATIENTS FOR HEMATOPOIETIC STEM CELL TRANSPLANTATION.

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INTRODUCTION: The transplantation of hematopoietic stem cells (HSCT) is a highly complex treatment and liable to complications that weaken, leave sequelae or have fatal consequences. During the hospitalization period, children/adolescents experience different experiences, remaining for a long period within the hospital context, a factor that directly interferes with their functionality. Faced with such a scenario, care involving a multidisciplinary team becomes essential, where through a detailed therapeutic plan it is possible to prevent and minimize the risks involved in this process.

OBJECTIVE: To characterize the functionality of pediatric patients during the hospitalization period for HSCT. Materials and

METHODS: retrospective study, based on data collected through the evaluations carried out by the professionals, in a infant HSCT unit of an oncology hospital in the interior of the State of São Paulo. The study collected data from September 2019 to August 2020, using functionality assessments, using the Functional Status Scale (FSS), performed at three different times (pre-hospitalization, leukocyte catch and high), by physiotherapy professionals and occupational therapy. 37 patients were included, with ages varying from 1 to 18 years, where the predominant diagnosis was leukemia and the type of transplant was the unrelated allogeneic. The average length of stay was 31, ranging from 20 to 98, with daily monitoring of both specialties. FSS is composed of six domains (mental status, sensory functioning, communication, motor functioning, food and respiratory status). The global FSS score is categorized into: 6 - 7, adequate; 8 - 9, mild dysfunction; 10 - 15, moderate dysfunction; 16 - 21, severe dysfunction; and more than 21 points, very serious dysfunction. Results: From the evaluations performed, it was found that the average of functionalities in patients at the time of the pre-HSCT evaluation was 6.13, (± 0.51), adequate; at the time of leukocyte catch it was 8.38 (± 0.96), mild dysfunction; and at discharge, it was 6.17, (± 0.57); proper. Thus, through the scores presented, only at the time of leukocyte catch, the children / adolescents presented a slight dysfunction in relation to their functionality, being mainly related to the use of an enteric nasal tube (SNE), irritability, prolonged hospitalizations and presence of acute graft-versus-host disease (GVHD).

CONCLUSION: The child/adolescent has changes in functionality due to aspects related to the therapy performed, requiring the monitoring of a multiprofessional team, aiming to maintain / stimulate skills in the various areas that involve the patient, through a look at the biopsychosocial being.

EFFECTS OF CONTROLLED EXERCISE ON PATIENTTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: In bone marrow transplantation, high doses of chemotherapy followed by rescue with hematopoietic stem cells are often indicated. These treatments have side effects which may impact physically, psychologically and upon the quality of life of these patients, as well as prolong hospital stay.

OBJECTIVE: Observe the effect of a controlled exercise program on the recovery of patients undergoing bone marrow transplantation.

METHOD: This is a cross-sectional study with quantitative data analysis of 50 patients undergoing bone marrow transplantation who participated in a program of strength, coordination and resistance exercises daily from hospitalization until 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 steady walking by the number of right knee flexions for 2 minutes. This study was approved by the Ethics Committee of the Unigranrio University, Rio de Janeiro, under number 89910618.8.0000.5283. Student's t-test was performed for comparative analysis using Statistica®, the 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, p = 0.09, biceps strength at admission: 21.8 ± 5.5 and at discharge 22.4 ± 5.39 repetitions / 30 seconds p = 0.59, steady gait admission: 75.2 ± 18.5 and at discharge 75.2 ± 18.3 right knee flexions / 2 minutes p = 0.99.

CONCLUSION: Controlled physical exercise in patients undergoing autologous bone marrow transplantation did not present any additional risks to patients and seems to promote maintenance of functional capacity and quality of life.

TABLE 1. SUBJECT CHARACTERISTICS

Characteristics	Admission	Discharge	p values
Age (years)	47,9 ± 11,1		
Aplasia time (days)	12,2 ± 4,2		
EORTC QLQ-C30	79, 1 ± 17,6	79, 1 ± 17,6	p= 0,09
Biceps strength	21,8 ± 5,5	22,4 ± 5,39	p= 0,59
Steady gait	75,2 ± 18,5	75,2 ± 18,3	p= 0,99

n= 50 participants, EORTC QLQ-C30 (Functional Scale), biceps strength mean ± SD repetitions / 30 seconds, steady gait mean ± SD right knee flexions / 2 minutes.

MANUAL OF PHYSIOTHERAPEUTIC EXERCISES FOR PATIENTS SUBMITTED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION.

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INTRODUCTION: Hematopietic stem cell transplantation(HSCT) is a complex procedure where the patient receives a bone marrow infusion from a donor or a self-donation. The performance of physical exercise during the transplantation period can help in the improvement of muscle strength and fatigue resistance, enabling a better quality of life of these individuals. The construction of an exercise manual is an opportunity to standardize and make conducts official in patient care, with the help of all involved.

OBJECTIVES: To review the literature on HSCT and effects of exercise in patients undergoing this procedure. Study the appropriate form and content for a manual of physical therapy exercises, specifically in the following aspects: general understanding, language, format, presentation and organization of the content. Analyze the opinions of a panel of health professionals on the contents of the manual.

METHODOLOGY: Qualitative study developed through specific methodology on the construction of educational manuals following steps for its elaboration: definition and selection of contents, adaptation of language, inclusion of illustrations, preparation of the pilot manual, qualification of the manual, layout of the manual.

RESULTS: To definition of the content of the manual, a narrative review of the literature was performed. To organization of the content itself, with texts and images, the material had as main topics: Importance of exercises, care for exercises, exercises and HSCT. To qualification of the manual was evaluated by the panel of experts, with a sample of 10 health professionals with practical experience in the subject matter. The professionals answered a structured questionnaire in which they evaluated content, shape, layout, images. A qualitative analysis of the answers, opinions and suggestions given by the professionals in the questionnaire was made, and after the necessary changes were made to the material.

CONCLUSION: O physical therapy exercise manual for patients submitted to HSCT was designed for an target audience of adolescents and adults. In order to assist the patient in the improvement of his self-care and in the quality of life after HSCT, it can also be a tool for the physiotherapist so that he can optimize the performance with these patients. It was found that defining a methodology is essential for the development of the process of construction of this type of material. The qualification of the manual performed by the panel of experts was fundamental for the elaboration of a material with technical quality. The manual evaluated by the professionals was well accepted, considered easy to understand and adequate, with some suggestions for changes in the content, language and image. These adjustments were made to make the final version of the manual. It is believed that having a health education material can facilitate the orientations of health professionals, mainly from the needs of care practice, and also assist in the modifications of health actions, seeking the physical, mental and social well-being of individuals.

PHYSIOTHERAPY IN AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION IN MULTIPLE SCLEROSIS, A CASE REPORT

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INTRODUCTION: Multiple sclerosis (MS) is a chronic neurological autoimmune disease caused by the destruction of the myelin sheath in the central nervous system through an inflammatory process. Main symptoms are: changes in vision, sensitivity, balance, sphincter control and muscle strength. Unfortunately, there is no effective therapeutic method to repair damaged myelin and medications have focused on controlling chronic inflammation and symptoms. Therapeutic option to control disease activity in cases with poor prognosis is immune ablation followed by autologous Hematopoietic Stem Cell Transplantation (HSCT). This, designed using a method of rescuing patients with previously stored stem cells, after prolonged bone marrow aplasia as a consequence of the administration of high doses of chemotherapy. During hospitalization, the immobilization of these patients must be avoided, as any functional loss may be irreversible, and the realization of physiotherapy in their rehabilitation is essential.

OBJECTIVES: To analyze the functionality of a patient with MS undergoing HSCT receiving physical therapy during hospitalization.

METHODS: Case report regarding functionality in a patient with MS undergoing HSCT. Intervention was performed in a private hospital in southern Brazil, during hospitalization. Physical therapy was performed for 30 minutes, 1 to 2 times a day. Karnofsky Performance Status scales (KPS) and Kurtzke's expanded disability status scale (EDSS) were used for evaluation. The procedures comprised exercises for postural control, gait training, balance and maintenance of ventilatory capacity. Exercises were applied according to daily clinical conditions. RESULTS: Female patient, 39 years old, diagnosed with MS, interned for HSCT for 46 days, having grafted on the eighth day after HSCT. At the beginning of hospitalization, KPS was 40% and EDSS 7.5. During the first 27 days, the patient maintained the score, after worsening motor and ventilatory conditions and needing extra physical therapy for two days. In sequence, the patient maintained KPS 30% until discharge and EDSS 7.5.

DISCUSSION AND CONCLUSION: Studies suggest that physical therapy can serve as an auxiliary support in symptomatic disease and its effectiveness is related to the patient's functional level at the beginning of rehabilitation. There is a significant difference in the mobility and quality of life of patients with MS in rehabilitation, especially in hospitals. The improvement in the EDSS score is associated with shorter disease duration and recurrent remitting course and also longer rehabilitation time. Physiotherapy helped to minimize functional decline and maintain the daily activities of this patient, although the results obtained demonstrate that there was a reduction in the KPS scale at discharge. This being a case report, prospective studies with a greater number of patients and follow-up time are necessary.

KEY WORDS: Multiple sclerosis. Autologous transplantation. Physiotherapy

PHYSIOTHERAPY PERFORMANCE DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION OF A PATIENT WITH COMPLICATED SEVERE APLASTIC ANEMIA: CASE REPORT

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INTRODUCTION: Physiotherapy plays a fundamental role in hematopoietic stem cell transplantation (HSCT), in order to enhance the chances of success and to prevent complications that can be generated during the hospitalization period. With respiratory and motor kinesiotherapy, physiotherapy prevents injuries and rehabilitates transplant patients, so that they can later be reintegrated to their daily living activities.

OBJETIVE: To report the physiotherapy performance during the HSCT of a patient with severe aplastic anemia.

METHODS: Case report, obtained through medical records and literature review.

RESULTS: Male, 26 years old, referred to our service in February 2020 from an external service, with history of petechiae and asthenia for about a month, worsening of symptoms, and fever of undetermined origin. The patient denied occupational exposure to inhaled and liquid toxics, being diagnosed with idiopathic severe aplastic anemia, without any comorbidity. The physiotherapeutic work started with objectives guidelines for objectives to be achieved during treatment. The treatment continued with the practice of active exercises, bedside and armchair sedestation, breathing exercises and guidance. The first spirometry resulted in FVC: 80%, FEV1: 80%, FEV1/FVC: 100%. The patient was followed up with up to 2 daily sessions. Among the conducts carried out, the following stand out: bedside and armchair sedestation, lower limbs cycloergometry, walking, active MM exercises and breathing exercises. Six days after the infusion of hematopoietic stem cells, the patient started experiencing severe limbs pain and mild abdominal pain. Due to respiratory distress it was necessary to start noninvasive ventilation (NIV). In the face of clinical worsening, the patient was referred to the ICU with severe veno-occlusive disease, hospital pneumonia, sepsis, fungal skin lesions and worsening of arterial blood gases. The patient was tachypneic and NIV therapy was maintained. Stretching and standing techniques have been added. He remained in the ICU for 14 days. After returning to the HSCT unit, he needed to maintain NIV. As he improved, motor physiotherapy was accentuated and NIV suspended. The patient underwent a prolonged rehabilitation process, needing a walk device in gait training, resistance exercises with a load of up to 1 kg, stretching and balance training, with hospital discharge after 3 months. He continues to be followed up on an outpatient basis, with the most recent spirometry result being: FVC: 70%, FEV1: 74% and FEV1 / CVF: 105%. CONCLUSION: During all HSCT phases, physiotherapy has shown an important role in patients' prevention and rehabilitation, reducing the deleterious effects caused by treatment.

From the reception, with the guidelines, to the hospital discharge with follow-up, the work done aims to guarantee the patient's return to his/her routine with the best quality of life possible.

5.4 NUTRITION

DEPLETION OF MUSCLE MASS THROUGH THE CALF CIRCUMFERENCE AND NUTRITIONAL STATUS OF CHILDREN UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTS

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INTRODUCTION: Depletion of muscle mass in hospitalized patients is associated with worse clinical outcomes, the calf circumference being a sensitive indicator of changes in muscle mass, however, its use in children is not explored.

OBJECTIVE: To identify the nutritional status and depletion of muscle mass in children and adolescents undergoing hematopoietic stem cell transplantation (HSCT) through the circumference of the calf.

METHOD: Retrospective descriptive study, with children and adolescents admitted to a private hospital in São Paulo, submitted to HSCT, with data obtained through patients electronic records. Nutritional status was classified according to the growth curves of the World Health Organization. Calf circumference, arm circumference and triceps skinfold were measured in 2 moments: beginning of the HSCT (T1) and hospital discharge (T2).

RESULTS: Twenty-one patients were eligible, with a predominance of male patients (67%), aged between 1 and 16 years old, undergoing mainly allogeneic transplantation (18%), with an average hospital stay of 60 days (± 27 days) and mortality of 19%. As shown in Table 1, at the beginning of HSCT and at hospital discharge, the nutritional status according to the growth curves were: 19% underweight in T1 and T2; 76% eutrophy in T1 and 71% in T2; 5% overweight in T1 and 10% in T2. Considering the circumference of the arm, it was obtained: 24% of malnutrition in T1 and 33% in T2; 57% eutrophy in T1 and 48% in T2; 19% overweight in T1 and T2. Considering the triceps skinfold, it was obtained: 14% malnutrition in T1 and T2; 48% eutrophy in T1 and T2; 38% overweight in T1 and T2. Regarding height for age, 2 patients were below expected height. Weight loss occurred in 43% of the sample (ranging between 0.8% and 14% of the input weight). The calf circumference decreased between T1 and T2 in 86% of cases, with an average loss of 5.74%, varying between 1 and 17% in relation to the initial measurement.

CONCLUSION: Eutrophy was the prevalent nutritional status in this population, however the percentage of malnutrition increased when the arm circumference was measured. Most patients showed depletion of muscle mass during hematopoietic stem cell transplantation through the circumference of the calf, demonstrating to be an important tool for nutritional assessment of this public.

KEY WORDS: Hematopoietic Stem Cell Transplantation. Malnutrition. Anthropometry. Pediatrics.

TABLE 1. COMPARISON OF NUTRITIONAL STATUS (%) ACCORDING TO GROWTH CURVES (GC), ARM CIRCUMFERENCE (CB) AND TRICEPS SKINFOLD (DCT), AT THE BEGINNING OF HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT).

	Start of HSCT			Hospital discharge		
	GC	CB	DCT	GC	CB	DCT
Malnutrition	19	24	14	19	33	14
Eutrophy	76	57	48	71	48	48
Overweight	5	19	38	10	19	38

Source: own authorship

HEMATOLOGICAL DISORDERS ARISING FROM NUTRITIONAL DISABILITIES AFTER BARIATRIC SURGERY: CASE REPORT

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Bariatric surgery occurs through shunt in the small intestine, reducing its absorptive area. When not prevented, nutritional deficiencies can have negative hematological impacts. Hematological complications can be secondary to protein malnutrition and deficiency of vitamins and minerals after surgery, which lead to the suppression of hematopoiesis, which often does not respond to micronutrient replacement. This summary aims to show hematological disorders as a probable consequence of nutritional deficiency after bariatric surgery.

CASE REPORT: Female, 72 years old, submitted to the duodenal switch technique in 2013.

Admitted with complaints of petechiae, diffuse hematomas and bicytopenia. The anamnesis referred to peripheral neuropathy after bariatric and vegetarianism since birth. Multiple vitamin and mineral deficiencies have been confirmed. Diagnostic impression then pointed to malnutrition with protein predominance secondary to the intestinal malabsorption syndrome. He started vitamin and protein replacement through a parenteral diet associated with an oral diet to improve his condition. Evidence suggests that protein restriction associated with bariatric surgery contributes to iron deficiency and lower hemoglobin concentration, therefore, clinically, patients have symptoms related to anemia. Suppression of hematopoiesis may explain the decrease in cells, especially due to hemolysis and reduced erythrocyte count, common in these patients. Bone marrow cells change, mimicking a myelodysplastic syndrome, studies suggests that copper supplementation can reverse these changes. The mechanism of the cause of cytopenia is still unknown, however the literature suggests that copper deficiency results in inhibition of CD34 + hematopoietic progenitor cells. Studies are needed to elucidate the interactions that contribute to the appearance of hematological abnormalities in post-bariatric patients. Surgery is successful in inducing

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weight loss, but it can generate complex hematological disorders when nutritional care is not considered together. Caloric-protein malnutrition accompanied by nutritional deficiencies should be investigated as a potential aggravating factor for bicytopenia, in this sense, nutritional intervention is essential in helping to reverse the condition.

NUTRITION WORKSHOP: PRACTICAL ORIENTATION FOR FAMILIES IN THE PERIOD AFTER BONE MARROW TRANSPLANTATION

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INTRODUCTION: Hematopoietic stem cell transplantation (HSCT) is an intense but cura-tive therapeutic modality in the treatment of hematological malignancies and brings significant changes in the lives of patients and their relatives for months to years after hospital discharge. The intense immunosuppression characteristic of HSCT, makes care in the choice, hygiene and handling of food, essential in preventing infections that, when they occur, can cause readmis-sions and the patient's death. The recovery of patients submitted to HSCT in the post dis-charge period can be extended and, in most cases, family members take on food preparation, therefore, education initiatives in nutrition are essential to ensure that the correct nutrition and safe to be offered to the patient. Practical workshops offered by nutrition professionals linked to the HSCT team, are valuable tools for guiding family members of the patient undergoing HSCT.

OBJECTIVE: The objective of the study is to describe the operation of nutritional guidance workshops, carried out through practical activities with family members of patients after bone marrow transplantation.

METHOD: The nutritional orientation workshops were held at a Hematological Therapy Center specialized in Bone Marrow Transplant, in a private hospital in Rio Grande do Sul. The groups took place in the second half of 2019, monthly, lasting an hour and a half, aimed at the relatives hospitalized patients and guided by the nutri-tionists of the TCTH team.

RESULTS: The groups were held in the pantry for family mem-bers inside the HSCT unit, where there was an adequate space with a sink, running water and fridge to simulate the activities carried out later at the participants' homes.Food hygiene prac-tices were trained, using fresh foods (vegetables, fruits and vegetables), cleaning them in chlo-rinated solution and later storage.Guidance was also given about the purchase of food prod-ucts, hygiene and conservationAfter delivering a folder with nutritional recommendations prepared by the team, family members had the opportunity to review the information and clar-ify their doubts.he enthusiasm for participation was remarkable and the practical aspect was apparently very attractive, seen the protagonism of those involved in the suggested actions.

CONCLUSION: There are few studies that describe nutritional education activities in groups promoted within the hospital space, especially with this profile of patients.More actions like this should be developed, since they contribute to food security and improve the quality of life, so much for the patients as well as for his family, empowering them in their health care process.

KEYWORDS: Food Workshops. Nutritional Orientation. Bone Marrow Transplant.

NUTRITIONAL STATUS AND COMPARISON OF SERUM C-REACTIVE PROTEIN LEVELS IN ADULT PATIENTS DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: Nutritional depletion can occur in patients undergoing hematopoietic stem cell transplantation (HSCT), which can impact immunity and risk of infections. The c-reactive protein (CRP) is an acute phase protein that rises in inflammatory processes, when elevated it can be associated with complications and mortality related to transplantation, among the factors that influence it, there is the nutritional status.

OBJECTIVES: To describe the nutritional status and compare the levels of C-reactive protein in 3 moments of the HSCT of adult HSCT patients admitted to a private hospital in São Paulo.

