PB2182 CHARACTERISTICS THAT INFLUENCE THE STEM CELL COLLECTION BY APHERESIS IN PATIENTS WHO ARE CANDIDATES FOR AUTOLOGOUS STEM CELL TRANSPLANTATION

Topic: 22. Stem cell transplantation - Clinical

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Background:

High-dose chemotherapy followed by autologous stem cell transplantation (ASCT) is a consolidation treatment for several hematologic malignancies such as multiple myeloma (MM), Hodgkin lymphoma (LH) and non-Hodgkin lymphomas (diffuse large B-cell lymphoma (DLBCL), mantle cell lymphoma (MCL), NK/T-cell lymphoma (NKTL), etc.).

However, between 5-40% of patients fail to obtain an adequate collection of hematopoietic progenitor cells (HPCs), this is known as mobilization failure. This failure can be due to multiple factors that may be associated with the previous treatment of the disease (number of treatment lines, type of chemotherapy or radiotherapy), the patient (age, bone marrow cellularity) or the collection procedure and other biochemical parameters like pre-count CD34+ cell/ul, pre-harvest hemoglobin and platelet count.

Aims: -To determine the clinical characteristics of patients and the characteristics of apheresis procedures in patients who had fail to obtain an adequate collection of HPCs by apheresis of peripheral blood and who are candidates for ASCT.

Methods:

A retrospective study was carried out, in patients aged between 18 and 65 years old, with hematological onchodiseases who went to the Blood Bank of the National Cancer Institute for the collection of HPCs from peripheral blood by apheresis for ASCT, between January 2017 and December 2020. A review of the electronic medical record of each patient was carried out, as well as the records of the procedure for collecting HPCs.

The nominal variables were compared by chi-square test and the quantitative variables with Student's t-test, a value less than 0.05 was considered statistically significant.

Results:

The study included 127 patients, who underwent HPCs collection for ASCT; 15% (19 patients) had failure to mobilize (63% men; mean age 48 years). The most frequent diagnosis was MM 47.4%, followed by non-Hodgkin lymphoma 42.1% (37.5% DLBCL, 25% MCL, 37.5% NKTL, follicular lymphoma and peripheral T-cell lymphoma) and Hodgkin lymphoma with 10.5%.

The most common used method of mobilization was chemotherapy with filgrastim (57.8%), followed by filgrastim. In the pre-harvest studies, 26% had anemia and 42% thrombocytopenia; pre-count CD34+ less than 20/ul was presented in 94%. More than 50% required two or more days for collection. During the process to obtain HPCs, the median duration of this procedure was 273 minutes (range 193 to 311 minutes), with an average processing speed of 81.1 ml/h. While the mean volume extracted was 16 879 ml (range 4 087 to 20 463ml) with an average number of complete cycles of 14.6.
It was determined that age >50 years, two lines of treatment, mobilization with chemotherapy and filgrastim, pre-count CD34+ less than 20/ul and more days of harvesting were associated with HPCs harvest failure. While other factors such as sex, bone marrow status, radiotherapy site, pre-harvest hemoglobin, platelet count did not have a statistically significant association.

**Summary/Conclusion:** In our study, harvest failure (15%) is within the range reported in the literature and the factors associated with this failure have also been documented in other studies. With these data obtained, it could be established that patients at high risk of failure to harvest, such as those with multiple myeloma, are considered to be harvested receiving a smaller number of lines of treatment and consider stimulation with other stimulants such as plerixafor.