

donors available, however, the logistic of requesting, receiving, storing and manipulating the cells require an experienced team in the cell processing center and in the management of the patients.

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EXPERIENCE OF A PEDIATRIC SERVICE IN THE STATE OF SÃO PAULO REQUESTING AND RECEIVING UNRELATED HEMATOPOIETIC STEM CELLS

ACL Alves^a, MRA Gomes^a, AS Ramos^a, CM Lustosa^a, G Zamperlini^a, LL Quintino^a, VC Ginani^{a,b}, RV Gouveia^{a,b}, A Seber^{a,b}, OMWO Félix^a

^a Hospital GRAACC Instituto de Oncologia Pediátrica da Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

^b Hospital Samaritano Higienópolis, São Paulo, SP, Brazil

A major challenge for transplant centers is the graft acquisition when a compatible unrelated donor is chosen for the procedure. In addition to the complex logistics that involve several critical steps and the need of an experienced multidisciplinary team, another important challenge is the variability of hematopoietic stem cell collection methods that may or may not compromise neutrophil engraftment. Objective: This study is to describe the experience receiving unrelated Hematopoietic Stem Cell (HSC) products in a single pediatric center. Methods: This is a retrospective study of all unrelated HSC products received from national and international collection centers. Data were collected through specific forms from the Registry of Voluntary Bone Marrow Donors (REDOME) and data from the Cell Processing Center. Results: A total of 179 stem cell products have been received to date (December 2009 to April 2024) coming from national (n=144) and international (n=35) institutions, to treat leukemias (n=129) and benign hematological diseases (n=50). Most national collections were performed within our southeast region (65%) and most international collections came from Europe (n=24), 68%, 18 of them from Germany, 8 of USA, 2 of Asian and 1 of South Africa. Only six grafts could not be infused fresh and were cryopreserved for later use. The bone marrow was the predominant stem cell source (n=163). The unrelated donor activity progressively increased until 2019, the year with 21 transplants, but during the COVID-19 pandemic (2020 and 2021) dramatically decreased to 12 and 3 collections. The number of unrelated transplants is increasing again but with a high rate of refusal or significant delays of marrow collections on top of the national shortage of marrow collection bags and therefore, many Peripheral Blood (PBSC) collections have been accepted, although they are not our first choice. The unrelated donor transplants are 20% of our current transplant activity and 40% of the allogeneic ones. The cell number of 33/163 (20%) marrow collections were lower than the 5×10^8 leukocytes/kg requested, median 3.9×10^8 /kg (1.2–4.8). Of the 14 PBSC products, the lowest cellularity requested was 5×10^6

CD34/kg and only two collections were lower than that, 2.3 (Brazilian) and 3.7×10^6 CD34/kg (international). Today, 64% of the patients remain alive. There were no reports of complications during transportation or failures in the process of identification of the recipient and donor numbers. Conclusion: In the past 15-years, with the 179 grafts received for unrelated donor transplants, we can describe a satisfactory graft most of the time, but worrisome significant delays and a shift from marrow to PBSC collections, that are known to have a higher chance of severe chronic graft versus host disease and negatively impact of the children's quality of life.

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

MRA Gomes^a, AS Ramos^a, ACL Alves^a, G Zamperlini^a, PGG Granja^a, DVB Cruz^a, CMV Alferi^a, V Quintiliano^a, A Seber^{a,b}, OMWO Félix^a

^a Hospital GRAACC Instituto de Oncologia Pediátrica da Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

^b Hospital Samaritano Higienópolis, São Paulo, SP, Brazil

During the process of cryopreservation of hematopoietic stem cells (CTH), the Dimethyl Sulfoxide (DMSO) is responsible for ensuring a better cell viability and a satisfactory engraftment but, at the time of the graft infusion, it can cause serious adverse events, particularly in young children, in patients with renal dysfunction, cardiac insufficiency, hemodynamic instability, or when the dose of DMSO is equal to or greater than 1g/DMSO/Kg of body weight. An effective way to avoid serious reactions is to remove the DMSO using a washing solution composed by 40% dextran and 4% albumin. We have used this protocol, initially developed by the New York Blood Bank to remove DMSO and improve engraftment of unrelated umbilical cord blood units, since 2011. However, in October, 2023 we were informed with a short notice about the discontinuity of the production of Dextran40 (Laboratório de Insumos Farmacêuticos Ltda – LIFE). Objective: To describe the validation of the DMSO removal of hematopoietic stem cells in a Cellular Processing Laboratory using solution hydroxyethyl starch (HAES)-Volumen® 6% and albumin 4%, comparing the results of removal using Dextran 40 solution with 4% albumin. Methods: We used 22 bags from 7 patients: 16 from leukapheresis of deceased patients and 6 collected as Donor Leukocyte Infusions (DLI) but unused due to the development of Graft-Versus-Host Disease (GVHD). All families gave authorization for the cells to be discarded or used in research. Two similar bags were chosen from the same patient, stem cell source, volume and cellularity for parallel thawing in a 37°C water bath and then adding one of the solutions (Dextran vs. Volumen) in each bag at a 1:1 ratio. A sample was removed for nucleated cell count (CNT) and cell viability. The bags were