METHOD: Retrospective descriptive study, with adult patients undergoing HSCT in 2019 in a private hospital in São Paulo, with data obtained through patients electronic records. Nutritional status was classified according to Body Mass Index.

The levels of C-reactive protein collected in 3 times were compared: hospital admission (T1), day of bone marrow infusion (T2) and hospital discharge (T3). Results: 25 patients were eligible, with a predominance of female patients (60%), aged between 24 and 73 years old, undergoing mainly autologous transplantation (68%), with an average hospital stay of 37 days (± 23 days) and mortality of 8%. The prevalent nutritional status was eutrophy (48%), on hospital admission, followed by overweight (44%) and underweight (8%). At hospital discharge, eutrophy (52%) also predominated, followed by overweight (44%) and underweight (4%). There was weight loss in 28% of the cases. C-reactive protein was shown above the reference standard in the 3 times, being: 24% in T1 (83% were overweight), 64% in T2 (50% were overweight) and 88% in T3 (45% were overweight), reaching maximum levels equal to 9.45mg / dL, 48.41mg / dL and 19.19mg / dL, respectively.

The increase in CRP was more prevalent between T2 and T3 (72%), when compared to the interval between T1 and T2 (68%). Among overweight patients on admission, there was an increase in CRP both in relation to T2 and T3 (72% in both). Among the eutrophic, the CRP level increased mainly between T1 and T3 (92%), followed by the interval between T2 and T3 (83%). Only 12% of patients were hypertensive.

CONCLUSIONS: Eutrophy was prevalent during hematopoietic stem cell transplantation. CRP levels were shown to be elevated, especially at discharge and after bone marrow infusion, and among the patients who started HSCT with elevated CRP, most were overweight. A prospective study with a larger number of cases is suggested to better understand the relationship between CRP levels and nutritional status during HSCT, considering the other factors that influence it.

5.5 ODONTOLOGY

ASSOCIATION OF ORAL TOXICITY AND TASTE ALTERATIONS DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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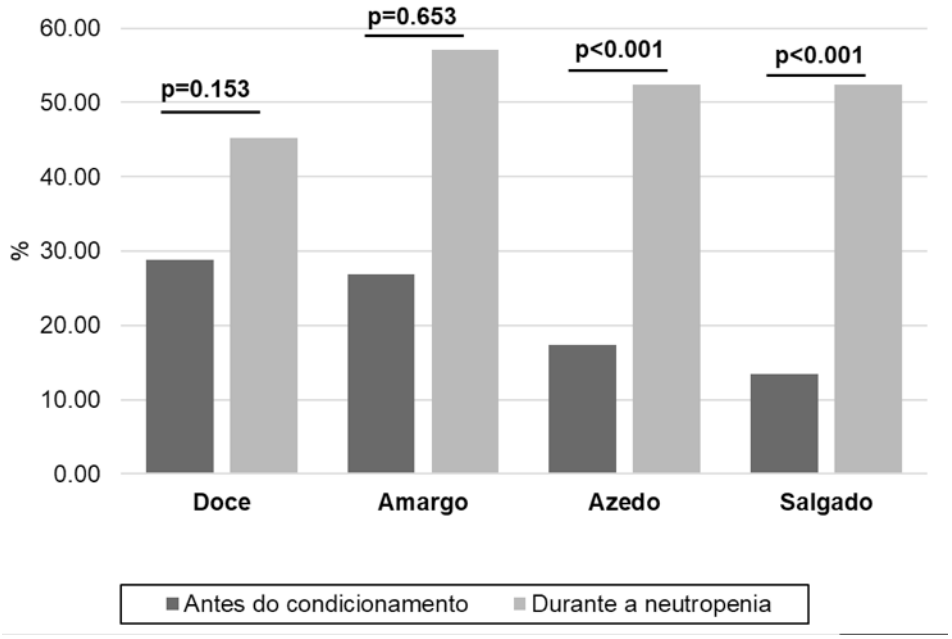
Taste changes during hematopoietic cell transplantation (HCT) are often described after the end of transplantation, however little is known about which flavors and what type of perception changes are experienced by patients during transplantation. The aim of this study was to characterize the taste alterations and taste buds atrophy present in the period of neutropenia of HCT, as well as to verify if there is association between these alterations and clinical variables related to transplant and oral mucosal toxicity. The impact of taste and oral mucosal changes on patients' quality of life was also evaluated. We selected 52 patients undergoing autologous and allogenic HCT, who underwent taste acuity tests prior to conditioning and during neutropenia. Patients were also submitted to oroscopy for evaluation of oral mucositis and taste buds atrophy. An investigation was also conducted on xerostomia and taste changes. It was carried out an acuity test in the perception of sweet, bitter, sour and salty flavors, offered in solutions containing low and high concentrations of substances stimulating these flavors. Quality of life was assessed by the EORTC questionnaire QLQ-C30 and QLQ-H & N35. It was found that 46.1% of the patients exhibited taste alterations before the conditioning of the HCT, but that this frequency increased to 90.5% during neutropenia (2 test, p = 0.042). The most common alteration was the hypogeusia of the strongest concentrations, especially bitter. High frequency of patients (72.0%) were detected with taste buds atrophy in the period of neutropenia, but this taste buds atrophy was not associated with alterations in the perception of each type of taste. There was no association between changes in taste and type of transplant, type of conditioning, and variables related to toxicity in the oral cavity and in the gastrointestinal tract. There was a significant association between taste buds atrophy and oral mucositis duration ≥8 days (OR = 5.62, 95% CI = 0.98-60.30, p = 0.039). Salivary and taste changes significantly reduced quality of life during neutropenia compared to the pre-condition period. It was concluded that taste alterations are already present before HCT, but there is an increase in the frequency of these alterations, mainly hypogeusia. The tongue taste buds atrophy occurred after conditioning, and was associated with a longer duration of oral mucositis. The impact of salivary and taste changes on patient quality of life during neutropenia is high and should be minimized through the adoption of more comprehensive strategies that include maintenance of oral mucosal integrity.

KEYWORDS: bone marrow transplantation, dysgeusia, taste buds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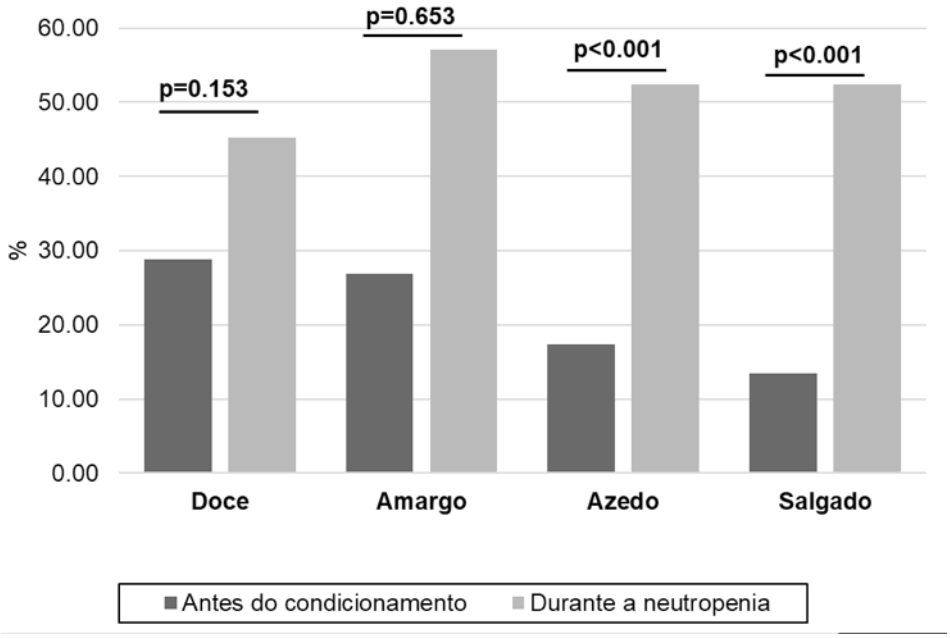
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INFLAMMATORY FIBROSUS HYPERPLASIA IN ORAL CAVITY INDUCED BY CYCLOSPORIN IN A PEDIATRIC PATIENT SUBMITTED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION - CASE REPORT

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INTRODUCTION: Calcineurin inhibitors, such as cyclosporine and tacrolimus, are drugs frequently used in immunosuppression in the transplantation of solid organs and hematopoietic stem cells. They act by inhibiting the transcription of the interleukin-2 (IL-2) gene in CD4 + lymphocytes, preventing the transmission of signals that lead to the maturation and proliferation of T and B cells. It is known that their use has adverse effects - diabetes, hyperlipidemia, chronic nephrotoxicity, hepatotoxicity, neurotoxicity, hypertension, hirsutism and gingival hyperplasia - however, authors have considered the rare presence of soft tissue changes or hyperplasia in users of cyclosporine in the treatment for GVHD (Host Graft Disease), which represents a major complications of long-term morbidity and mortality in transplant patients. Studies investigate means that justify the appearance of these changes and consider that their appearance is due to a union of local and systemic inflammatory factors with the use of these drugs, causing an exaggerated proliferative response in the connective tissue to occur.

OBJECTIVE: To report the case of a pediatric patient who presented tissue growth in the right cheek mucosa after hematopoietic stem cell transplantation (HSCT).

MATERIALS AND METHODS: Case report, based on retrospective data collected in 2020, from an oncology hospital in the interior of the state of São Paulo.

RESULTS: Male patient, 4-year-old, with acute B lymphoid leukemia underwent haploident HSCT in March 2020, under a myeloablative conditioning regime (fludarabine and TBI: total body irradiation), using cyclosporine since the D + 1, until the present moment. The patient started treatment with corticosteroids for a condition compatible with acute GVHD in April 2020. Dental evaluation was requested due to complaints of the appearance of a lesion in the mouth, without painful symptoms or local bleeding, and absence of deleterious habits. On physical examination, dry lips, satisfactory oral hygiene, marked hyposalivation, intact mucosa and presence of nodular lesion in the right cheek mucosa, close to the labial commissure, 0.8 cm in diameter, reddish color and pedicled base were observed. An excisional biopsy of the nodule and material sent for anatomopathological analysis were performed, the result of which was compatible with inflammatory fibrous hyperplasia. Correlating the patient's clinical history, the diagnosis of cyclosporine-induced tissue hyperplasia was reached. Clinical evaluations were followed to monitor the case, and maintenance of oral hygiene was oriented.

CONCLUSION: The participation of the dentist, in the multiprofessional team involved in HSCT, is necessary for the diagnosis and management of possible complications and oral changes inherent to the treatment, especially in those patients with GVHD.

KEY WORDS: Dentistry. Medical Oncology. Cyclosporine. Child. Hematopoietic Stem Cell Transplantation. Hyperplasia.

MANDIBULAR MYELOID SARCOMA: CASE REPORT

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INTRODUCTION: Myeloid sarcoma (MS), also known as granulocytic sarcoma or chloroma, is a rare lesion defined as a tumor mass of myeloblasts or immature myeloid cells that occurs in an extramedullary site. MS affects approximately 3 to 8% of patients with myeloid leukemia; and most cases occur in the skin, bone and gastrointestinal tract. Approximately 10% of MS cases reach bone tissue, but mandibular involvement is uncommon. There are few cases of mandibular MS described in the literature. Clinical behavior is aggressive, with rapid growth, local bone destruction and invasion of surrounding tissues. Signs and symptoms may vary, with nonspecific radiographic presentation. The tumor may be related to pain, increased size, paraesthesia, facial paralysis and palpation sensitivity. Computed tomography (CT) findings reveal destructive radiolucent bone lesions with diffuse and irregular margins. MS diagnosis depends on biopsy and anatomopathological examination. Microscopic MS characteristics include immature myeloblasts, which are better identified after immunohistochemical evaluation. Some markers are useful to confirm immature myeloid phenotype of tumor cells such as myeloperoxidase (MPO), CD68, CD117, CD34 and CD99.

OBJECTIVE: To report a case of mandibular MS in a 34-year-old man with acute myeloid leukemia (AML) previously diagnosed.

METHODS: The information used in this report were obtained through medical record review, clinical examination, tomographic examination, photographic record, other diagnostic methods and literature review.

CASE REPORT: Male, 34 years old, diagnosed with intermediate risk AML-M4, in first complete remission. The patient attended at the pre hematopoietic stem cell transplantation (HSCT) dental assessment, reporting numbness and tingling in the region innervated by the left mental nerve 3 weeks ago. On examination, pain on palpation was observed in the bottom of the vestibule, left mental foramen region, with slight volumetric increase of soft consistency, intact teeth, with no local history of trauma or dental procedures. The tomography showed radiolucent areas throughout the mandible body, scarcity of bony trabeculae and spongy bone, with cortex preservation. An incisional biopsy was performed microscopic with findings and an immunohistochemical profile suggestive of acute myelomonocytic leukemia (CD15/CD117/CD68/ CD163/ lysozyme and MPO positive), confirming the mandible MS diagnosis. Thus, extramedullary relapse was verified, with subsequent hematological relapse. The patient was referred to reinduction at the hematology service, and subsequently underwent an allogeneic HSCT. Patient is on D+70 after haplo HSCT and currently in dental service follow -up.

MAXILLARY SINUSITIS OF ODONTOGENIC ORIGIN IN A PATIENT AFTER ALLOGENEIC STEM CELL TRANSPLANTATION

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INTRODUCTION: Maxillary sinusitis is a complication due to inflammation of the sinus membrane. The main cause is generally rhinogenic. However, dental infection can be an important predisposing factor, due to the proximity of the roots of premolar and upper molar teeth to the floor of the maxillary sinus. The correct management of maxillary sinusitis of odontogenic origin is essential to eliminate the causal factor, cure the infection, maintain oral function and minimize the chance of complications.

OBJECTIVE: to describe the case of a patient with odontogenic sinusitis post haploidentical hematopoietic stem cell transplantation (HSCT).

METHODOLOGY: male patient, 36 years old, 287 days status post second haploidentical HSCT, reported nasal obstruction on the right side, pressure and discomfort in the region. Clinically, no cavities were observed in the right posterior upper teeth, edema or intraoral fistula. The requested cone beam CT scan showed communication from the floor of the right maxillary sinus close to the roots and furcation region of the upper right first molar (tooth 16). Hypodense images suggestive of cavities were also observed on the distal face of tooth 16 and mesial of 17, in the cervical and middle thirds of the roots, in addition to the total veiling of the maxillary sinus, sphenoid sinus, frontal sinus and right ethmoid cells. The patient was already using systemic antimicrobial therapy to treat the sinusitis. After a multidisciplinary discussion, it was decided to extract the dental elements involved.

RESULTS: The extraction of teeth 16, 17 and 18 (impacted tooth) was performed, followed by the closure of the oroantral communication, with rotation of the buccal fat pad (Bichat ball) for full coverage of the region of the bone defect.

DISCUSSION: The clinical symptoms of odontogenic maxillary sinusitis are very similar to that of rhinogenic, with facial pain, secretion and nasal congestion being the main symptoms. Its treatment generally involves the use of antimicrobials, associated with endodontic treatment or surgical removal of the teeth involved. The use of surgical techniques with flap rotation to close the oroantral communication is well described in the literature. The use of the buccal fat pad associated with flap rotation offers advantages, enhancing the closure and healing of the dental alveolus.

CONCLUSION: Odontogenic maxillary sinusitis is often misdiagnosed, as imaging studies may not mention its association with dental pathology. Once identified, this condition requires immediate treatment in patients undergoing HSCT. The signs and symptoms can have an unfavorable evolution in immunosuppressed individuals, which can lead to a life threatening infection and death. Thus, dental monitoring is extremely important for the correct diagnosis and proper management of this complication.

KEY WORDS: HSCT, stem cell transplantation, bone marrow transplant, odontogenic sinusitis, dentistry, oncohematology.

ORAL MANIFESTATION OF GRAFT VERSUS HOST DISEASE CHRONIC GUEST IN A PEDIATRIC PATIENT - CASE REPORT

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2 Barretos Cancer Hospital

INTRODUCTION: Graft versus host disease (GVHD) is an inflammatory process where the donor's functional T lymphocytes recognize the recipient's cells as foreign, triggering inflammatory responses that result in damage to the patient's organs, the oral cavity being one of the main sites affected. The clinical manifestation of oral GVHD can involve any region of the mouth: lips, labial mucous membranes and jaws, tongue, hard and soft palates, floor of the mouth, gums, as well as salivary function and restricted mouth movement. Therefore, the treatment of GVHD aims to repair tissue, recover functionality and improve the quality of life of patients. Among the therapeutic pharmacological measures, steroidal drugs have good clinical results and scientific evidence, proving efficacy in patients compromised by the pathology.

OBJECTIVE: To report the case of a pediatric patient who presented with chronic GVHD in the oral cavity after hematopoietic stem cell transplantation (HSCT).

MATERIALS AND METHODS: Case report, based on retrospective data collected in 2020, from an oncology hospital in the interior of the state of São Paulo.

RESULTS: Male patient, 10 years old, with Myelodysplastic Syndrome (SMD) who underwent haploidentical HSCT in April 2019, with myeloablative conditioning regimen (Busulfan, Melfalan, Fludarabine). In a dental evaluation in December 2019, D + 266 HSCT, the patient presented with hyperchromic spots on the lips, linquenoid streaks on the jugal mucosa, erythematous papules on the soft palate, mucoceles on the jugal mucosa on the right, and the oral floor on the left, in addition complaint of xerostomia. Topical corticosteroid therapy started for GVHD-compatible condition. However, the patient evolved with worsening of the condition: complaint of pain in the lingual belly, lips with hyperchromic and hypochromic lesions, increased linoenoid streaks, erythematous region in the lingual belly, mucoceles on the palate, hyposalivation and also evolved with GVHD on skin, nails and liver. Thus, systemic corticosteroids were associated with treatment. In medical and dental reevaluation in May 2020, there was a consensus on the suspension of topical corticosteroids in view of the control of oral GVHD. Currently, the patient is undergoing dental follow-up.

CONCLUSION: The dental surgeon, in the oncology team, needs to be trained to identify possible oral changes that may arise as a result of HSCT complications, thus contributing to the diagnosis, management and promoting quality of life, especially in those patients with GVHD.

KEY WORDS: Dentistry. Medical Oncology. Child. Hematopoietic Stem Cell Transplantation. Graft vs Host Disease.

RETROSPECTIVE ANALYSIS OF THE PRESENCE OF ORAL MUCOSITES AND OPPORTUNISTIC INFECTIONS IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLATATION

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Marcella Ferreira Gobbi,
Mariana Henriques Ferreira,
Fabíola Germano de Castro,
Renata Cristina Kitazulo,
Michele dos Santos Lima,
Celso Mitsushi Massumoto

Patients treated with haematopoietic stem cell transplantation (HSCT) presentes several toxicities, among which are complications in the oral cavity, such as oral mucosites (OM) and opportunistic infections. These injuries end up leading to a painful oral condition with na importante impact on the individual´s nutrition and quality of life. There are several protocols in the literature that include the dentist in the HSCT care team to prevent and treat these changes in the oral cavity. The aim of this study was to describe the photobiomodulation protocol in the prevention and treatment of OM in patients undergoing HSCT, and to compare the clinical results of OM with those described in the literature. In addition to describing the frequency of opportunistc infections in the mouth during HSCT.

PATIENS AND METHODS: Patients udergoing HSCT (n=132) were evaluated retrospectively fron January 2016 to May 2020 analyzed takin into account the type of HSCT, conditioning regime, degree of OM, laser therapy protocol and number of laser therapy sessions.

