59 anos. A região Sul apresenta o maior percentual de doadores cadastrados, enquanto a Nordeste concentra o menor, embora seja a segunda região mais populosa do país, com cerca de 54.658.515 habitantes. As analises demográficas auxiliam a notar pontos que merecem atenção para ampliar a base de doadores no país. **Conclusão:** De toda forma, estudos devem avançar para entender o perfil demográfico dos doadores e criar estratégias para maior captação de voluntários, bem como garantir a fidelização dos doadores de medula óssea já cadastrados no REDOME, o que continua sendo desafiador.

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BACTEREMIA IN PATIENTS UNDERGOING BONE MARROW TRANSPLANTATION: WHAT SHOULD THE HEMATOLOGIST KNOW?

OMV Neto, ES Girão, AGND Melo, EPL Sobrinho, TGSS Costa, PE Oliveira, JLL Pinheiro, ES Alvarenga, KLS Ribeiro, VOC Filho

Universidade Federal do Ceará (UFC), Fortaleza, CE, Brazil

Objective: To evaluate the clinical, microbiological and antibiotic resistance profile of strains isolated from bacteremia samples, in Bone Marrow Transplant (BMT) recipients in a specialized tertiary unit, in Fortaleza, Ceará (Brazil). Furthermore, evaluate possible measures to prevent these diseases in Hematology services. **Material and methods:** A Microsoft Excel® spreadsheet with clinical and laboratory data from BMT recipients with bacteremia was created and completed over the years 2020–2023. The data was analyzed by the group of authors. The study was approved by the Research Ethics Committee, opinion number 3.697.674. The bacterial group was considered resistant when more than 30% of its strains, isolated from bacteremia in BMT recipients, did not show inhibition by the antibiotic tested. **Results:** 34 patients were included in the study, 32.3% of whom were women. 61.6% of patients had bacteremia due to *Pseudomonas spp*. (20.6%), *Staphylococcus spp*. (20.6%) and *Klebsiella spp*. (20.6%), followed by Sphingomonas Paucimobilis (14.7%), *E. Coli* (11.8%) and others (11.8%). *Pseudomonas spp*. showed resistance to: amikacin (57.1%), cefepime (85.7%), ceftazidime (85.7%), ceftriaxone (42.9%), cefuroxime (51.1%), colistin (42.9%) and nitrofurantoin (42.9%). Staphylococcus spp. showed resistance to: benzylpenicillin (42.9%), erythromycin (71.4%) and clindamycin (42.9%). Klebsiella spp. showed resistance to: ampicillin (71.4%), ampicillin with sulbactam (57.1%), cefepime (85.7%), ceftazidime (85.7%), cefuroxime (85.7%), ciprofloxacin (85. 7%), colistin (85.7%), linezolid (57.1%), nitrofurantoin (85.7%) and rifampin (85.7%). E. coli showed resistance to: ampicillin (75.0%), ampicillin with sulbactam (75.0%), cefuroxine (50.0%), ciprofloxacin (50.0%), colistin (50.0%), streptomycin (50.0%) and rifampicin (50.0%). Sphingomonas paucimobilis did not show significant antimicrobial resistance. **Discussion:** Many factors are associated with bacteremia in BMT recipients, such as cytomegalovirus, neutropenia, mucositis, use of antimicrobials, among others (Garnica et al, 2022). In this study, Gram-Negative (GN) bacteremia predominated, a finding consistent with the literature, despite the increased prevalence of *Staphylococcus spp*., which is mainly associated with catheter infections. Early identification of these pathogens, with appropriate treatment, is capable of containing the hospital spread of multiresistant organisms. The Hematology, BMT and Hospital Infection Control services must work together to identify these cases, look for causal situations and develop a multidisciplinary strategy to prevent infections associated with hospital care, especially in immunosuppressed patients, such as those in this study. **Conclusion:** GN bacteria were the main sources of infection and multidrug resistance in the present study. Multidisciplinary coordination between the Hematology and Hospital Infection Control Committees is adequate for the prevention and treatment of these conditions. Contrary to the literature, there were a large number of infections caused by Staphylococcus spp., reinforcing the need for surveillance in patients using long-term catheters, in addition to the correct indication of this procedure in BMT recipients.

