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Impact of Induction Therapy on the Mobilization and Engraftment of Peripheral Blood Hematopoietic Progenitors for Autologous Transplantation in Patients With Multiple Myeloma: Experience of The University Hospital of Salamanca (Spain)

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INTRODUCTION

Autologous hematopoietic stem cell transplantation (AHSCT) could be a part of the standard treatment of patients diagnosed with multiple myeloma (MM). Since the introduction of new drugs, such as daratumumab and lenalidomide, the mobilization of hematopoietic progenitor cells (HCPs) can be challenging. Sometimes the administration of granulocyte colony-stimulating factor (G-CSF) is inadequate to improve the mobilization of hematopoietic progenitors.

AIM

To assess the impact of new induction therapies on the **mobilization and engraftment** of peripheral blood hematopoietic progenitors in **MM receiving AHSCT**.

METHOD

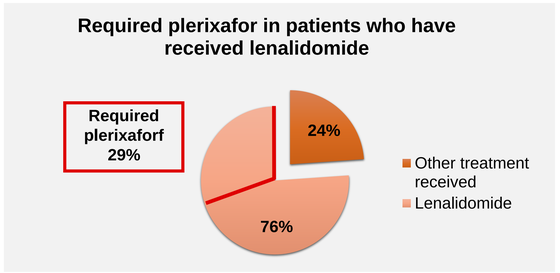
Retrospective analysis of newly diagnosed patients with MM who have received AHSCT at the University Hospital of Salamanca (Spain) from 2017 to 2022 by studying the appropiate variables with Chi-square test and the independent samples t-test, using IBM SPSS Statistics as program of analysis.

RESULTS

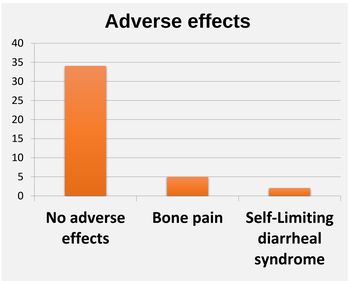
159 patients with MM received AHSCT in our center during the period defined for the analysis (Table 1 and 2). The mobilizing treatment received in the first group of patients was G-CSF 5mcg/kg/12h for 4 days, to which plerixafor was added as a rescue on day +5 if the CD34+/mcl in peripherally blood is <16 or if a total of CD34+ <1x10^6/kg is collected after apheresis. Of the group analyzed, 155 patients (97%) required a single mobilization process.

A total of 41 patients (26%) received plerixafor, of which 40 (98%) had received lenalidomide, 5 (12%) daratumumab, and 4 (9%) lenalidomide and daratumumab.

There were no statistically significally differences in neutrophil count nor the length of hospital stay in relation to induction therapy or the mobilizing treatment.



*Regarding the **treatment received** as part of the myeloma therapeutic line, a total of 121 patients (76%) received lenalidomide, of which 35 (29%) required plerixafor.*



*Regarding the **adverse effects** attributed to the mobilizing medication (self-limiting diarrheal syndrome and bone pain), they were observed in 17% (7 of 41) of the patients who received plerixafor.*

Table 1

Mobilization of hematopoietic progenitor cells

Collection objetive - AHSCT (CD34+ > 2x10^6/kg) - AHSCT (CD34+ > 4x10^6/kg	123 (77%) 36 (23%)
CD34+/mcl in peripheral blood (PB) with G-CSF, median	37,5 (1-174)
Patients requiring C-CSF + plerixafor on day +5, n (%)	41 (26%)
Patients requiring plerixafor: - CD34+/mcl in PB with G-CSF (prior to Plerixafor administration), median (range) - CD34+/mcl in PB after the administration of G-CSF and plerixafor, median (range)	 9,93 (1-21,6) 45,7 (10-286)

Patient characteristics

Age, years, median	63 (33-75)
Sex, male, n (%)	102 (64%)
Diagnosis, n (%) - IgG kappa MM - IgG lambda MM - IgA kappa MM - IgA lambda MM - Bence Jones kappa MM - Bence Jones lambda MM - Kappa light chains MM - Lambda light chains MM - Oligosecretory MM - Others	 64 (40%) 27 (17%) 15 (9%) 15 (9%) 3 (2%) 5 (3%) 15 (9%) 7 (5%) 3 (2%) 5 (3%)
Number of previous treatment lines, n (%) - 1 - 2 - 3	135 (85%) 21 (13% 3 (2%)

Number of treatment cycles, n (%) - 4 - 5 - 6 - >6	21 (13%) 7 (4%) 112 (71%) 19 (12%)
Induction therapy - VRD - VTD - Dara-VTD - Dara-VRD - Others	 104 (65,4%) 21 (13,2%) 2 (1,3%) 7 (4,4%) 25 (15,7%)
Drugs received - Lenalidomide - Talidomide - Daratumumab - Lenalidomide + Daratumumab	 132 (83%) 31 (19%) 13 (8%) 9 (5%)

Table 2

CONCLUSIONS

The use of **plerixafor as rescue treatment on day +5** of mobilization with G-CSF is **safe and effective** and does not imply differences in the duration of post-transplant aplasia or the days of hospitalization

CONTACT INFORMATION

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