RESULTS: All patiens evalueted were submitted to the photobiomodulation protocol using 660nm, 100mW, 1J, 10J/cm2. Laser therapy was perfomed daily starting on de second day of conditioning until neutrophil engraftment. All patients underwent myeloablative conditioning regimes with a high risk of developing OM (busulfan, melphalan, cyclophosphamide and total body irradiation). Both patients undergoing autologous and allogeneic HSCT had a high frequency of mild OM (grade 0 25.9%; grade 1 16.54%; and grade 2 25.98%) and low frequency of severe OM (grade 3 18.9%; and grade 4 12.6%). Of the opportunistic infections during the autologous transplant, 4 patients with fungal infection and 1 with viral infection, and in the allogeneic 3 patients with fungal infection, 1 with viral infection. Comparing with the literature, the frequency of OM severity was reduced in the presente study and the incidence of opportunistic infections was reduced. Conclusion: The presence of dentist and laser therapy in the daily follow-up of the patient undergoing HSCT minimized the expected risk of severe OM.

5.6 OCCUPATIONAL THERAPY

CHARACTERISATION OF OCCUPATIONAL THERAPY ASSISTANCE IN A CHILD HEMATOPOIETIC STEM CELL TRANSPLANTATION UNIT

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Garcia SEG[1]; Fukagawa L[1]; Alves MT[1]; Barros GMN[1]; Silva PM[1]; Ikeuti PS[1]; Lopes LF.
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INTRODUCTION: One of the procedures for the treatment of childhood cancer is the transplantation of hematopoietic stem cells (HSCT), a complex procedure with the potential for complications of various kinds. The experience of illness can cause changes not only in the physical body, but also in the adaptation of routines and occupations of the child / adolescents, and in the face of a context full of inconsistencies and weaknesses, with the course of the HSCT process, activities disappear or decrease significantly, impairing autonomy and independence in their occupations.

OBJECTIVE: Describe the Occupational Therapy (OT) services performed in a children's HSCT unit, identifying the relationship between OT / patient / activity.

MATERIALS AND METHODS: Descriptive and retrospective study; included visits performed at the children's HSCT unit of a cancer hospital in the interior of the State of São Paulo, from September 2019 to August 2020. Data collected by surveying the appointments in the sector-specific registry and information in the medical records - age, diagnosis, type of transplant and number of days of hospitalization.

RESULTS: 37 patients were included, with ages varying from 1 to 19 years. The predominant diagnosis was leukemia and the type of transplant was the unrelated allogeneic. The average length of stay was 36, ranging from 20 to 116 days. The consultations were performed with an average of 22 consultations / patient / month, varying from 3 to 5 visits per week. Regarding the use of activities, 77% of the visits corresponded to the performance of activities, covering categories such as: structured activities - with minimally determined step by step (15%); expressive - freer and non-targeted (27%); recreational / leisure - related to playing, relaxation and fun (58%).

CONCLUSION: There are still few publications about the performance of OT in HSCT in Brazil, but the literature points out benefits promoted to children through the experience of activities, such as promoting participation, maintaining autonomy and independence, recovering self-esteem, facilitating the relationship with the team , family approach and the natural context of life (maintenance of significant activities), stimulation / maintenance of physical, cognitive and emotional skills, favoring the child's development. Thus, the importance of OT as part of the multidisciplinary team is emphasized.

PALAVRAS-CHAVE: Occupational Therapy; Pediatrics; Hematopoietic Stem Cell Transplantation; Activities of Daily Living.

DRAWING AS A POWERFUL EXPRESSIVE AND SYMBOLIC TOOL DURING ADULT HEMATOPOIETIC STEM CELLS TRANSPLANT PROCESS: OCCUPATIONAL THERAPY APPROACH

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INTRODUCTION: Hematopoietic stem cell transplantation (HSCT) is a possible treatment for some adult malignant neoplasms and hematologic diseases, marked by clinical complications, long periods of routine break, communication and expression changes. Drawing is a form of language used since childhood, registering moments and allowing reflections through which the unconscious manifests itself, and can be used as a technique, which the person reflects the impression of the "whole" of him/herself.

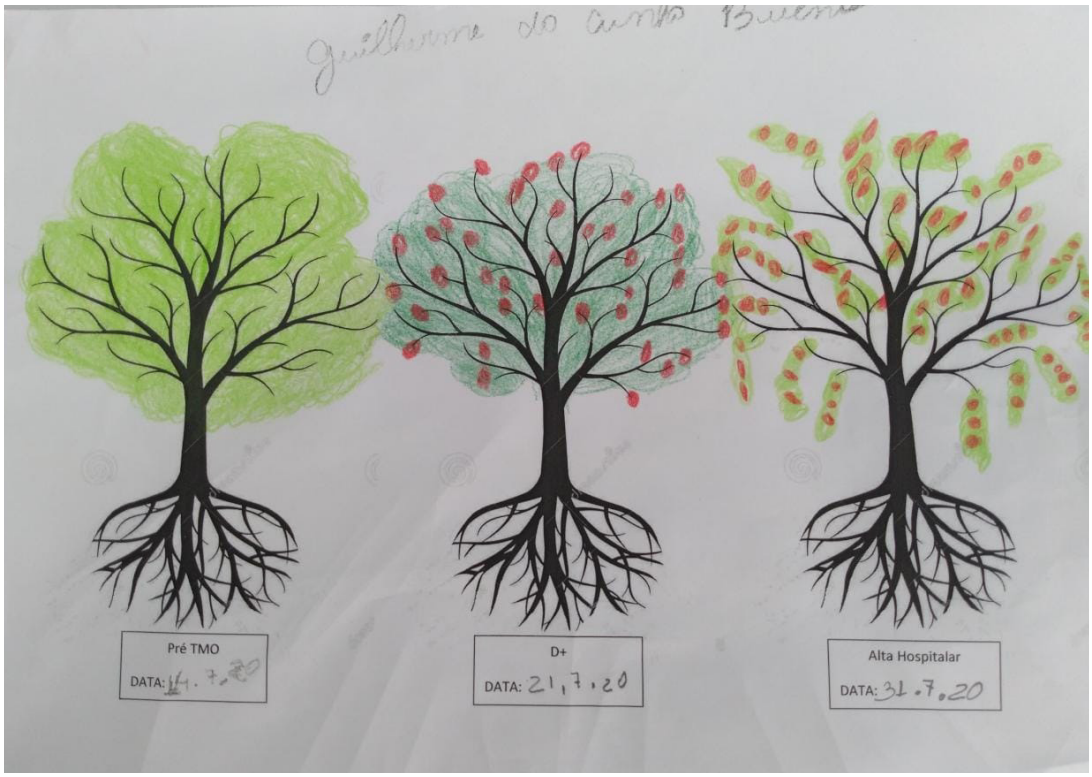
OBJECTIVE: To report the drawing experience as a HSCT unit resource, analyzing the impact of hospitalization in an expressive way during the transplantation process.

METHOD: Descriptive-analytical and retrospective study; including visits to adult inpatient HSCT unit at an oncology hospital and semi-structured drawings analysis from June to August 2020. The drawings corresponded to a leafless tree symbolized in three HSCT moments: 1 – before HSCT; 2 – after hematopoietic stem cell infusion; 3 – at hospital discharge. Data was collected from occupational therapy (OT) register and medical records: age, diagnosis, type of transplant, number of hospitalization days and subsequent analysis of the drawings - colors and color intensity.

RESULTS: The study was carried out with 13 patients, of whom 10 completed the activities. Ages ranged from 19 to 62 years old; there was an allogeneic transplant predominance and the hospitalization period ranged from 17 to 45 days. During this period, OT performed approximately 124 visits, 2 to 4 visits/week/patient. About the first tree, 100% of the patients reported their expectations regarding the treatment, feelings of fear and anxiety; the second tree was painted on average on day 4, with 3 patients able to do it on day 1 and 1 patient on day 15. Among them, 76% were hopeful during this period, but 15% reported fear and pain. Thus, the second tree exhibited darker tones and an absence of color diversity, remaining in light tones and low intensity; suggesting the expression of the difficult moment, meeting the expressed fear. In the third tree, 84% of the patients reported their plans, which were expressed in diverse colors and strong tones, suggesting security and the power/control feeling.

CONCLUSION: Drawing is an expressive resource, but still little used as a form of expression, little valued since it is pre-judged as a child resource. However, the literature brings drawing to adults as an expressive resource, benefiting from traumatic processes that involve rupture and loss. In this way, TO works to facilitate this expression and language, rescuing moments of pleasure, self-esteem, intrapersonal and interpersonal relationships.

KEYWORDS: Occupational Therapy. Hematopoietic stem cell transplantation. Drawing.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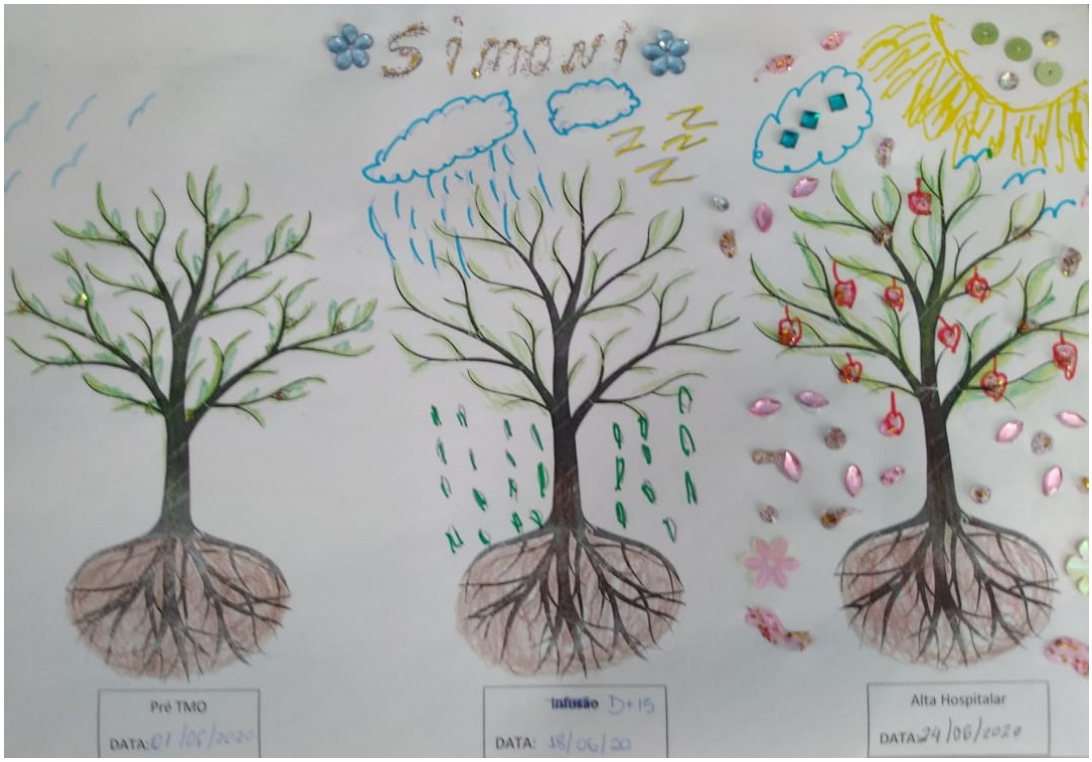
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DATA: 18/06/20
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DATA: 29/06/2020


Ginaldo Tavares de Sousa
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JESUS É AMOR
Pré TMO
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DATA: 21/07/20
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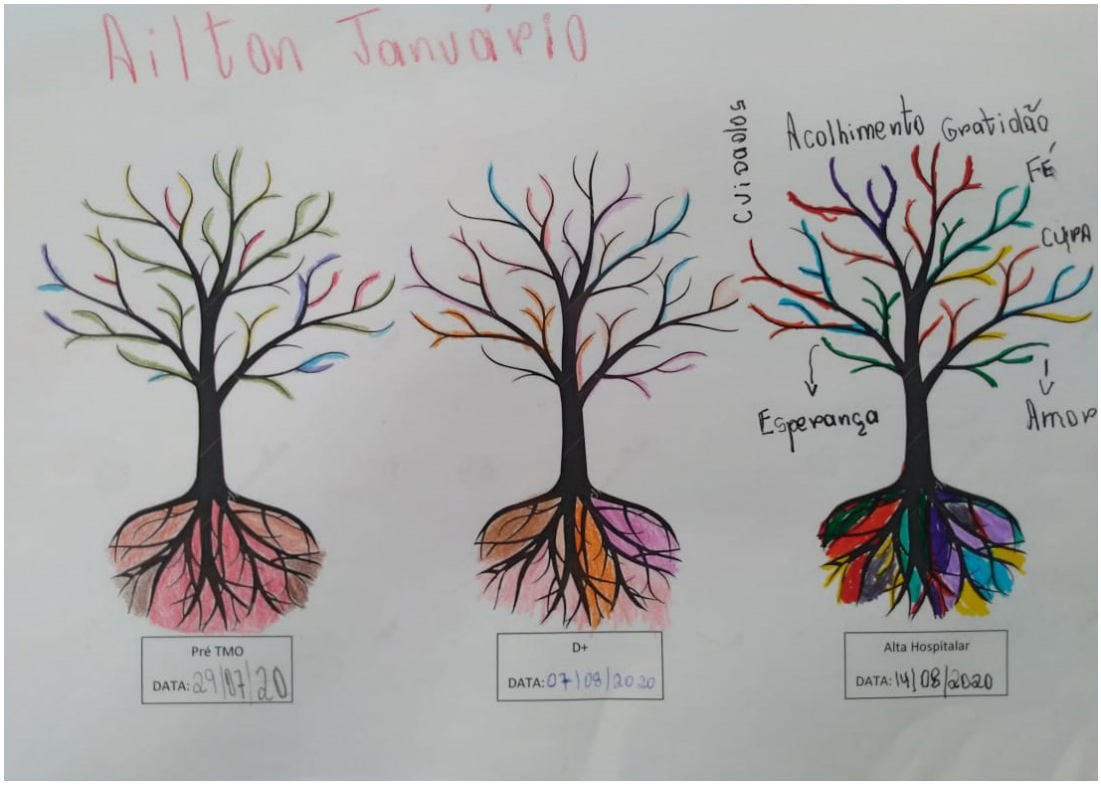
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Amor
Pré TMO
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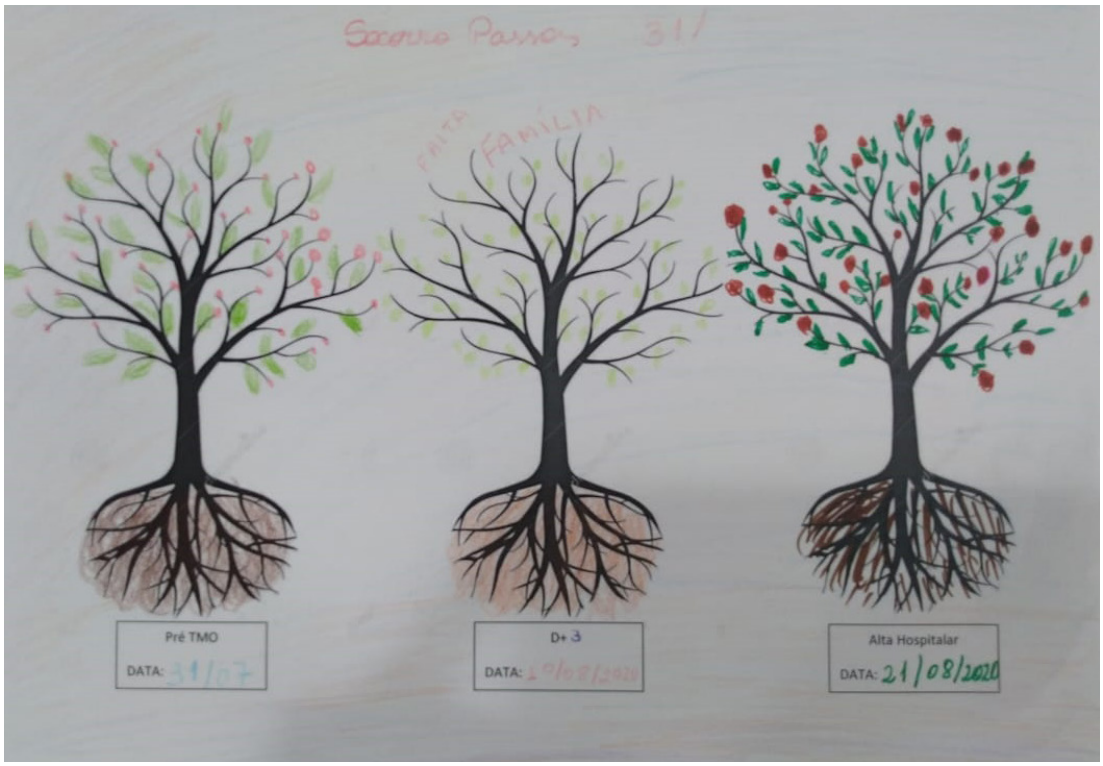
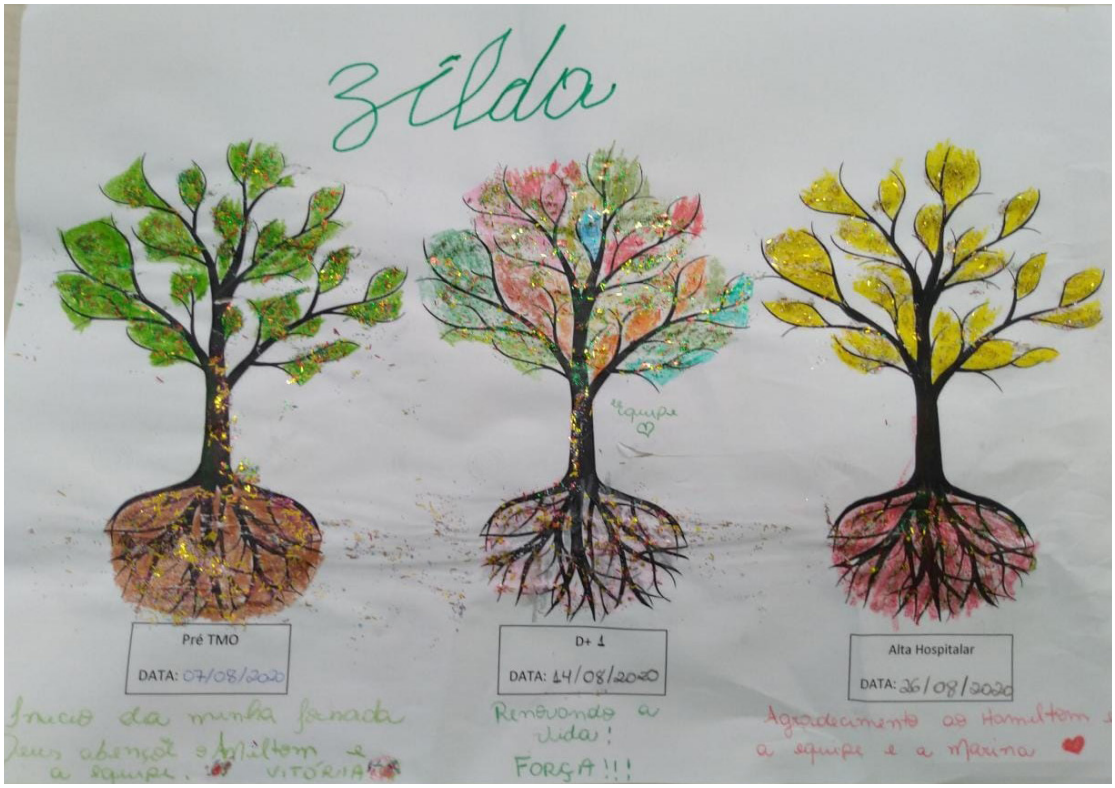
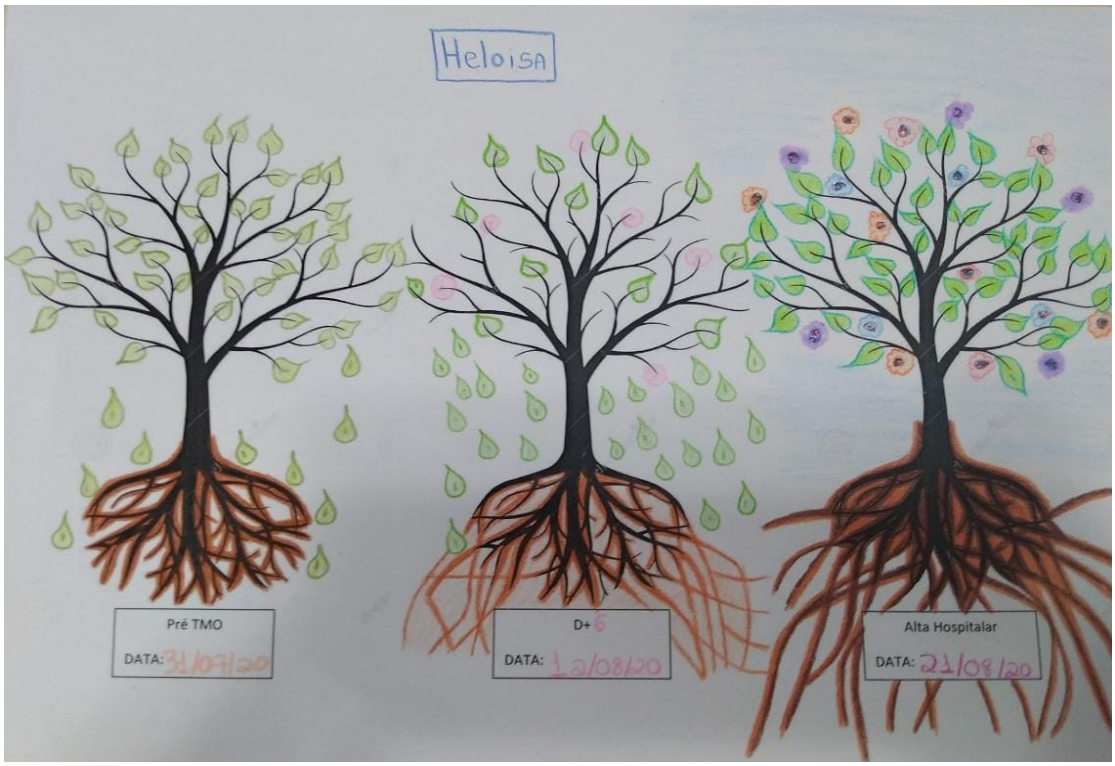
D+
DATA: 07/08/2020
Alta Hospitalar
DATA: 14/08/2020