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GENERATION OF NEW REGULATORY T CELLS AND INCREASED IL-10 LEVELS IN SYSTEMIC SCLEROSIS PATIENTS TREATED WITH AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

M Santana-Gonçalves [a,b], PB Santis [a], PD Forti [a,c], K Malmegrim [a,d], MC Oliveira [a,c]

[a] *Universidade de São Paulo, São Paulo, SP, Brazil*
[b] *Oncology, Stem cell and CellTherapy Graduate Program, Faculdade de Medicina de Ribeirão Preto (FMRP), Universidade de São Paulo (USP), Ribeirão Preto, SP, Brazil*
[c] *Department of Internal Medicine, Faculdade de Medicina da Universidade de São Paulo, Ribeirão Preto, SP, Brazil*
[d] *Department of Clinical, Toxicological and Bromatological Analysis, School of Pharmaceutical Sciences, Universidade de São Paulo, Ribeirão Preto, SP, Brazil*

Background: Systemic Sclerosis (SS) is an autoimmune disease characterized by immune dysregulation, vascular damage, and fibrosis of the skin and internal organs. Autologous Hematopoietic Stem Cell Transplantation (AHSCT) has been used as a therapeutic option for patients with severe and progressive forms of the disease. Immunological monitoring studies demonstrate that AHSCT generates a more self-tolerant lymphocyte repertoire, increases immunoregulatory mechanisms, and promotes a more anti-inflammatory immune profile in patients with autoimmune disorders. However, these investigations require further detailing. **Methods:** In this study, we evaluated the frequency of Naïve Regulatory T Cells (Tregs), serum levels of Inflammation and immunoregulation-related cytokines and clinical data. Peripheral Blood Mononuclear Cell (PBMC) samples from 14 SSc patients

were evaluated by flow cytometry. Frequency was evaluated on Treg expressing CD3, CD4, CD25, CD45RA, and FOXP3. Serum samples were assessed for TNF-, IFN-, IFN-, CCL2, CCL3, IL-1, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-13, IL-17, IL-21, IL-31, IL-33 by multiplex assay. **Results:** Most participants were female (78%) with a median age (range) of 32 (16–59) years. Skin fibrosis assessed by mRSS improved from median (range) 27 (11–41) at baseline to 18 (9–32) at 12-months and 16 (6–31) at 24-months after AHSCT. Forced vital capacity and DLCO percentages remained stable after AHSCT. The frequency of naive Tregs (CD45RA+FoxP3*high*CD4+) decreased at 3 and 24-months post-transplantation compared to baseline ($p < 0.05$). However, there was a significant increase in their frequency at 36- and 42-months compared to 3-months after AHSCT ($p < 0.05$). When comparing the levels serum cytokines, there was a decrease in IFN- levels at 12-months ($p < 0.05$) and CCL-2 and IL-8 decreased at 24-months ($p < 0.05$). Serum levels of TNF-α, IL-13, IL-31, and IL-33 remained unchanged after transplantation in SSc patients. Of all serum cytokines analyzed, only the anti-inflammatory molecule IL-10 showed an increase at 12 ($p < 0.05$) and 24 ($p < 0.01$) months compared to baseline; there was also an increase from 12- to 24-months ($p < 0.01$). **Conclusion:** The results showed an increase in naive regulatory T cells, indicating the generation of new regulatory cells. Notably, serum levels of key proinflammatory cytokines such as IFN-γ, CCL-2, and IL-8 showed significant reductions post-transplantation, while serum levels of IL-10, a crucial immunoregulatory cytokine, significantly increased. This suggests that AHSCT can modulate the inflammatory milieu and improve immunoregulatory mechanisms, contributing to the clinical improvements observed in these patients.

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GENERATION OF DENDRITIC CELLS EXPRESSING CAR FROM INDUCED PLURIPOTENT CELLS: AN ALTERNATIVE ADVANCED CELL THERAPY FOR CANCER?

