

Experience of a Pediatric Service in the State of São Paulo Requesting and Receiving Unrelated Hematopoietic Stem Cells

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OBJETIVE

- To describe the experience receiving unrelated hematopoietic stem cell (URD) products in a pediatric center.

METHODS

- This is a retrospective study of all URD 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.

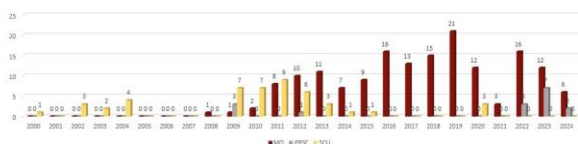
RESULTS

- 226 stem cell products have been received to date (Dec/2009-Apr/2024) coming from national (n=158) and international (n=63) institutions - Figure 1
- Most national collections were performed within our southeast region (70%) and most international collections came from Europe (68%), 18 of them from Germany and most Umbilical Cord Blood (UCB) grafts came from the United States (57%).
- Bone marrow (BM) was the predominant stem cell source (n=163), followed by UCB (n=47) and PBSC (n=16).
- 6 BM/PBSC grafts could not be infused fresh and were cryopreserved for later use.
- URD activity progressively increased until 2019 (21 HCT), but during the COVID-19 pandemic years (2020 and 2021) it dramatically decreased to 12 BM and 3 PBSC collections - Figure 2.
- The number of URD transplants is increasing again since 2022, but with a high rate of patient/center refusals, unavailability or significant delays of BM collections, on top of the national shortage of marrow collection bags and therefore, many PBSC collections have been accepted, although they are not our first choice.

Figure 1 : Graft Sources



Figure 2 : Number of bags per year



- URD transplants are 20% of our current activity, and 40% of the allogeneic ones.
- 33/163 (20%) BM collections had cell numbers $< 5 \times 10^8$ leukocytes/kg requested, median 3.9×10^8 /kg (1.2-4.8).
- Of the 16 PBSC products, only 2 had $< 5 \times 10^6$ CD34/kg requested (2.3 and 3.7×10^6).
- The median number of leukocytes infused from the 47 UCB after thawing and washing was 4.6×10^7 TNC/Kg.
- 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 24 years, with the 226 grafts received for URD transplants, we can describe a satisfactory graft most of the time, but now facing worrisome significant delays and a shift from BM 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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