Pré TMO
DATA: 31/07
D+ 3
Alta Hospitalar
DATA: 21/08/2020


Zilda
Pré TMO
DATA: 07/08/2020
Graças da minha jornada
Deus abençoe o Hamilton e
a equipe.
VITÓRIA
D+ 1
DATA: 14/08/2020
Renovando a
vida!
FORÇA!!!
Alta Hospitalar
DATA: 26/08/2020
Agradecimento ao Hamilton
a equipe e a Marina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DATA: 31/07/20
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DATA: 12/08/20
Alta Hospitalar
DATA: 21/08/20

6. ACCREDITATION

DEVELOPMENT OF A DATA MANAGER IN THE FACT ACCREDITATION PROCESS

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[1]Hospital Israelita Albert Einstein

INTRODUCTION: Regular analysis of demographic, clinical and outcome data is indispensable for ensuring and maintaining quality in a hematopoietic stem cell transplant (HSCT) center. For this, data needs to be extracted accurately. Organization accreditations such as FACT (Foundation for the Accreditation of Cellular Therapy) require submission of data to the US (CIBMTR) or the European (EBMT) Registries correctly. Due to discrepancies found between medical charts data and the data submitted to CIBMTR in the first FACT accreditation cycle (2012), our HSCT center decided to hire a dedicated data manager.

OBJECTIVE: The study describe the development and performance of the data manager in the FACT accreditation process.

METHODS: The professional hired a data manager received internal and external training. Externally, she attended national and international congresses and visited the CIBMTR (2016). Internally, she first received training by the clinical team about the forms to be filled in. Together with the HSCT multi-professional team, they evaluated the data collection process and defined which data should appear in the medical records. Appropriate outcomes were defined for data analysis based on literature searches, the FACT requirements and the need of the clinical staff, and the data manager was trained in data analysis using R. The clinical team together with data manager developed templates appropriate for the clinical follow-up of patients, such as the Dentistry to collect data on mucositis. The quality nurse developed a regular internal auditing system.

RESULTS: One of the results was the reduction of three hours in filling out the forms (TED 2400). From the structuring, organization and updating of the database, it was possible to obtain relevant indicators on survival and cumulative incidence of acute and chronic graft versus host disease, transplant-related mortality and disease relapse. These are used by the HSCT team in clinical rounds and in critical analyses of the program performance. In re-accreditations (2015 and 2018) after hiring and training, no non-compliance was identified in item B9, related to the insertion and submission of transplant data. In 2017, the clinical team designed, with the data manager, an ethically-approved multicenter study on some transplant-related outcome, with 28 centers in Brazil, sending data to CIBMTR.

CONCLUSION: Training of the data manager at our HSCT center (a profession not official in Brazil) allowed the development of strategies and tools that resulted in greater accuracy in data collection and analysis, and FACT-compliant. This allowed the institution to start a multicenter study with more accurate data collection.

KEYWORDS: Data manager, Bone Marrow Transplantation, FACT, Quality

Clinical Evaluation

D+10
Patient without complaint in oral cavity.
Clinical examination: Slightly erythematous oral mucosa, mainly in bilateral cheek mucosa.
Cd: Daily protocol of laser therapy for the treatment of oral mucositis. strengthening oral care and oral and lip hydration

Mucositis start date: 04/05/2019
Degree of oral mucositis (WHO): 1
Number of sites with ulcerated lesions: 0
Xerostomia - graduation: Mouth: () changed (x) without change
Pain in the oral cavity: VAS 1
Odinophagy - graduation: 0
Inappetence - graduation: 0
Saliva: () no change () viscous () change in color (x) change in flow
Depapilation: () present (x) absent
Neutrophil recover date:
Date of the maximum degree of mucositis: __ / __ / __ Degree:

2012	1st FACT Accreditation Cycle
	Standard B9 - Not compliant
2014	Hiring of the data manager
	Insertion of 205 cases in the CIBMTR
	2nd FACT accreditation cycle
	Standard B9 - compliant
2015	Structuring and updating bone marrow transplantation database
	Creation of a follow-up form
	Creation and standardization of outcome indicators
	Creation of internal audit
	Participation in the Tandem Meeting - Hawaii
	Visit to CIBMTR
	Unification of work with hospitals in other cities (Jaú and Curitiba)
2016	Development of the 1st online course on how to fill in pre and post TED info
	Participation in the 1st SBTMO meeting of data managers
	Participation in the Tandem Meeting - Orlando, Florida
	Presentation of the Abstract "Pre and Post TED Completion Course"
	Award received in the data management session
2017	Participation and development of the 2nd SBTMO data managers meeting
	Development and approval of the method of sending data from HIAE IRB to CIBMTR
	3rd FACT Accreditation Cycle
	Participation in the Tandem Meeting - Salt Lake, Utah
2018	Standard B9 - compliant
	Poster presentation - Course Results
	Development and participation in the 3rd SBTMO data managers meeting
	Participation in the Tandem Meeting - Houston, Texas
	Oral Presentation - Multicentric work
2019	Development and participation in the 4th SBTMO data managers meeting
	Officialization of the data managers Working Group by SBTMO
	Presentation of clinical cases for AMEO
	Approval of data transmission from the central IRB to CIBMTR

7. DATA MANAGEMENT

CREATION OF A DOUBLE CHECK SYSTEM IN THE ASSESSMENT OF PATIENT FUNCTIONAL STATUS (KARNOFSKY/LANSKY AND COMORBIDITY INDEX) PRIOR TO THE PREPARATIVE REGIMEN (CONDITIONING)

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Valquiria de Cassia Possani, Hospital Amaral Carvalho
Clarisse Martins Machado, Hospital Amaral Carvalho
Vergilio Antonio Rensi Colturato, Hospital Amaral Carvalho
Mair Pedro de Souza, Hospital Amaral Carvalho

INTRODUCTION: The favorable outcome of Hematopoietic Stem Cell Transplantation (HSCT) depends on many variables before and after transplantation. The evaluation of the patient's functional status prior to the start of the preparative regimen, determined by the Karnofsky/Lansky scale (K/L) and the Hematopoietic Cell Transplantation-Comorbidity Index (HCT-CI) are variables that can provide prognostic information in HSCT. The K/L defines the functional status of the patient before the preparative regimen, the classification ranges from 10 to 100 representing the recipient's activity status, the Karnofsky is designed for recipients aged 16 years and older. The Lansky is designed for recipients one year old to less than 16 years old. The HCT-CI is a comorbidity tool suited for recipients of HSCT. The index has been shown to sensitively capture the prevalence and magnitude of severity of various organ impairments before HSCT and to provide valuable prognostic information after HSCT (Table 1).

OBJECTIVE: Apply a double check system to improve the classification of the K/L and HCT-CI in the center, discussing the classification of these variables with the whole team and analyze the influence of the capture of these data on the result of Transplant-Related Mortality (TRM) in 100 days after HSCT.

MATERIALS AND METHODS: In 2016, detailed forms were created with K/L and HCT-CI data that are filled on the patient's date of hospitalization. From the end of 2019, in addition to these forms, the Data Manager (DM) includes the pre-HSCT tests in the online HCT-CI calculator and after we apply the double check, weekly, during the multidisciplinary visit the functional status of patients who were underwent HSCT in the previous week (D0 to D+8) are presented to the whole medical team for validation or alteration when necessary. After applying the double check, we evaluated the impact of these variables on TRM by the Cumulative incidence method using the R program.

RESULTS: In the period between January to August 2020, 95 patients were evaluated, after double checking the K/L classification was 9 patients as 100%, 59 as 90% and 27 ≤80%, TRM at 100 days was 0%, 7% and 12% (p=0.62) respectively. The HCT-CI was divide into 3 groups, 45 patients classified with HCT-CI 0, 41 with HCT-CI 1-2 and 9 HCT-CI ≥3, TRM at 100 days was respectively 6%, 7% and 34% (p=0.04), the main comorbidities found in this population were hepatic (18%), Psychiatric disorder (13%) and diabetes (10%).

CONCLUSION: The application of the forms has facilitated the search for data by the DM, the development and implementation of double checking helps us in improving the quality of information, because it allows a discussion with the whole team, ensuring greater rigor in the search for inconsistency, making the data more reliable. The evaluation of these variables in the post-HSCT outcome showed that patients with HCT-CI≥3 have a higher TRM at 100 days compared to the other groups (Graphic 1).

DOES THE HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT) DATA MANAGER NEED TO BE A HEALTHCARE PROFESSIONAL?

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INTRODUCTION: The registration of data on hematopoietic stem cell transplantation is extremely important and aims to understand the epidemiological profile of patients, their diseases, treatments and evaluation of the post-transplant segment. In order for the collected and reported data to have its quality guaranteed, it is essential that the center has a trained professional. The data manager is the specialized professional to extract information from medical records and work on the construction of a solid database. In addition, the data manager is an ally of quality, proposing constant improvements to ensure accurate and essential information about patients. transplants.

OBJECTIVE: The objective of this work is to demonstrate that the data manager can be a professional in any area, not necessarily in the health area, as long as he receives the appropriate training.

METHOD: To give an example, I will give my personal account of the AMEO-PRONON course. At the beginning of the AMEO project, I was in the second semester of the undergraduate pharmacy course, I was 19 years old and I had never heard of HSCT. The center where I work made a selection process for the vacancy of data manager at TCTH. There were two stages: an interview with the existing data manager and a test on transplants with an essay. It was a relatively simple test, but for a young man who knew nothing about transplants it was quite a challenge. However, I managed to win the spot. When I started on the project, I was perplexed by the quality of the classes, in a few months I was already able to read a chart and understand the existing information. The structure of the course was very well thought out, the AMEO team did an excellent planning placing the classes so that we could understand a little about the organization of the transplant in Brazil, the stages of the transplant, a little about each hematological and non-hematological disease (for transplantation) and classes on data insertion on the CIBMTR platform. Another important point that AMEO brought was a great support to answer questions through audits, a specific dedicated class and that purpose and a group with all data managers in Brazil, aiming at greater interaction between professionals.

CONCLUSION: Our center has always believed in the thinking of AMEO, taking into account that our data manager is not from the health area and has always done an excellent job, both in the data insertion part and in the data organization part. We believe that the continuity of the course would be of great value, so that other professionals could be trained, since given the structure of the course designed by AMEO any literate person and with basic computer skills can be data managers, as long as they receive the proper training of continuing education.

HEMATOPOIETIC CELL TRANSPLANT INCORPORATION IN THE UNIFIED HEALTH SYSTEM (SUS): UPDATE AND ENSUING CHALLENGES

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[2] Federal Institute of Brasilia, Brazil.

INTRODUCTION: The Health Ministry of Brazil (HM) publishes and updates, on an as-needed basis, guidelines regarding indications for autologous and allogeneic hematopoietic cell transplantation (HCT) in the National Health System (SUS). Based on the recommendations of a task force of health area experts a monograph is developed with the aim of providing evidence-based guidance for indications for HCT.

OBJECTIVE: The objective of this study was to present updated recommendations from the SUS on indications for HCT.

METHOD: Indications for HCT over the last three years were categorized as (1) incorporated, when indication is well defined and supported by evidence such as new technology; (2) compatibilizated, when indication is already available in legislation, and a related pathology has been added, following large clinical trials and wether observational studies are feasible; and (3) under development, for diseases to which certain clinical evidence is available, and clinical trials and observational studies are being evaluated.

RESULTS: In recent years the field has seen improvement in transplantation technology, thus widening the therapeutic scope of HCT. The SUS HCT incorporations were mucopolysaccharidoses (MPS) I, II, IVA, VI and paroxysmal nocturnal hemoglobinuria. Hemophagocytic lymphohistiocytosis was compatibilized. New diseases in developmental compatibilization are mycosis fungoides, Sézary syndrome, and thalassemia alfa. The incorporation of TCTH, as an experimental procedure, to treat Krabbe Disease (KD by the Federal Council of Medicine in Brazil has led to a recommendation to conduct clinical trials.

CONCLUSION: Clinical trials and case studies are important sources of scientific data. The HM task force will continue to periodically review these guidelines and update them as new evidence becomes available.

KEY-WORDS: Allogeneic transplantation; Incorporation; Compatibilization.

ONLINE TRAINING PROGRAM FOR NEW DATA MANAGERS (DM) IN HEMATOPOIETIC STEM-CELL TRANSPLANTATION (HCT)

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Flavia Ferreira da Costa, AMEO
Renata Rose Loebel, AMEO
Carla Gonçalves Dias, AMEO
Andressa Villagra, AMEO
Wagner Fernandes, AMEO
Carmen Silvia Vieitas Vergueiro, AMEO

Brazil has one of the largest public transplant programs in the world. More than 3,800 HCT were performed in 2019, but we do not know its results. SBTMO has an agreement with the International Registry (CIBMTR) for Brazilian data to be compiled and available in our country, but there are not enough DM for this activity. Our **OBJECTIVE** was to train new DM to understand diseases, the process of HCT and to send the data to the registries.

METHOD: The project was approved and received funding from the Pronon Program - Ministry of Health (MH). The teaching staff consisted of two doctors and two nurses with experience in HCT and 11 invited teachers. The teachers were trained at CIBMTR and in experienced Brazilian centers. CIBMTR manuals and forms were adapted, developing didactic content for e-learning. New DM received scholarship and a notebook with internet access for training. Access program has been made available for data collection. We include students with experience in health or computer science and minimum availability of 20 hours per week for the e-learning activities and practice. Unlimited slots were offered to listeners. Each center identified a physician responsible for assisting the students in the specific difficulties in their center. The course lasted 14 months, divided into theoretical modules EaD of 204h, visit to the centers (42h/center) and data collection (795 h), totaling 1,041 hours. The theoretical teaching addressed concepts, phases and complications of HCT, diseases treated with HCT, databases and statistics. During visits to the centers, we performed data collection and reporting, review of concepts, Q&A and an educational auditing. The final evaluation included performance in the pre and post-tests of each class, participation, attendance, presentation of results of the center and final test.

CASUISTICS: The 36 hospitals accredited by the MH for performing unrelated HCT were invited to appoint a student. Participants were 30 institutions, 17 public and 13 private, with 30 students (26 with scholarships) and 66 listeners. Fourteen of the 30 centers did not report their data before this initiative.

RESULTS: The students were 60% nurses. The average attendance of the students was 93% in the classes and 100% in the training. Performance increased from 77% to 92% in pre- and post-tests. The final average score of 28 students and 11 approved listeners was 8. Two students left for personal reasons. Twenty-eight centers sent their reports for publication in a public access website, still under preparation. All centers report their data today to at least one registry (ABTO, CIBMTR, WBMT). We **CONCLUDE** that the E-learning program for DM training is effective and an excellent model, that centers can adopt to enhance their systematic reporting of data.

USE OF A BUSINESS INTELLIGENCE TOOL TO ASSIST INFORMATION MANAGEMENT AND DECISION MAKING IN HEMATOPOIETIC STEM CELL TRANSPLANTATION.

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Cinthya Corrêa da Silva, Hospital Israelita Albert Einstein
Bruna Letícia da Silva Santos Geraldo, Bio Sanas Serviços Médicos

INTRODUCTION: Data managers (DM), from several brazilian hematopoietic stem cell transplantation (HSCT) centers, collect a huge amount of data for the Center for International Blood and Marrow Transplant Research (CIBMTR) and other registries, as well as for the maintenance of information in local database (DB) and spreadsheets. After the inclusion of pre-HSCT data in the CIBMTR, an algorithm defines which forms will be filled with essential (TED) or research (CRF) data. The Centers receive a refund for each CRF form submitted. Managing data, meeting the demand for different records, creating indicator reports and scientific production are difficult tasks without the use of advanced technological resources. A solution to analyze the processes in this area, integrating information from different formats, to achieve goals and improvements was the use of a business intelligence (BI).

OBJECTIVE: To evaluate the use of a BI tool for the management of data collection and recording productivity and for the creation of financial reports on CRF forms.

METHOD: The data for analysis were extracted through the FormsNet of the CIBMTR, in Excel format, with information from patients (pts) registered in the period from 2015 to this year. A spreadsheet was created with the amounts paid for each CRF form. The data extracted from the CIBMTR and the spreadsheet with the values of each form were imported into Power BI Desktop (PBI), a free tool used in the study. Queries of all pts registered in the DB, developed in MS Access, were also imported into the PBI. The relation of the identifying fields that link the different sources of information were made. Functions were created to transform data and facilitate analysis and reporting to show the total amount the center has to receive or has already received. Finally, filters were created for period and DM, to enable dynamic reports according to the user's need.