Paula-Do [a,b], Luana-Correia [a,b], Samuel-Campanelli [c], Ana-Carolina [a], Vanderson-Rocha [a,c], Théo-Gremen [a,c], Rodrigo-Nalio [a,d]

[a] *Faculdade de Medicina, Universidade de São Paulo (USP), São Paulo, SP, Brazil*
[b] *Instituto de Ciências Biomédicas da Universidade de São Paulo (ICB-USP), São Paulo, SP, Brazil*
[c] *Fundação Pró-Sangue Hemocentro de São Paulo, São Paulo, SP, Brazil*
[d] *Instituto D'Or de Ensino e Pesquisa, São Paulo, SP, Brazil*

Objective: Immunotherapy based on T cells expressing Chimeric Antigen Receptor (CAR-T) has been shown to be a very promising strategy to treat hematologic tumors. However, the same results are not reported for solid tumors. Therefore, other immune cells have been explored to receive CARs. Dendritic Cells (DC) are a heterogeneous population specialized in the antigen presentation, with great migratory capacity, being good candidates to receive CAR. Due to their scarcity in peripheral blood and low proliferative potential, an "off-the-shelf" source such as induced pluripotent cells (iPSCs) is needed to enable their use in cell therapy. Thus, our aim is to develop iPSC-DCs expressing CAR as an alternative or supporting therapy for solid tumors. **Methodology:** To insert the CAR plasmid into the iPSC we use the non-viral piggyBac transposon system by electroporation. To differentiation of iPSC into dendritic cells we are using the differentiation media X-vivo 15 media supplemented with glumanine, sodium pyruvate, non-essential aminoacids and 2-mercaptoethanol and different combination of cytokines among the days of differentiation including BMP4, SCF, VEGF, GM-CSF and IL-4. We are charactering the generates cells by flowcytometry and our ongoing assays include to perform functional tests of migration ability, cytokine production and iPSC-DC potential to stimulate T cells in vitro. Next, we will perform iPSC-CAR-DCs injections in NSG tumor bearing mice to evaluate its in vivo antitumoral activity. **Results:** We transfect iPSC with GFP or CAR and obtained a population with 95% of purity expression with stable CAR and GFP expression. **Discussion:** Although 5 days after electroporation we obtained only 2% of CAR efficiency and 6% of GFP expression, two subsequent cell sorting isolation of CAR and GFP positive iPSCs population resulted in 95% of purity expression with stable CAR and GFP expression after more than 35-days. Distinct iPSC-CAR clones have been selected for expansion aiming to validate CAR stability during distinct differentiations'protocols. Culture of iPSCs followed classical stablished step-by-step phases: embryoid bodies obtention at day 1–2; hematopoietic Stem-like cells at day 10–16; and the first immune myeloid-like cells at day 13–18. Subsequently, using a combination of GM-CSF plus IL-4 in the differentiation media after around of 30-days of differentiation, we obtained differentiated cells with a typical myeloid immune cell morphology, including few macrophage-like cells, with big cytoplasmatic vacuoles, and numerous cells with dendrite projections close to DC morphology. Also, by multicolor flow cytometry we noted cells expressing HLA-DR+CD1c-CD141+XCR1+ phenotype suggestive of cDC1-like cells. **Conclusion:** We could differentiate the iPSC indo cDC1-like cells and their functionality it's been tested. We produced iPSC expressing CAR and GFP by electroporation, in the next step we are going to differentiate this cells into DCs to produce cDC1-like cells expressing CAR.

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A IMPORTANCIA DA AVALIAÇÃO NUTRICIONAL PRÉ-HOSPITALAR DO PACIENTE CANDIDATO AO TRANSPLANTE DE CÉLULAS TRONCO-HEMATOPOIÉTICAS

GB Kabke, N Rohsmann

Hospital de Clínicas de Porto Alegre (HCPA), Porto Alegre, RS, Brasil

Introdução: O Transplante de Células Tronco-Hematopoiéticas (TCTH) é uma modalidade terapêutica utilizada para