RESULTS: With the use of PBI, it was possible to cross-check data and visualize, through interactive reports, the center's production by number of forms filled out and by pts; number of pts by type of HSCT; forms sent by year and amounts to receive and received from the CIBMTR by year in which it was completed (Figure 1).

CONCLUSION: The PBI made it possible to extract data from heterogeneous bases and transform the data to facilitate complex analyzes. Free articles and courses were found online about the tool and solutions for analysis and reports. This tool can benefit other HSCT Centers affiliated with CIBMTR, facilitating the use of data as a source of information and highlighting alternatives that improve or modify the management of data registration processes. However, a study using other open source tools is still necessary. For future work, solutions such as the development of dashboards that can contribute to managerial decision making, scientific production, multicenter studies and benchmarking may be implemented.

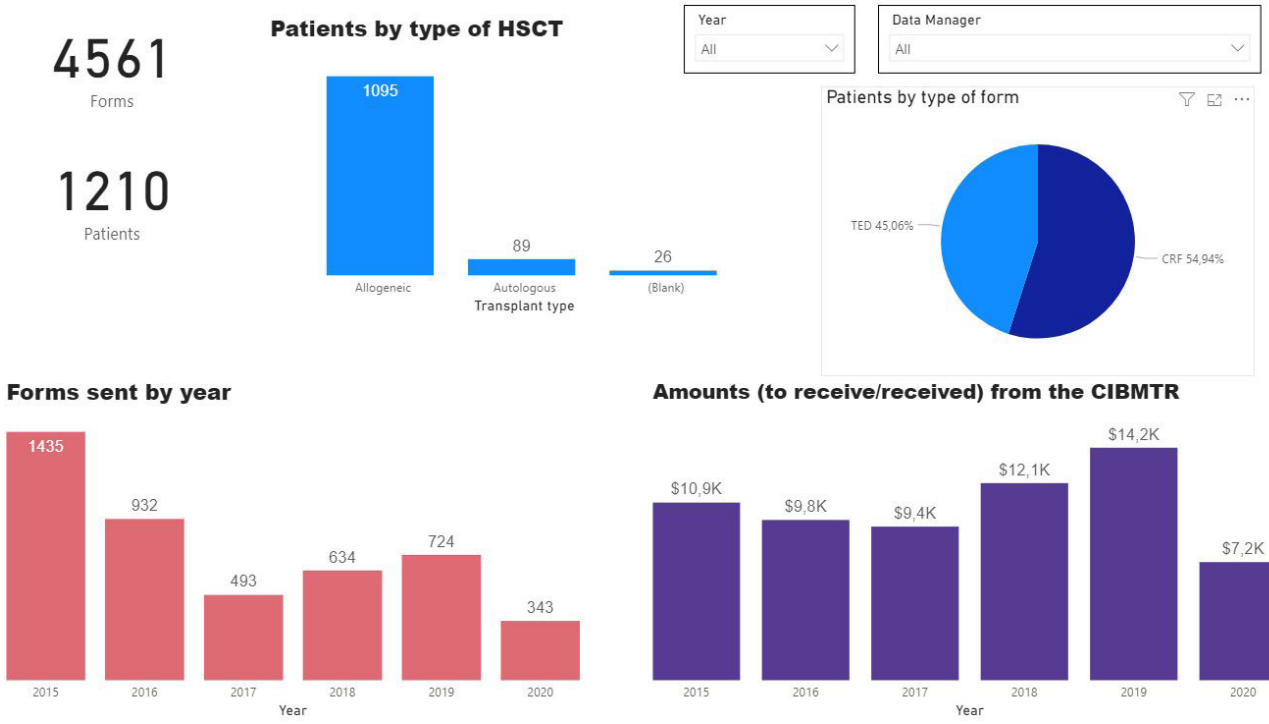

FIGURE 1: DASHBOARD WITH THE RESULTS PRESENTED BY THE PBI.

USE OF A DATABASE FOR CLINICAL RECORDS OF PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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INTRODUCTION: The hematopoietic stem cell transplantation (HSCT) program at our institution started in April 2016. From this date on, we observe an increasing number of HSCT procedures each year. Since the implementation of our transplant program, we have identified the need to create a database to report our data in national and international registries. We understand that there is a need to collect and analyze the data of patients undergoing HSCT in order to have an overview of this procedure in our institution and from that, we can promote actions of constant improvement. In this scenario, a database was created that contemplates the main variables that allow an analysis of the performed HSCTs.

OBJECTIVE: This work aims to demonstrate the importance of developing an Excel database (Microsoft spreadsheet editor) based on clinical records for the collection and subsequent analysis of data from patients undergoing hematopoietic stem cell transplantation.

METHODS: Data were collected from the electronic medical records of all 147 patients who underwent autologous and allogeneic transplantation in 2019 at the Institution. The database was developed in Excel, contemplating innumerable variables involved in the process of transplantation of hematopoietic stem cells: sociodemographic data, diagnosis data, transplant data, donor data and recipient data.

For this work, the following fields of interest were highlighted: gender, age, race, marital status, education, diagnosis and type of transplant.

RESULTS: Based on the collections made and the subsequent filling of information in the database, the importance of using this tool for the analysis of transplants performed at the Institution was observed. The contemplated sample demonstrated the following profile of the transplanted patient: average age of 61 years, male, Caucasian, complete higher education, married, with the diagnosis of multiple myeloma having undergone autologous transplantation.

CONCLUSION: We believe that the collection and analysis of data from HSCT procedures can be used to constantly improve the service.

The database developed in Excel proved to be an extremely important tool to record the data of patients undergoing HSCT as well as subsequent analysis and monitoring of indicators in the area.

Transplant centers that wish to perform data collection can use Excel as an initial resource and, in parallel, organize themselves for reporting on more complex platforms.

TABLE 1 INCLUDES THIS ANALYSIS:

Variable	N=147
Gender (male), N(%)	
Male	80(54%)
Female	67(46%)
Age (years), mean	61
Race, n(%)	
White	106(72%)
Brown	36(25%)
Black	3(2%)
Yellow	2(1%)
Marital status, N(%)	
Married	96 (65%)
Single	23(16%)
Divorced	15(10%)
Widowed	5(3%)
Stable union	4(3%)
Separate	3(2%)
Not informed	1(1%)
Education, N(%)	
Complete higher education	74(50%)
Second complete high school	34(23%)
Unknown	17(12%)
Incomplete higher education	5(3%)
Complete higher education	4(3%)
First complete high school	4(3%)
Postgraduate	3(2%)
Incomplete first degree	3(2%)
Incomplete high school	3(2%)
Diagnosis, N(%)	
Multiple nyeloma	67(45%)
Non hodgkin lymphoma	33(22%)
Acute myeloid leukemia	12(8%)
Hodgkin's lymphoma	9(6%)
Myelodysplasic symdrome	7(5%)
Germinative tumor	5(3%)
Amyloidosis	5(3%)
Acute lymphoblastic leukemia	4(3%)
Chronic myeloid leukemia	1(1%)
Syndrome poems	1(1%)
Seeve aplastic anemai	1(1%)
Plasmocutoma	1(1%)
Myelofibrosis	1(1%)
Tipo de Transplante (N.%)	
Autologous	116(79%)
Allogeneic	31(21%)

8. GENERAL HEMATOLOGY RELATED TO TRANSPLANTS

THERAPEUTIC OPTION FOR THE TREATMENT OF REFRACTORY / RELAPSED MULTIPLE MYELOMA AFTER EXPOSURE TO MULTIPLE DRUGS: REPORT OF 4 CASES

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Larissa Lane Cardoso Teixeira, Hospital Israelita Albert Einstein
Jade Zezzi Martins do Nascimento, Hospital Israelita Albert Einstein
Dirceu Hamilton Codeiro Campelo, Hospital Israelita Albert Einstein
Mariana Nassif Kerbauy, Hospital Israelita Albert Einstein
Lucila Nassif Kerbauy, Hospital Israelita Albert Einstein
Carolina Leme de Moura Pereira, Hospital Israelita Albert Einstein
Newton de Freitas Centurião, Hospital Israelita Albert Einstein
Viviane Regina Hernandez Nunes, Hospital Israelita Albert Einstein
Isabella Silva e Pimentel, Hospital Israelita Albert Einstein
Thais Dourado Reis Nobrega, Hospital Israelita Albert Einstein
Amanda Inacio Dias dos Santos, Hospital Israelita Albert Einstein
Danillo Silva, Hospital Israelita Albert Einstein
Andreza Alice Feitosa Ribeiro, Hospital Israelita Albert Einstein
Nelson Hamerschlak , Hospital Israelita Albert Einstein

INTRODUCTION: Multiple myeloma (MM) is still incurable, with recurrent remissions and relapses. The availability of novel drugs has provided survival advantage for patients; however, the treatment of refractory / relapsed disease is still challenging.

OBJECTIVE: Report 4 cases of patients with recurrent MM after autologous bone marrow transplant (BMT) and several therapeutic lines, including protocols with daratumumab, bortezomib, lenalidomide, pomalidomide, carfilzomib, elotuzumab and venetoclax.

CASUISTRY: Patients were treated with the protocol mCBAD (cyclophosphamide 350 mg /m2, bortezomib, doxorubicin and dexamethasone) to which all of them had at least partial response.

METHODS: Information was obtained through patient follow-up and medical records.

RESULTS: First Case: 75-year-old woman diagnosed with MM lambda light chain since the age of 70, received mCBAD for relapsed disease after the 8th line of therapy. She was on partial response after the 1st cycle of chemotherapy, with a free lambda light chain dropping from 2000 to 120 mg / dl, and was immediately submitted to her 2nd autologous BMT. Second Case: 68-year-old male patient with IgG Kappa MM diagnosed at 59, underwent 2 cycles of mCBAD and radiotherapy after the diagnosis of spinal compression syndrome. The patient had already received 8 lines of treatment, in addition to 2 autologous BMTs. He obtained partial response and regression of bone lesions with this scheme (figure 1), currently undergoing maintenance therapy with ixazomib. Third Case: 70-year-old woman with IgA Kappa MM for 8 years; after the 3rd disease relapse, she received 2 cycles of mCBAD, with complete response (figure 2), followed by her 2nd autologous BMT. Fourth Case: 54-year-old man with Kappa light chain MM since he was 38, had already undergone 13 treatment lines, including 2 autologous BTMs and 1 allogeneic BMT. He obtained complete response after 1 cycle of mCBAD and his 3rd autologous BMT. He currently receives maintenance therapy with bortezomib.

CONCLUSIONS: We presented the cases of 4 patients with refractory MM, responsive to the mCBAD protocol, previously submitted to autologous BMT and to several lines of treatment including the novel drugs. Despite significant advances in therapies for MM, with an impact on response rates and median survival, most patients relapse and need an individualized therapeutic approach. Therapeutic strategies

are constantly improving and promising options are being developed, such as cell therapy, not yet available in Brazil´s clinical practice. Therefore, for poly-treated patients, refractory to therapeutic protocols that contemplate the novel drugs, mCBAD is an interesting alternative, also a bridge to BMT, with positive results in our team´s experience.

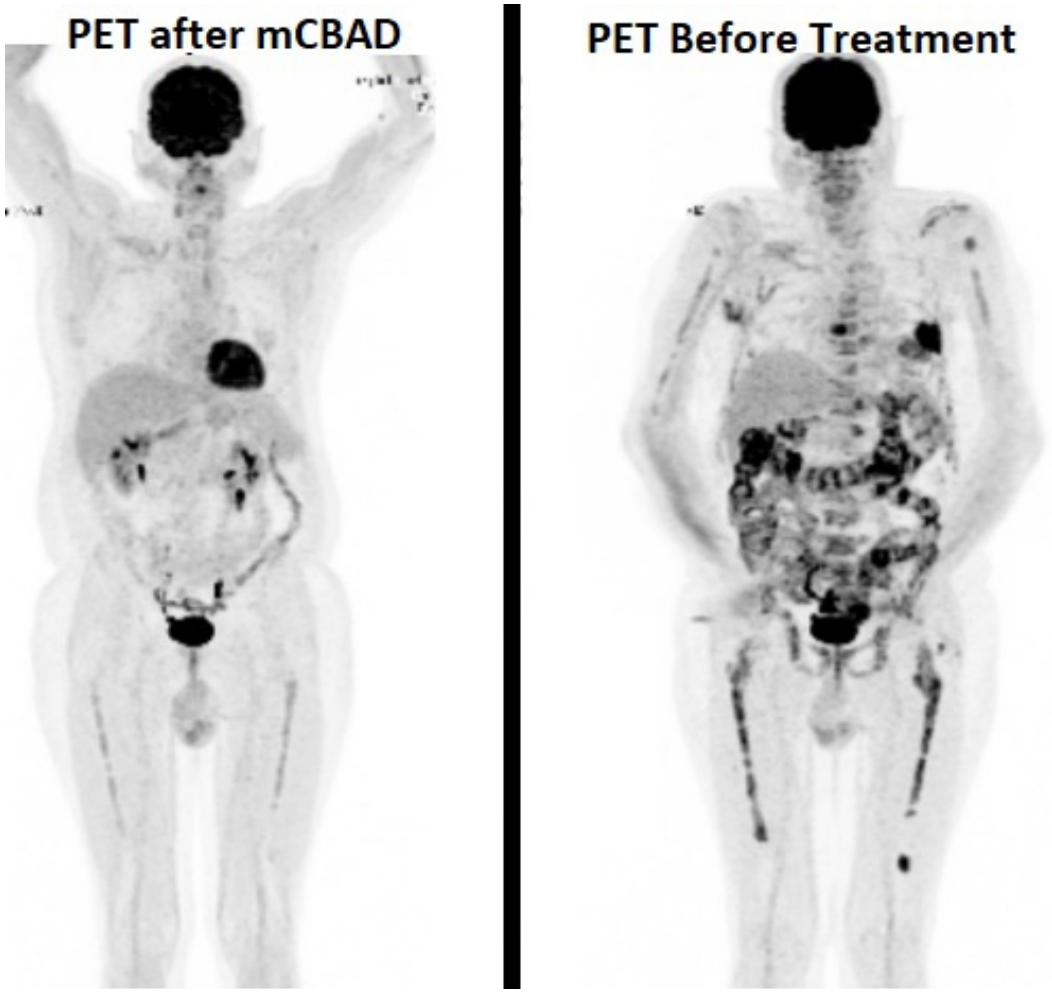

FIGURE 1 - PET CT of the second case presented. PET images of before (right) and after (left) treament with mCBAD.

9. HEMOTHERAPY

CORD BLOOD BANK: A DESCRIPTIVE APPROACH TO THE UPTAKE PROCESS OF PREGNANT WOMEN WITH A POTENTIAL DONOR

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INTRODUCTION: The process of cord blood (CB) donation consists of several steps that precede the collection itself, the first being the uptake of pregnant women in labor. This pre-selection requires strict observance of criteria established by current legislation, with the objective of maintaining total security for all actors involved in this process.

OBJECTIVE: To analyze the contraindiction that may interfere with the number of cord blood units collected.

METHOD: This is a descriptive, retrospective study from a Public Cord Blood Bank, which operates in a maternity that is part of the Brazilian Public Health Sistem (SUS) in Minas Gerais, referring to the period from May 2017 to March 2020.

RESULTS: During the period of study, 5450 pregnant women were evaluated, which corresponded to 27% of normal labor performed at the Maternity. Of all these pregnant women, 51% (2811) were unqualified for CB donation. The main reasons for disability were: 20% (563) rupture of membranes of 18 hours or more; 16% (456) using any contraindicated medication and 15% (426) with gestational age less than 35 weeks. Of the 2639 (48%) pregnant women approved in the pre-screening, 53% (1407) were not consulted for collection. The main reasons were: 50% (703) second stage of labor; 23% (324) active labor stage or pain and 11% (135) due to restriction of the pregnant woman or maternity team. 389 CB units were collected, which corresponded to 30% of pregnant women consulted for donation. The main reasons for not performing the collection were: birth in water 154 (17%); maternal refusal 140 (15%); delivery outside working hours 123(13%); inability in donation or birth steps 116 (12%) and forwarding to cesarean section 96 (10%).

CONCLUSIONS: It was noticed that at Maternity there is an expressive number of potential donor pregnant women, however among the evaluated pregnant women, most were unqualified for donation, mainly for a rupture of membranes of 18 hours or more, followed by the use of contraindicated medication and gestational age less than 35 weeks. Among the pregnant women approved for donation in the pre-screening, the main reasons for not approaching were second stage of labor and active labor stage. Among the pregnant women approached and approved for donation, the main reasons that led to the non-performance of the collection were births performed in the water or outside the working hours of the collection team, maternal refusal or changes in the course of normal birth.

QUALIFICATION OF THE INITIAL INVENTORY OF A PUBLIC UMBILICAL CORD BLOOD BANK

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INTRODUCTION: Since the first umbilical cord blood transplant (UCBT) in 1988, umbilical cord blood (UCB) banks have been established for any alternative for the reconstruction of hematopoiesis in hematopoietic stem cell transplants (HSCT).

OBJECTIVE: This study aimed to qualify the initial inventory formed by 113 units of UCB cryopreserved in a Brazilian public UCB bank.

METHOD: Healthy pregnant women were screened with live newborns (NBs), characterized by sociodemographic variables: age, gestational age, obstetric history and skin color. The NBs was characterized by gender and weight. These data were correlated with laboratory data. UCB units were evaluated for volume, total nucleated cells (TNC), pre and post-processing, quantification of CD 34+ cells, erythroblast count, cell viability and microbiological contamination. In this study, the variable units suitable for use in relation to the weight of the recipient was evaluated thus categorized: ¨ units <12.5x108 for weight <50kg (children) and units> 12.5x108 for weight> 50kg (adults) ¨. Data for the variables in this study were obtained from the BrasilCord program and treated in the software SPSS. The association was assessed using Pearson's chi-square (x2) independence test.

RESULTS: The median age and gestational period was 25 years (18min-40máx) and 39 weeks (36min-42máx), respectively. As for the skin color of the donors, 21 (18.5%) are white, black 9 (7.9%) and brown 83(73.5%). As for parity, 50.44% are nulliparous, 24.78%, primiparous and 24.78%, multiparous. The ABO / RhD blood classification of donors is similar to that of population studies and that of NBs is similar to that of donors. Only 4 (3.54%) of the newborns presented abnormal hemoglobin S in heterozygosis. The units presented a median (min.-max.) For the parameters: Initial Volume (ml): 86.40 (50.0-166.80); Final Volume (ml): 21.5 (19.07-21.75); TNCPre (x108): 10.20 (6.00-27.80); TNC (x108): 8.40 (5.0-22.60); CD34 + cells (No.): 4.2 (0.67-39.50) and Cell Viability (%): 97 (71.35-100), respectively. The erythroblast count (EB) was less than 10 in 29.2% and ≥10 in 70.80%. The microbiological test was negative in all units. Of the 113 stored units, 89 (78.76%) serve recipients <50kg (children) and 24 (21.24%) serve recipients> 50k (adults). Positive statistical correlations were evidenced between newborn weight and volume opening of UCB units; weight of the newborn and TNC pre-processing and between the initial volume and the TNC pre-processing.

CONCLUSION: This evaluation showed an inventory in accordance with current legislation, which mostly serves pediatric patients, served as an important tool for decision making, planning actions to improve the quality of its processes and products, as well as stimulating and serving as a benchmark for other services that want to evaluate their inventories.

10. HISTOCOMPATIBILITY

ALLELE AND HAPLOTYPE FREQUENCY OF HLA ANTIGENS IN PATIENTS WITH BONE MARROW TRANSPLANT INDICATION

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KEYWORDS: Histocompatibility, HLA typing, allele, donor, bone marrow, transplantation

INTRODUCTION: Up to 75% of patients may not have a compatible related donor and HLA incompatibility represents one of the biggest barriers to bone marrow transplantation.

OBJECTIVES: To evaluate the allele and haplotype frequency of HLA antigens in hematological patients who underwent HLA typing in a Histocompatibility Lab in São Paulo/Brazil.

METHODS: Retrospective study approved by the Institution's Ethics Committee, CAAE: 32561520.6.0000.5479. A total of 1088 typifications for low and intermediate resolution, performed by PCR-SSP and SSO - One Lambda®, from patients with bone marrow transplant indication, attended between 2006 and 2020, were included.

RESULTS: The median age was 36 years (6 months-84 years). The distribution by diagnosis was: 18% acute myeloid leukemia, 15.9% acute lymphoid leukemia, 12.6% lymphomas, 7.3% aplastic anemia, 6.7% chronic myeloid leukemia, 6.4% multiple myeloma 3.5% unspecified leukemias, 3.2% myelodysplasia, 2.6% myelofibrosis, 1.3% sickle cell anemia, 0.7% congenital immune diseases. The number of inferred haplotypes was 870 and the most common were: A*03 B*07 DRB1*15 with 3.5%, A*01 B*08 DRB1*03 with 3.3% and A*29 B*44 DRB1*07 with 2.7%. However, 444 haplotypes (40.8%) appeared only once. We found 20 alleles for HLA-A*, 36 alleles for HLA-B*, and 13 for HLA-DRB1*. The most common frequencies were: A*02, A*24 and A*03; B*35, B*15 and B*44; DRB1*13, DRB1*11 and DRB1*04. The less frequent alleles were: A*80; B*83, DRB1*09.

CONCLUSION: The three most common haplotypes in our population were also the most commonly found in bone marrow voluntary donors from Piaui, Brazil. When considering populational issues, there is a similarity between donors and patients. However, we found 444 haplotypes that appeared once, showing a possible difficulty for these individuals in finding a compatible donor.

THREE RARE ALLELES TYPIFIED IN SÃO PAULO, BRAZIL

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INTRODUCTION: HLA system has a high polymorphism and, with the sequencing methods use, rare alleles have been more frequently found.

OBJECTIVE: To describe three HLA rare alleles, it means, that were reported until four times, as well the inferred haplotypes in bone marrow voluntary candidates.

METHODS: Retrospective study approved by the Institution's Ethics Committee, CAAE: 32561520.6.0000.5479. Typing HLA was performed in intermediate resolution by PCR-SSO One Lambda® (Kit LabType CWD Class I) and confirmed by NGS or PCR-SBT sequencing. We use the Catalog of Common, Intermediate, and Well-documented (CIWD), version 3.0, March 2020, and the IMGT-HLA database (https://www.ebi.ac.uk/ipd/imgt/hla/allele.html) to confirm the allele classification.

RESULTS: We found three rare alleles: HLA-A*33:117, HLA-B*35:439:01:02 e HLA-B*51:148, with the inferred haplotypes: (1/3) A*33:117-B*53:01:01-DRB1*07:01:01; (2/3) A*24:02:01-B*35:439:01:02-C*04:01:01-DRB1*04:11:01-DQB1*03:02:01 e (3/3) A*36:01-B*51:148-C*04:01-DRB1*11:01. Discussion: A*33:117 and B*35:439:01:02 alleles had been reported only by Brazilian groups, from Minas Gerais and Rio de Janeiro states. This allele is possibly from Brazilian origin, once the haplotype is the same. B*51:148 is from NMDP and has a possible African origin association. Rare alleles can be important to the immune response against pathogens, new or in evolution, becoming more frequent with the natural selection. However, when considering transplants, the 10/10 compatibility is hardly possible.

CONCLUSION: We describe the occurrence of three HLA alleles classified as rare in volunteer hematopoietic cell donors. This data can improve the knowledge of HLA polymorphisms in the Brazilian population.

KEYWORDS: Histocompatibility, HLA typing, rare allele, bone marrow, transplantation

11. INFECTIONS

AGENTS CAUSING BLOODSTREAM INFECTION IN HEMATOPOIETIC STEM CELL TRANSPLANTATION UNIT

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INTRODUCTION. Although hematopoietic stem cell transplantation (HSCT) has helped to improve the survival of patients with onco-hematological diseases, the risk of developing infections during hospitalization is quite relevant. Primary bloodstream infections (BSI) are among the most frequent causes of morbidity and mortality in hematopoietic stem-cell transplant patients.

OBJECTIVE. Investigate the clinical occurrence and antimicrobial resistance profile of agents isolated from bloodstream infection in patients undergoing hematopoietic stem cell transplantation.

METHOD. We conducted a cross-sectional study with a descriptive design, using a quantitative approach of the analytical type, with correlation between variables. The study was carried out at a teaching hospital, with patients admitted to the HSCT Unit who developed Catheter-related primary bloodstream infection (CRBSI) laboratory-confirmed. The Hospital Information System provided all data about patient's health history. We used descriptive analysis to summarize computerized medical records and health care-related infection's notification form provided by the Hospital Infection Control Service (HICS). Statistical analysis was performed to verify the significance of the results.

RESULTS. In 2019, hematopoietic stem cell transplantation in 160 patients was performed at the HSCT Unit, including autologous and allogeneic transplants. Four episodes of PBSI laboratory-confirmed occurred in June (n = 1), July (n = 1), and August (n = 2). Two episodes occurred in the same patient, which resulted in three patients diagnosed with bloodstream infection, which corresponds to 1.8% of the total transplant patients. All patients (n = 3) with PBSI used central venous catheter: two of them used a PermCath central venous catheter and two a double lumen central venous catheter. One patient used both types at different times. Regarding the types of transplantation, 66.6% (n = 2) underwent allogeneic HSCT and 33.3% (n = 1) autologous HSCT. E. coli was the major (50%) causative agent of bloodstream infection among the four isolated agents. S. Marcescens and E. cloacae responded for 25% each, respectively. E. coli and S. Marcescens showed carbapenem resistance, and E. cloaclae was sensitive to this class of antibiotics. S. Marcescens was sensitive only to Amikacin.

CONCLUSION. Special care is recommended mainly in patients with hematological diseases. Surveillance and prevention of primary bloodstream infection should be considered a priority in HSCT units, aiming at the safety and quality of care. All efforts should be concentrated mainly on improving primary care, with emphasis on standard routines in infection control and prevention precautions. The identification of infections and associated factors may contribute to strategies for the prevention, screening, diagnosis, and treatment of these complications with a positive impact on post-transplant survival.

KEYWORDS: Bone Marrow Transplantation; Infections; Nosocomial Infections

CYTOMEGALOVIRUS REACTIVATION IN ALLOGENEIC STEM CELL TRANSPLANT RECIPIENTS: FREQUENCY, TIME TO REACTIVATION AND DYNAMIC OF VIREMIA IN DIFFERENT TYPES OF DONORS AND IN REPEATED EPISODES

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Cytomegalovirus (CMV) remains leading to high morbidity and mortality in allogeneic stem cell transplant (Allo-SCT). High immunosuppression increases the risk of reactivation and allows repeated reactivation episodes. However, immunosuppression varies in accordance to donor types. In this study, we compared CMV reactivation in different Allo-SCT: Related (RD), unrelated (URD), and haploidentical (Haplo) donor SCT and analyzed the dynamic of repeated CMV episodes.

METHODS: Prospective cohorts of Allo SCT (from 2013 to 2019). Patients were screened by CMV quantitative PCR (Taqman Sistem – artus CMV Qiagen) in plasma. The screening started on the first week after SCT, repeated once a week until D+100, and after D+100 if immunosuppression was maintained. Repeated episode was defined if at least two negative CMV CRP results were obtained after the first episode. The following variables were analyzed: time after SCT to reactivation, initial viral load, highest viral load within the event, duration of viremia, and response to treatment.

RESULTS: There were 123 Allo-SCT performed. Median age was 47 years (ranging 1 to 70), and acute leukemia represented 63%. RD, URD, and Haplo were 72 (58%), 30 (24%), and 21 (17%), respectively. The median duration of follow-up was 251 days. CMV reactivation was documented in 84 (68%), with a median number of 2 (1 – 9) episodes per patient. RD, URD, and Haplo had similar frequencies of reactivation (64%, 70%, and 81%; p=0.33). URD-SCT had earlier reactivation than others (median D+6, versus D+37 and D+ 21 in RD and Haplo, p<0.001). A total of 192 CMV reactivation episodes were analyzed: 100 in RD, 55 in URD, and 37 in Haplo. Haplo-SCT reached the highest viral loads (median of 1070 copies/mL vs., 373 and 163 copies/mL in RD and URD-SCT; p=0.036). First CMV reactivation episode reached higher viral load (median 1897 vs. 143 copies/mL; p<0.001) and longer viremia (median 28 vs. 14 day; <0.001), compared with repeated ones.

CONCLUSIONS: Reactivation of CMV occurred with different dynamics by SCT donor type and in the first or repeated episode. Treatment and preventive strategies should be adapted, considering these different scenarios.

PROFILE OF PATIENTS SUBMITTED TO ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION THAT DEVELOPED CLOSTRIDIUM DIFFICILE INFECTION IN A CENTER IN SOUTHERN BRAZIL

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INTRODUCTION: The allogeneic hematopoietic stem cell transplantation (HSCT-allo) is a curative therapy option for onco-hematological diseases and immunodeficiencies. However, due to its immunosuppressive potential, it can be associated with complications, impacting on morbimortality. In this context, the Clostridium difficile (CD) infection, the leading cause of infectious diarrhea in hospitalized, attend higher risk in transplanted. Prolonged hospitalization, immunosuppression, duration of neutropenia, antibiotic therapy, conditioning, graft versus host disease (GVHD), and T cell depletion justify the higher incidence of CD in this population. The diagnosis is based on the analysis of fecal samples, and in suspicion, preventive measures and empirical therapy for bone marrow (BM) recipients should be considered.

OBJECTIVE: The current study sought to describe patients' clinical profile submitted to HSCT-allo with CD infection from the first conditioning day to the 100th day after transplant in a Center in Southern Brazil from August/14 to July/19.

METHOD: Retrospective, observational and descriptive study, including patients submitted to HSCT-allo, related or not, with CD infection in the period of interest.

RESULTS: 178 transplants were evaluated, corresponding to 172 patients (6 were resubmitted to the HSCT-allo). Our study indicated that 29 patients confirmed CD, but only 23 were eligible - 6 were contaminated before conditioning. The incidence rate was 13.3%, with median age of 12 years. Of the 23 cases, 43.5% had a full match donor, and in 83.6%, the source was BM. 44% had Acute Lymphoblastic Leukemia, the majority in remission and after more therapeutic lines. 52.17% had skin GVHD, and the gastrointestinal tract was the second largest organ affected; only 43.5% needed corticoid. 65.2% had been using antibiotics before infection, and 73.9% had Cytomegalovirus reactivation until the 100th day of HSCT-allo. For the elected cases, 95.7% had diarrhea. The diagnostic method was based on the toxins A and B detection, positive in 47.8% of cases, and 30,4%, which were positive for toxin and GDH antigen simultaneously. The identification of CD occurred, especially, between 30 and 90 days of HSCT-allo and as soon as therapy started, the median for improvement was 5 days. 43.5% of the sample was treated only with oral vancomycin, and 78.3% of the total reached cure after treatment. No statistical difference was found related to the diagnosis of CD and overall survival of 100 and 1095 days after HSCT-allo, as well as its relationship with conditioning and prophylaxis.

CONCLUSION: During the last decade, there was a significant increase in the incidence and severity of CD infections, particularly in patients undergoing HSCT-allo, possibly associated with the transmission and virulence of the causer agent. Given its prevalence and morbimortality, combined with the high costs of care, the establishment of control and prevention strategies are important.

DIFFERENCES IN THE COMPLIANCE WITH YELLOW FEVER AND MEASLES VACCINES IN THE REVACCINATION PROGRAM AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION.

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INTRODUCTION. Revaccination program of hematopoietic stem cell transplant (HSCT) recipients is recommended to start at the 4th month after HSCT with inactivated vaccines, followed by attenuated vaccines. Measles – mumps – rubella (MMR) and yellow fever (YF) are some of the attenuated vaccines which are recommended after the 2nd of HSCT for recipients without chronic GVHD and not using IS drugs. The safety and immunogenicity of MMR vaccine after HSCT is well known. Less information is available concerning to YF vaccine. We reviewed the safety of YF vaccine in HSCT recipients and compared the differences in the compliance with YF and MMR vaccines.

METHODS. Autologous and allogeneic HSCT recipients with ≥ 2 years after HSCT and a printed copy of the vaccination record were included. Type of vaccine, number of doses, and respective dates were transcribed to the study database. Demographic data and information about chronic GVHD were retrieved from the local registry. Autologous HSCT recipients who had not started the attenuated vaccines after two years were considered out of step with the proposed calendar. In allogeneic HSCT recipients, the delay in the attenuated vaccines was considered taking into account the presence of chronic GVHD. Vaccination with attenuated vaccines starting before the 2nd year (day +730) was considered inappropriate.

RESULTS. Data from 273 HSCT recipients (193 allogeneic, 80 autologous) were analyzed. 138 patients (50.5%) received at least one dose of measles vaccine. 127 recipients received MMR, 10 received measles-rubella (MR), and 1 patient received only measles vaccine, at a median of 1,180 (143 – 6,244) days after HSCT. Significantly less patients (58 recipients, 21.2%) received one dose of YF vaccine at a median of 1,482.5 (127 – 6,348) days after HSCT. No moderate or severe adverse events were reported after YF vaccine. Inappropriate vaccination (before d+730) was observed in 18 of the 138 patients (13%) who received MMR, and in 4 of the 58 patients (6.9%) who received YF. Ninety-seven of the 193 allogeneic HSCT recipients (50.3%) had chronic GVHD at a median of 209 (28 - 2,751) days after HSCT, which could justify a delay in the attenuated vaccines. Surprisingly, significantly more allogeneic HSCT recipients (114 of the 193, 59%) received at least one dose of MMR, MR or measles vaccine in comparison to only 24 of the 80 autologous recipients (30%; $p<0.0001$). The frequency of allogeneic (40/193, 20.7%) and autologous HSCT recipients (18/80, 22.5%) receiving YF vaccine was similar ($p = 0.74$).

CONCLUSIONS. Both attenuated vaccines were delayed in the present study. More frequent delays were observed with YF vaccine as only 20% of the patients have been vaccinated. Although, no moderate or severe adverse events after YF vaccine were reported, the fear of adverse events of YF vaccine should explain these findings. Measles vaccination has been neglected in autologous HSCT recipients. Inappropriate administration of attenuated vaccines occurred in around 10% of the patients, which could have been harmful to the patient. Educational measures regarding the HSCT recipient revaccination program are urgently needed.

GRANULOCYTE TRANSFUSIONS TREATING REFRACTORY FUNGAL INFECTION AS A BRIDGE FOR THE SECOND HEMATOPOIETIC STEM CELL TRANSPLANTATION AFTER GRAFT LOSS: CASE REPORT

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INTRODUCTION: Bacterial and fungal infections continue to impose great morbidity and mortality in patients with prolonged severe neutropenia after chemotherapy or hematopoietic stem cell transplantation (HSCT). The advent of granulocyte colony stimulating factor (G-CSF) to mobilize healthy donors presages a new era of granulocyte transfusions (GTX) for the treatment of life-threatening infections in neutropenic patients, especially in a select clinical setting as a bridge until the engrafting from a rescue HSCT.

OBJECTIVE: To describe a case of graft failure after haploidentical HSCT treated for refractory invasive fungal infection with GTX until engrafting from a new HSCT.

METHODS: Case report, describing clinical, radiological and laboratory evolution.

RESULTS: Female, 24 yo, with a first remission extramedullary blastic plasmacytoid dendritic cell neoplasm, underwent a post-transplant cyclophosphamide based haploidentical HSCT from her HLA-5x10 sister, with myeloablative conditioning. No significant complications happened during HSCT hospitalization, with engraftment on day 18 and discharge on day 23. New admission was required on day 28 because of fever and grade II gastrointestinal tract acute GvHD. During GvHD treatment, she evolved with cytomegalovirus infection and pancytopenia, confirming hemophagocytic lymphohistiocytosis and secondary graft loss (Day 59 chimerism: 0% donor cells). During rescue HSCT planning, she was diagnosed with invasive pulmonary fungal infection by radiologic consistent imaging plus positive galactomannan, starting voriconazole treatment at day 44. As there was an increase in pulmonary nodules, showing refractoriness to antifungal therapy alone, GTX was started at a three times a week basis, with satisfactory increase in neutrophils on daily blood counts, until the rescue mismatched unrelated donor HSCT (fludarabine and anti-thymoglobulin conditioning, with peripheral stem cells infusion on day 84 of the first HSCT) finally engrafted on day 9. She had good clinical evolution and progressive improvement of lung lesions after 10 weeks of voriconazole (day 32 of the second HSCT). Successfully completed immunosuppression withdrawal, showing no GvHD activity, maintaining complete chimerism and remission of the underlying disease. CONCLUSION: Studies show that granulocyte transfusions bring limited benefits to a select group of patients, as the incidence of prolonged, but reversible, neutropenia is relatively low. Primary or secondary graft failure after HSCT, with a new urgent rescue HSCT planning comprises a period of neutropenic patient in great risk for fungal infection, by immunosuppression associated with recent conditioning, with possible accurate indication of GTX as a "bridge" until new engraftment.

KEYWORDS: Granulocyte transfusion. Leukapheresis. Neutropenia. Fungal infection. Haploidentical. Graft failure. Second HSCT.

REFERENCES:

BISHTON, M.; CHOPRA, R. The role of granulocyte transfusions in neutropenic patients. British Journal of Haematology, v. 127, n. 5, p. 501–508, 2004.

CUGNO, C. et al. Granulocyte transfusions in children and adults with hematological malignancies: Benefits and controversies. Journal of Translational Medicine, v. 13, n. 1, p. 1–17, 2015.

WEST, K. A. et al. Granulocyte transfusions in the management of invasive fungal infections. British Journal of Haematology, v. 177, n. 3, p. 357–374, maio 2017.

WEST, K. A.; CONRY-CANTILENA, C. Granulocyte transfusions: Current science and perspectives. Seminars in Hematology, v. 56, n. 4, p. 241–247, out. 2019.

INVASIVE FUNGAL INFECTION BY TRICHOSPORON ASAHII IN A PATIENT SUBMITTED TO HAPLOIDENTICAL HEMATOPOIETIC CELL TRANSPLANTATION FOR RELAPSED ACUTE MYELOID LEUKEMIA

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INTRODUCTION: The fungus species Trichosporon may be part of the normal microbiota, but also cause invasive infections. Trichosporonosis occurs almost exclusively in immunocompromised hosts and is generally fatal with mortality above 70%.

OBJECTIVE: To report a case of invasive infection by T. asahii in a patient undergoing haploidentical allogeneic HSCT. CASE REPORT: RRF, 33 years old, male, haploidentical allogeneic HSCT for relapsed AML, reduced intensity conditioning with post cyclophosphamide, using prophylactic voriconazole. The patient presented with fever and monoarthritis of the knee during aplasia, initiated broad-spectrum antibiotic. Culture of synovial fluid with growth of T. asahii, with the dose of voriconazole being adjusted according to the serum level and associated with lipid complex amphotericin B. After neutrophilic grafting, he showed clinical improvement, completing 14 days of amphotericin B and maintaining the use of voriconazole. On D+30, patient with complete chimerism and disease in remission, presented liver acute graft-versus-host disease, and prednisone was started. He evolved with liver improvement, however, malfunctioning graft with high transfusion requirement and daily use of filgrastim, readmitted due to neutropenic fever. Broad-spectrum antibiotic therapy was started, exchanged voriconazole for isavuconazole and reintroduced amphotericin B. Hemoculture and uroculture with growth of T. asahii, also showing polyarthritis and pulmonary involvement. Corticotherapy was suspended and granulocyte transfusions were performed in an attempt to control the infection, however, it progressed with refractory septic shock and death on D+61.

DISCUSSION: In trichosporonosis, a widespread form, the organs most commonly affected are the lungs, kidneys, skin, liver and spleen. The patient usually has an acute febrile illness that progresses rapidly to multiple organ failure. The ideal antifungal and duration of therapy are not known and recommendations are based on in vitro susceptibility and clinical experience. In vitro susceptibility studies have shown resistance to most antifungals and azole drug activity. The initiation of antifungal therapy with voriconazole in combination with amphotericin B is recommended and, at the same time, attention should be paid to the possibility of reversing any immunosuppressive conditions, since no therapy is effective with deep and prolonged neutropenia. If the patient recovers, maintenance of chronic suppressive therapy with voriconazole should be considered. If he subsequently becomes immunocompromised, systemic antifungal therapy should be restarted.

CONCLUSION: Disseminated trichosporonosis is a rare and fatal infection, and patients undergoing HSCT are an extremely vulnerable subpopulation. Therefore, we must remain vigilant and maintain high clinical suspicion in these patients, in order to institute treatment as soon as possible.

CASE REPORT OF DISSEMINATED NOCARDIOSIS IN A BONE MARROW TRANSPLANT PATIENT

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Nocardia bacteria are Gram-positive, aerobic agents, responsible for causing localized or disseminated suppurative infections. Nocardiosis is a localized or disseminated infection, in which the pulmonary presentation is more frequent and can spread to the skin and to the central nervous system. It belongs to the Nocardiaceae family, and the most prominent species is Nocardia asteroides. The genus Nocardia is found in the soil and the major route of infection is the aerogen, through inhalation of the microorganism present in the suspended dust particles. Less frequently, this bacteria can penetrate the body when ingested or transmitted through contact with the skin. Their characteristics are the ability to spread to almost any organ and a high rate of recurrence.

Disseminated nocardiosis is more common in immunosuppressed individuals. We describe a case report of disseminated nocardiosis in a post-allogeneic unrelated bone marrow transplant patient undergoing immunosuppressive therapy.

LHS, male, 47 years old, diagnosed with Chronic Myeloid Leukemia, submitted to unrelated bone marrow allogeneic transplant on 04/18/2019. He received bussulfan, cyclophosphamide and antithymocyte immunoglobulin as conditioning. He received prophylaxis of GVHD (graft versus host disease) with methotrexate and cyclosporine. She presented with acute GVHD treated with response corticotherapy. He evolved with chronic skin and liver GVHD, requiring prolonged immunosuppression. In June 2020, he was using tacrolimus and prednisone, being hospitalized with cough, fever and nonspecific cervical pain with no apparent injuries on physical examination. Empirical treatment with cefepime and vancomycin was started. Patient evolved with progressive worsening of general condition, weight loss, and sudden appearance of cervical collection with extension to the pre-vertebral spaces and vertebral canal through the foramen of conjugation of C1 to C4, being performed biopsy and culture of material of the lesion and evidenced presence of Nocardia sp in culture.

During the period spent to analyze the material, a new collection appeared on the trunk and soon afterwards new collections in the abdominal regions and in the perirenal space, brain and lung region with consolidation and mediastinal deviation to D. After the result of the culture of the collection material, it was treatment with meropenem and trimethoprim sulfamethoxazole was started. The patient evolved with acute respiratory failure, requiring intubation oro tracheal and mechanical ventilation (MV). Concomitant to the infectious condition, he presented pancytopenia with severe thrombocytopenia, making it impossible to drain deep collections. He responded to antibiotic treatment, progressing to weaning from MV and recovery of the infectious condition. Still using trimethoprim sulfamethoxazole, with a proposal for prolonged use.

HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS AND GRAFT REJECTION FOLLOWING HAPLOIDENTICAL STEM CELL TRANSPLANTATION: CASE REPORT

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INTRODUCTION: Hemophagocytic lymphohistiocytosis (HLH) is a hyperinflammatory condition, characterized by inappropriate survival of activated histiocytes and cytotoxic T-cells by inherited defects in cytolytic proteins in childhood (familial HLH) or triggered by infection, malignancy or autoimmunity (acquired HLH). Studies have associated HLH manifestations following hematopoietic stem cell transplantation (HSCT) with different triggers or as graft-versus-host disease (GvHD) manifestation when receptor macrophages are activated by the graft. When not diagnosed and treated, HLH leads to multiorgan failure and death.

OBJECTIVE: To describe a graft rejection post-haploidentical HSCT case attributed to HLH triggered by cytomegalovirus (CMV).

METHODS: Case report, describing clinical and pathological characteristics of the disease.

RESULTS: Female, 24 years old, with a first remission extramedullary blastic plasmacytoid dendritic cell neoplasm, underwent a post-transplant cyclophosphamide based haploidentical HSCT from her HLA-5x10 sister, with busulfan and fludarabine myeloablative conditioning. She received 5,3x106 CD34+/kg peripheral blood harvested cells. No significant complications happened during HSCT hospitalization, with engraftment on day 18 and discharge on day 23. New admission was required on day 28 because of fever and grade II gastrointestinal tract acute GvHD. GvHD was proved by colon biopsies, with good response to immunosuppression. CMV reactivated at day 29, treated with ganciclovir. On day 42, despite the 94.8% of donor cells chimerism, she began developing pancytopenia, persistent fever, and bone marrow (BM) aspirate with intense hypocellularity, showing predominantly activated macrophages and hemophagocytosis figures. HLH was confirmed by new BM aspirate and trephine biopsy at day 46, showing exiguous residual hematopoiesis with hemophagocytosis, associated with ferritin of 10,800 ng/mL. Chimerism performed at day 59 indicated graft loss. Neutropenia persisted and the patient needed treatment for pulmonary fungal infection (voriconazole) and febrile neutropenia (meropenem and vancomycin), concomitantly receiving granulocyte transfusions until she underwent a second mismatched unrelated donor (HLA 9x10) HSCT, after a fludarabine and anti-thymoglobulin conditioning. She engrafted on day 9, had shown good clinical evolution, concluding immunosuppression withdrawal, maintaining complete chimerism and remission of the underlying disease after more than a year.

CONCLUSION: Many conditions can mimic or trigger HLH after HSCT, period marked by febrile diseases, cytopenias and cytokine storms leading to increased inflammatory biomarkers such as ferritin (grafting syndrome, capillary leak syndrome, GvHD, sepsis and thrombotic microangiopathy), with clinical and laboratory parameters that overlap or got confused with HLH diagnostic criteria, bringing a challenge in its management, which can culminate in rapid graft loss.

KEYWORDS: HLH. Hemophagocytic lymphohistiocytosis. Hemophagocytic syndrome. Blastic plasmacytoid dendritic cell neoplasm. Haploidentical. Graft failure. Cytomegalovirus.

REFERENCES

KHARFAN-DABAJA, M. A. et al. SC. Clinical Lymphoma, Myeloma and Leukemia, v. 18, n. 11, p. P703-709.E1, 2018.

NIU, Z. et al. Relative hematopoietic stem cell transplantation for the treatment of blastic plasmacytoid dendritic cell neoplasm : a case report and literature review. v. 12, n. 9, p. 3433–3439, 2019.

NOGUCHI, M.; INAGAKI, J. Hemophagocytic Lymphohistiocytosis and Graft Failure Following Unrelated Umbilical Cord Blood Transplantation in Children. Journal of Pediatric Hematology/Oncology, v. 42, n. 6, p. e440–e444, 2020.

SANDLER, R. D. et al. Haemophagocytic lymphohistiocytosis (HLH) following allogeneic haematopoietic stem cell transplantation (HSCT) — time to reappraise with modern diagnostic and treatment strategies ? Bone Marrow Transplantation, p. 307–316, 2020.

NOSOCOMIAL DENGUE VIRUS INFECTION IN HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANT RECIPIENT: CASE REPORT

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INTRODUCTION: Dengue fever, a common arboviral disease, is transmitted by mosquitoes of the genus Aedes and, less frequently, by blood component transfusion. In immunocompromised patients, clinical manifestations and duration of viremia differ significantly compared to its classic presentation. In this case report, we describe a dengue virus infection during pre-engraftment period of hematopoietic stem cell transplantation (HSCT).

CASE REPORT: A 51 year-old-man with myeloid sarcoma underwent a dose-reduced conditioning regimen (FLU 150/mg/m2; CY 30mg/kg; TBI 200cGy) followed by a major ABO incompatibility haploidentical peripheral blood stem cell infusion (CD34+=5.2X106/kg) from his daughter and GVHD prophylaxis with CY 50mg/kg (D+3 and D+4), CsA and MMF. Platelet and neutrophil engraftment occurred on D+9 and D+21, respectively. On D+19 (Hb=7.9g/dL, lymphocytes=100/mm3, neutrophils=200/mm3, platelets=341,000 /µL) the patient presented fever, myalgia and skin rash on the face, trunk and arms. On the same day, CMV (658 copies and log = 2.84) and HHV-6 (3,356 copies and log = 3.52) reactivation were identified and, on D+22, he had thrombocytopenia (86,000 /µL) with pruritus in trunk and face. Dengue infection was confirmed by RT-PCR. The stored samples from blood products received before symptoms and from HSCT donor were negative for dengue, excluding transmission by transfusion. Empirical antibiotic, preemptive treatment for CMV and HHV-6 with ganciclovir, hydration, analgesics and antipyretics were administered. The patient had clinical recovery, thrombocytopenia resolution and was discharged from hospital 5 days after the beginning of the symptoms. A week later, he was admitted with fever, skin rash, lipothymia, myalgia and persistent RT-PCR positive for dengue, without evidence of infection and GVHD. He developed acute kidney injury and systemic corticotherapy instead of CSA for GVHD prophylaxis, empirical antibiotic and immunoglobulin were initiated. Fourteen days after hospitalization, he presented respiratory failure, leak-syndrome, rhabdomyolysis and was submitted to hemodialysis. On D+50, he developed pancytopenia (Hb=7.0g/dL, lymphocytes=0/mm3, neutrophils=100/mm3, platelets=15,000/µL) and the bone marrow aspirate showed complete donor chimerism and hypocellularity for age. Dengue serology (IgM) in the ninth day of symptoms was negative, RT-PCR, performed weekly, became negative 28 days after the diagnosis and then, laboratory exams had a discrete improvement, but he remained on mechanical ventilation, on hemodialysis and with pancytopenia. On D+54 post-HSCT, the patient presented refractory septic shock and death. CONCLUSION: This case illustrates the diagnostic and management challenge of dengue in HSCT recipient. In endemic areas, it is essential that dengue is part of the differential diagnosis for fever and rash syndromes in patients from transplant units and that measures are taken to reduce the risk of nosocomial infection.

FILMARRAY GASTROINTESTINAL DIAGNOSTIC PANEL IN PATIENTS WITH HEMATOLOGICAL NEOPLASMS AND SUBMITTED TO ALLOGENEIC BMT WITH DIARRHEA: CONTRIBUTION TO DIAGNOSIS AND THERAPEUTIC ADEQUACY

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Diarrhea and other gastrointestinal symptoms are very common in patients with hematological diseases and undergoing bone marrow transplantation (BMT), including infectious and non-infectious causes. Traditional diagnostic approaches are time consuming, require multiple tests and lack sensitivity. Molecular panels for syndromic diagnosis are being implemented in different scenarios, such as respiratory infections, pneumonia, meningitis, diarrhea and allow, in addition to an immediate result (processing time of 1 hour), the search for various pathogens. The FilmArray GI Panel includes 22 pathogens, including enterogenic bacteria, viruses and parasites.

In this study, we analyzed the contribution of the GI Panel in the investigation of diarrhea in individuals with hematological neoplasms, in terms of diagnostic performance and impact on therapeutic conduct.

Prospective study in a single center in individuals with hematological neoplasms and post allogeneic BMT and diarrhea. The events were investigated between February and May 2020. Stool samples were collected to perform the GI Panel and traditional tests, such as: parasitological, culture, Clostridium toxin A and B, Rotavirus.

The diagnostic performance of the GI Panel was defined as the frequency of positive tests among those collected, and the test contribution was defined when it confirmed or modified the initial clinical hypothesis.

Seven episodes of diarrhea were investigated, 5 episodes after allogeneic BMT and 2 episodes in acute myeloid leukemia patients, with a median age of 35 years (ranging from 13 to 70 years). In 3 of the 7 cases, GI Panel documented the etiology: Cryptosporidium (2 episodes), Clostridium difficile (2 episodes), one episode of co-infection (Clostridium and Cryptosporidium). In all three cases, traditional tests were negative. In the 4 events with negative GI Panel, the traditional tests applied were also negative, and the etiology of diarrhea was considered to be related to counter-host graft disease (3 episodes) and in the other case, bloodstream infection by P. aeruginosa associated with colitis. The GI Panel was considered in 6 of the 7 episodes as a tool that contributed to the diagnostic investigation, confirming or modifying the initial clinical suspicion. In 3 episodes there was a change in therapy after the result of the GI Panel. In one episode (ICS and P. aeruginosa colitis), the application of the test did not add improvements, as the diagnosis of the event was through blood culture, and the test was not able to modify or confirm the initial hypothesis.

Conclusion: FilmArray GI panel contributed to the diagnostic investigation in 86% of the episodes, with diagnostic yield and change of therapeutic conduct in 43% of the events. The application of syndromic diagnostic panels in hematology has great potential in terms of sensitivity and reduced time for diagnosis, which can directly impact the adequacy of therapy.

RELATIONSHIP BETWEEN ORAL MUCOSITIS AND THE NEUTROPENIC PERIOD IN PEDIATRIC PATIENTS SUBMITTED TO HEMATOPOIETIC CELL TRANSPLANTATION

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There are few studies that assess the association of oral mucositis (OM) and the neutropenia period in pediatric patients undergoing hematopoietic cell transplantation (HCT). The aim of this study was to assess whether OM is related to the neutropenia period, and whether prolonged immunosuppression is a risk factor for theses injuries. 115 medical records of pediatric patients aged 0 to 18 years who underwent HCT, treated at the Bone Marrow Transplant Center, between the years 2012 and 2019, were selected. The patients were divided into groups according to following ages: 0 to 2 years (n=35), 3 to 6 years (n=23), 7 to 12 years (n=38), and 13 to 18 years (n=19). A comparative analysis was performed between the periods of neutropenia and OM, based on the blood count and OM degree data recorded daily in medical records.

It was observed that, in the age group 0 to 2 years, 11 patients (39,2%) presented OM that persisted even after the neutropenia period; in 13 patients (46,4%) OM was no longer observed despite the fact that the patient was neutropenic; and in 10 patients (35,7%) mucositis was present before neutropenia phase. In the age group of 3 to 6 years, OM persisted after neutropenia period in nine patients (47,3%); healed completely before the end of neutropenia in nine patients; and in ten patients (52,6%) OM was already present before neutropenia. For the age group of 7 to 12 years, OM persisted after neutropenia phase in eight patients (28,5%); healed before the end neutropenia in 17 patients (60,7%), and in 15 patients OM was present before neutropenia began. Finally, in the age group of 13 to 18 years, five patients (38,4%) exhibited OM after neutropenia period; and in most patients (eight patients, 61,5%), no mucositis was detected before neutropenia ended.

The conclusion is that OM did not always presented in neutropenia period, and its duration was not a risk factor of OM. Analyzing OM in general, it was observed that, in all age groups, the patients exhibited OM grade 1 before neutropenia, reinforcing the importance of oral protocols for the prevention and treatment of OM even during conditioning, and not only in neutropenia phase. OM was frequent after neutropenia, suggesting that other factors may be associated with the permanence of OM.

KEYWORD: oral mucositis, neutropenia, pediatric patients, hematopoietic cell transplantation.

12. ACADEMIC LEAGUES

EVALUATION OF THE KNOWLEDGE OF MEDICINE STUDENTS ABOUT BONE MARROW TRANSPLANTATION

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INTRODUCTION

Bone Marrow Transplantation (BMT) is a growing method as a standard for the treatment of several diseases that affect the hematopoietic cells, such as hematological, onco-hematological and immunodeficiency diseases. hereditary genetic diseases, some solid tumors and autoimmune diseases. Hematopoietic progenitor cells can be obtained from the bone marrow itself, from peripheral blood or from an umbilical cord. The compatibility between siblings of the same father and mother is 25% [1] and in unrelated individuals the chance reduces to 1 / 100,000.[2] The most common complication of BMT is Graft-versus-Host Disease, popularly called rejection.[3] The biggest barrier found to increase donors is the lack of information.4 Thus, the aim of this study was to evaluate the knowledge of medical students about BMT, since it is a topic rarely addressed in the academic scenario.

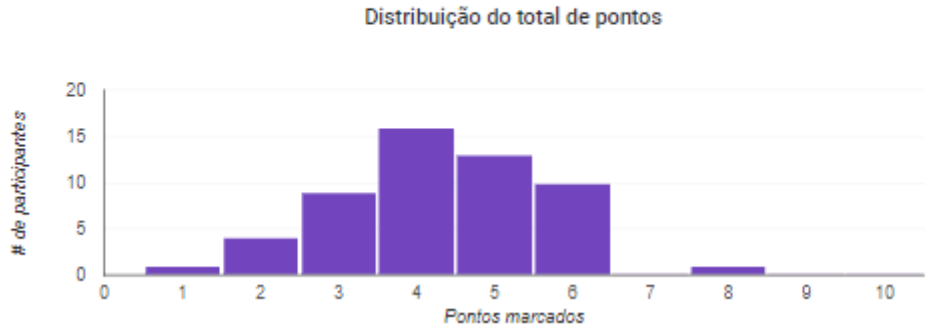
CASUISTICS AND METHODS

This is a descriptive, quantitative and cross-sectional study that evaluated the medical students previous knowledge about BMT. Due to the impossibility of face-to-face application, questionnaires were applied in Google Forms with 8 questions validated by a specialist doctor. The study was carried out with the students of the Unichristus Medicine College and had the participation of 54 students. As a criterion for inclusion in the research, the student should be registered in the course of Medicine and have already studied the discipline of Hematology.

RESULTS AND DISCUSSION

When asked about the chance of finding a compatible bone marrow transplant donor in the family, 85.2% of participants answered the question correctly. However, when asked about the chance of finding a donor for a bone marrow transplant outside the family, only 50% got it right. Furthermore, 70.4% were able to correctly identify the types of BMT and 87% were correct for their most frequent complication. In addition, 51.9% were right in which disease Autologous Bone Marrow Transplantation is not recommended and 66.7% of the participants correctly identified that the appropriate transfusion must be delucotized and irradiated. Finally, although 51% of students correctly answered that

Mediano	Mediana	Intervalo
4,31 / 10 pontos	4 / 10 pontos	1 - 8 pontos



cytomegalovirus (CMV) is the most common infection in transplant recipients, only 16.7% knew what the frequent complication caused by CMV is. In short, the range of the participants' grades ranged from 1 to 8 points, the average was 4.31 points and the median was 4 points.

Then, it is clear that, even after completing the discipline of Hematology, many students still have doubts regarding Bone Marrow Transplantation.

CONCLUSION

In the present study, the difficulty of most medical students to assimilate the contents related to Hematopoietic Stem Cell Transplantation was apparent, demonstrating a low level of information. In this way, it was allowed to diagnose in this society the points that must be worked on, then a greater understanding of this theme will be possible.

REFERENCES

1. MEINERZ, Carine et al. Evaluation of the percentage of HLA compatibility between members of the same family for patients waiting for bone marrow transplantation in Santa Catarina, Brazil. Rev. Bras. Hematol. Hemoter., São Paulo, Vol. 30, n. 5, p. 359-362, Oct. 2008.

2. WATANABE, Alexandra M. et al . Percepção da comunidade nipo-brasileira residente em Curitiba sobre o cadastro de medula óssea. Rev. Bras. Hematol. Hemoter., São Paulo , v. 32, n. 2, p. 136-140, 2010 .

3. VIZONI, Silvana L. et al. Papel das citocinas na imunopatogênese da doença do enxerto contra o hospedeiro. Revista brasileira de hematologia e hemoterapia, 2008.

4. MOREIRA, Sara Calixto Alves. DOAÇÃO DE MEDULA ÓSSEA: DESAFIOS E PERSPECTIVAS. 2019.

13. LABORATORY PRACTICES

DESCRIPTION OF PERIPHERAL BLOOD STEM CELL UNITS INTENDED FOR FRESH USE

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INTRODUCTION: Cryopreservation of peripheral blood stem cells (PBSC) is the most frequent autologous transplantation approach. In recent years, studies indicated that it is possible to safely perform transplants without cryopreservation, reducing adverse effects related to DMSO infusion and the overall process's costs. However, storing stem cell products with high cellular concentration under refrigeration (2 to 8ºC) for 72 hours might decrease CD34+ cell viability by nearly 30%. Therefore, products exceeding leukocyte count 200 x106 cells/mL could be diluted (preferably with donor plasma) for better cell viability.

OBJECTIVE: To describe the PBSC grafts received for cryopreservation, but aiming for fresh use without further manipulation.

MATERIAL AND METHODS: We describe 587 products collected from 02/2016 to 12/2019 in our institution (Spectra Optia Version 11 equipment, Terumo BCT, Lakewood, Colorado, USA), presenting data with medians and range.

RESULTS: We described stem cell products (Table 1) and further stratified by leukocyte count (Table 2). The median initial product's volume increased with WBC concentration.

CONCLUSION: Approximately 77% of the PBSC units evaluated had a leukocyte count higher than the recommended for fresh use and would require additional processing. A strategy to minimize the need for post-harvesting manipulation would be donor plasma's addition in equal volume to the product in a closed system at the end of the collection procedure. Using this strategy, we would increase the percentage of products with WBC <200 x106/mL from 23% to 76%. The products with WBC >200 x106/mL could be diluted in the laboratory, in a closed system, with 4% human albumin and 10% ACD-A in 0.9% NaCl solution. Cell processing laboratories, collection, and transplant centers should work together to supply stem cell products adequate for fresh use.

KEY WORDS: Peripheral blood stem cells, autologous bone marrow transplantation, graft manipulation.

TABLE 1 - Products' characteristics

Data evaluated	Median	Range
Initial volume (mL)	284.9	(35.6 – 601.2)
Leukocyte count (WBC x106/mL)	289.2	(49.1 – 958.7)
Hematocrit (HCT %)	3.6	(0.5 – 13.2)

TABLE 2 - Sub-group description stratified by products' leukocyte count

WBC x10e6/mL	Median	Range	Sample
<200	165.2	49.1 – 199.5	N=136 (23%)
>200 and <300	256.7	200.1 – 296.9	N=182 (31%)
>300 and <400	351.1	300.3 – 396.9	N=128 (22%)
>400 and <500	436.0	400.2 – 498.4	N=92 (16%)
>500	588.5	503.9 – 958.7	N=49 (8%)

EVALUATION OF ADVERSE EFFECTS DURING THE INFUSION OF CRYOPRESERVED PERIPHERAL BLOOD STEM CELL IN AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: The cryopreservation protocols of peripheral blood progenitor cells PBSC use dimethyl sulfoxide (DMSO) as the main cryoprotective agent. However, DMSO is toxic to the patient, and doses greater than 1g (approximately 1mL) per Kg can cause serious adverse effects. In 2014, the European blood and marrow transplant group (EBMT - European Blood and Marrow Transplant Group) guided the standardization of cryopreservation protocols with reduced doses of DMSO to reduce the toxicity and morbidity related to the procedure. In this sense, in our service, we standardize as a cryoprotective solution (final concentration) DMSO 5% + Hydroxyethyl starch (HES) at 5% + ACD 5% in human albumin solution at 3% and, when HES is unavailable, we use DMSO 10% + 5% ACD in 4% albumin solution. In addition, in all cases where the final dose of DMSO to be infused is greater than 0.5 g/kg of body weight, we request formal science from one of the doctors of the transplant team in order to alert them about the greater risk of adverse effects and allow the definition, in advance, of the best strategy for transplantation (washing or fractional infusion of the bags). The objective of this work was to evaluate the adverse effects potentially related to the PBSC processed by our Cell Processing Center (CPC) infusion between 05/2014 and 12/2019.

MATERIAL AND METHODS: A retrospective analysis of the adverse effects related to PBSC infusion was carried out. The data were informed by the Transplant Centers (TC) in standardized forms.

RESULTS: PBSC were processed to treat 660 patients, 589 (89%) of whom were transplanted. We received feedback on the infusion data from 453 (77%) patients. The median dose of infused DMSO was 0.18 (0.05-0.95) g/kg of body weight. The adverse effects reported by the TC were: nausea (54; 12%), vomiting (44; 10%), hypertension (7; 1.6%), flushing (6; 1.3%), desaturation (5; 1 ,1%); hemoglobinuria (4; <1%); chills (3; <1%), dyspnea (3, <1%), fever (3; <1%), itching sensation in the oropharynx (3; <1%), diarrhea (2; <1%), colic abdominal (2; <1%), headache (1; <1%), "tongue paralysis" (1; <1%), hypotension (1; <1%), tachycardia (1; <1%), cough (1; <1%), tremors (1; <1%). The median granulocyte grafting (N = 468) was 11 (8-33) days, with only 8 (1.7%) patients having grafting between D +16 and +20 and only 3 (0.6%) after D +20. Due to the low incidence of adverse effects, we do not consider it necessary to assess them according to the type of cryopreservation solution used. Conclusion: The data obtained demonstrate that the processing method and cryopreservation solutions used by our CPC are safe, since the adverse effects presented in most cases do not show signs of severity and the patients had adequate grafting. It is possible to use protocols with reduced doses of DMSO in the cryopreservation solution, increasing safety and reducing morbidity related to DMSO.

KEYWORDS: Peripheral Blood Stem Cell. Autologous Bone Marrow Transplantation. Cryopreservation. Adverse Effects.

EVALUATION OF THE AVERAGE STORAGE TIME AND THE INCREASE OF CRYOPRESERVED BAGS STOCK AT THE CELL PROCESSING CENTER

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INTRODUCTION: Peripheral blood stem cells (PBSC) are usually cryopreserved and stored before being made available for autologous transplants. Knowing the storage profile of the products is interesting, as it assists the Cell Processing Center (CPC) in the sizing of its storage equipment, especially the nitrogen tanks. The objective of this work was to retrospectively evaluate the average storage time as well as the increase in the PBSC units stock aiming the institutional organization.

MATERIAL AND METHODS: A retrospective data analysis of cryopreserved and stored products by CPC was carried out between 05/2014 and 12/2019. In patients who needed more than one collection to complete the minimum CD34+ cells dose for transplantation, the time to release was considered as the period between the cryopreservation of the last bag and its release for the first transplant. In patients who underwent two transplants, only the storage time of the period between cryopreservation and the first transplant was considered. The data are described as median (range).

RESULTS: 1747 bags containing PBSC collected from 660 patients were cryopreserved. Of these, 1332 bags from 589 (89%) patients were released for transplantation, which generated a remaining balance of 415 (23.8% of the cryopreserved bags) with a median time between cryopreservation and the release of the product for 48 (6-843) days. The historical series evaluation is described in Table 1.

CONCLUSION: In view of the growing and progressive increase in the stock of cryopreserved bags, we opted to change the contract with the Transplant Centers, with the mandatory sending of annual reports informing the need to maintain the stored bags, payment of a storage fee every 2 years and, if applicable, sending a specific form authorizing the CPC disposal of the products. Knowledge of the increase and monitoring of the stock of cryopreserved bags is important for the centers plan the acquisition and installation of new equipment for long-term product storage. Integrated stock monitoring actions with adjustments to the CPC routine allow for better institutional strategic planning.

KEYWORDS: Peripheral Blood Stem Cell. Autologous Bone Marrow Transplantation. Cryopreservation. Storage.

TABLE 1 - Bag stored stock historical series evaluation.

Year	Patients number	Number of cryopreserved bags	Number of released bags	Remaining balance	Time to release (days)
2014	32	85	70	15(18%)	24 (7-239)
2015	77	194	167	27(14%)	15(6-843)
2016	123	312	243	69(22%)	46(11-364)
2017	116	334	246	88(26%)	62(13-412)
2018	173	478	349	129(27%)	56(10-587)
2019	139	344	257	87(25%)	56(11-273)

EVALUATION OF THE COMMUNICABLE INFECTIOUS DISEASES TESTS PROFILE OF PATIENTS WHO HAD PERIPHERAL BLOOD STEM CELL CRYOPRESERVED FOR AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: In Brazil we must perform the same communicable infectious diseases exams of the whole blood donors in all patients submitted to the collection of peripheral blood stem cells (PBSC) in up to 72h of product collection but it is possible to release products with abnormal infectious diseases screening test.

THE OBJECTIVE of this work was to evaluate the results of the screening test performed in samples collected from patients who had products processed by our center between 05/2014 and 12/2019.

MATERIAL AND METHODS: A retrospective analysis of the results of the serology and NAT tests performed by our institution was carried out.

RESULTS: Products from 660 patients were received for processing. Of these, 126 (19%) had at least one abnormal result, with 124 (98.4%) being positive and 2 (1.6%) inconclusive (anti-HBc and anti-HCV). Of the 124 positive tests, 114 (91.9%) presented only one abnormal result: 49(42.9%) for anti-HBc, 46(40.4%) for syphilis, 10(0.9%) for Chagas, 4(0.4%) for anti-HTLV I/II, 3(0.3%) for anti-HIV and 2(0.2%) for anti-HCV. Of the ten that presented more than one abnormal result, 6 were positive for anti-HBc and syphilis; 1 for anti-HBc, anti-HIV and syphilis; 1 for anti-HTLV I/II and syphilis; 2 for anti-HBc and NAT HVB, in which one has also HBsAg positive. In total, there were 58 (47%) anti-HBc positive tests, 2 of which were associated with positive NAT HVB. Conclusion: Approximately 20% of patients had some positive screening test for the detection of infectious diseases transmitted by blood. The performance of these screening tests, including NAT, brings information that impacts both the way the product is stored and how the patient is managed during the transplantation.

KEYWORDS: Peripheral Blood Stem Cell. Autologous Bone Marrow Transplantation. Communicable Infectious Diseases. Serological Profile.

EVALUATION OF THE MICROBIOLOGICAL CONTAMINATION PROFILE OF PERIPHERAL BLOOD STEM CELL UNITS CRYOPRESERVED FOR AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: Most autologous transplants use cryopreserved peripheral blood stem cell (PBSC). Although rare, PBSC microbiological contamination occur and all teams involved should effort to minimize it. Our Cell Processing Center (CPC) receives products collected by different centers. We routinely collect and inoculate samples for microbiological test before and after processing, that is, before handling the product (1mL) and after the addition of the cryoprotective solution (0.5mL of PBSC buffy coat + 1.5mL of remaining plasma), immediately before cryopreservation. In addition, we make a sterile connection between the bags, which allows us to work in a closed system minimizing the risk of product contamination.

THE OBJECTIVE of this work was to evaluate the prevalence of positive microbiological tests in our service, the isolated microorganisms, and their sensitivity antimicrobial profiles.

MATERIAL AND METHODS: Retrospective analysis of data from cryopreserved products by our CPC between 05/2014 and 12/2019 was performed.

RESULTS: 944 bags were received for processing. Of these, 312 were processed in a pool and 632 separately, which resulted in 788 processing bags for cryopreservation. Of these in 21(2.7%) samples, the microbiological test was positive, with 19(2.4%) in pre and 18(2.3%) in post-processing sample. Of the 21 samples that showed positive microbiological test, in 15 (72%) Staphylococcus coagulase negative were isolated, in 3(14%) Bacillus sp., in 2(9%) S. aureus and in 1(5%) Enterococcus faecalis. Of the samples in which Bacillus sp. was identified, the test was positive in only one processing step, two in the pre and one in the post-processing sample. In two other situations, only one sample showed a positive result, one post-processing (isolated S. epidermidis oxacillin sensitive) and other pre-processing (isolated S. lugdunensis oxacillin sensitive). The others samples (N=16), showed positive microbiological for the same microorganism in the sample before and after processing, being 12(75%) S. epidermidis [7(58%) oxacillin sensitive; 5(42%) oxacillin resistant]; 2(12.5%) S. aureus (oxacillin sensitive) and 1(6.25%) S. lugdunensis (oxacillin sensitive) and 1 (6.25%) E. faecalis (vancomycin sensitive)].

CONCLUSION: The literature prevalence of positive PBSC microbiological test ranges from 0.23 to 5.7%, with the predominant of coagulase-negative Staphylococcus. Our data are in accordance with those and indicate that the vast majority of the isolated microorganisms originated from the contamination of the central venous catheter used for product collection. The performance of pre- and post-procedure tests allows you to track at which stage the product was contaminated. The identification of the microorganism and its sensitivity profile are important for the doctors decide on the product therapeutic use, associated or not with antibiotic prophylaxis or its disposal.

KEYWORDS: Peripheral Blood Stem Cell. Autologous Bone Marrow Transplantation. Graft Processing. Microbiological Contamination.

VALIDATION OF PERIPHERAL BLOOD STEM CELLS CRYOPRESERVATION PROCESS FOR AUTOLOGOUS TRANSPLANTATION

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INTRODUCTION: The literature about validation criteria for the cryopreservation process in autologous transplantation is scarce, without standardization thus far. We have validated the peripheral blood stem cell (PBSC) processing technique in our cell processing center (CPC). After validation, we monitored quality indicators and critical parameters.

THE OBJECTIVE of this work is to evaluate compliance with the CPC routine process. We investigated if the procedure is conformed with the validated parameters.

MATERIAL AND METHODS: We performed a retrospective analysis of all cryopreserved and stored products between May 2014 and December 2019 in our CPC. We set conformity as meeting all the following: 1) cellularity in each PBSC bag ≤ 500 x106/mL in 90% of the units after the addition of the cryoprotective solution; 2) duration for the addition of the cryoprotective solution between 5 and 10 minutes in ≥ 75% of the units; 3) interval from the addition of the cryoprotective solution to the start of cryopreservation ≤ 30min in 80% of units and ≤ 40min in 95% of units; 4) measurement of nucleated cell recovery by quantifying plasma cell loss ≤ 5% in 100% of the units; 5) negative microbiological test in 90% of samples pre and post-processing; 6) neutrophil engraftment ≤ 15 days for 95% and ≤ 20 days for 99% of patients.

RESULTS: We received 944 bags for processing: 312 studied in pooled pairs of consecutive units and 632 individually, resulting in 788 bags to cryopreserve. All pre-specified criteria were met: 1) cellularity in each PBSC bag ≤ 500 x106/mL in 90% of the units after the addition of the cryoprotective solution in 714 (90.6%) procedures; 2) duration for the addition of the cryoprotective solution between 5 and 10 minutes in 771 (97.8%) procedures, 710 (90.1%) between 7-10 minutes; 3) interval from the addition of the cryoprotective solution to the start of cryopreservation ≤ 30 minutes in 773 (98.1%) and ≤ 40 minutes in 786 (99.8%) of the procedures; 4) measurement of nucleated cell recovery by quantifying plasma cell loss ≤ 5% in 781/781 (100%, missing data = 7) with 465 (59.5%) ≤ 1%; 260 (33.3%) > 1 and ≤ 2%; 41 (5.3%) > 2 and ≤ 3%; 14 (1.8%) > 2 and ≤ 4.1% of the procedures; 5) negative microbiological test in 767 (97.3%) of the pre and post-processing samples; 6) neutrophil engraftment ≤ 15 days in 462/473 (97.7%) transplants, and 99.4% ≤ 20 days. Conclusion: We reached all the validation acceptance criteria. We demonstrate that our procedure was consistent, robust, and reproducible in this series. Because of the gap in the literature, data sharing is essential for comparison and standardization.

KEYWORDS: peripheral blood stem cells, autologous bone marrow transplantation, cryopreservation, validation.

EVALUATION OF THE IMPACT OF THE TIME INTERVAL BETWEEN THE END OF THE COLLECTION AND THE BEGINNING OF PERIPHERAL BLOOD STEM CELL PROCESSING IN CELL VIABILITY

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INTRODUCTION: Ideally, peripheral blood stem cells (PBSC) should be cryopreserved close to the collection's end. Current leukapheresis techniques might process up to eight times the donor total blood volume in procedures lasting up to eight hours. Lengthy procedures render it hardly possible to cryopreserve products on the same day of collection without manipulating the graft during the night, which may increase the risk of error. The legislation permits to cryopreserve PBSC within 48h from harvesting.

This study's objective was to validate that overnight refrigeration of PBSC grafts and cryopreservation the following day were safe.

MATERIAL AND METHODS: We analyzed 19 products received consecutively for processing from June 8th to August 1st, 2017. Upon reception, we performed a Complete Blood Count (CBC) and quantified the CD34+ cells (Flow cytometry; ISHAGE method; single platform), CD34+ and CD45+ cell viability (Flow cytometry; 7AAD), and the ratio between viable CD34+/ viable CD45+. We then re-measured cell counts and viability after storing the product under refrigeration (2-8ºC) for the cryopreservation in the following day. We used GraphPad InSat (version 3) to perform statistical analyses. We used the non-parametrical paired Wilcoxon signed-ranks test for comparisons and presented descriptive data with medians and range.

RESULTS: We present the pre-storage and pre-cryopreservation graft characteristics in Table 1. The median CD34+ and CD45+ cell viability was decreased by less than 1% after refrigeration. One patient had lower cell viability after the temporary refrigerated storage but nonetheless received a dose of 4.8 CD34+/kg and engrafted at D+10. The median refrigeration time was 20h51min (18h35-28h09).

CONCLUSION: Our case series results align with the literature and suggest that the decrease in the percentage of viable CD34+and CD45+ cells associated with temporary refrigerated storage before cryopreservation was clinically negligible, yielding adequate final cell counts and myeloid engraftment in all patients. These results support that storing the PBSC grafts up to 20h before cryopreservation is safe, allowing a better team's organization and reducing errors.

KEYWORDS: Peripheral blood stem cells, autologous bone marrow transplantation, graft manipulation, cryopreservation.