

GRANULOCYTE COLONY STIMULATING FACTOR DURING CYTAPHERESIS INCREASES THE HARVESTED STEM CELL NUMBER IN MULTIPLE MYELOMA PATIENTS

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Background: Most of the patients with multiple myeloma are poor mobilizers. Whether applying granulocyte colony stimulating factor (G-CSF) during peripheral blood hematopoietic stem cells (PBHSC) harvesting may result in better yields is still questionable.

Methods: We previously found that the application of additional dose of G-CSF at the beginning of cytapheresis and an hour later gives better yields in a small group of patients. We broadened our analysis by comparing two larger groups (32 harvest days each) of myeloma patients – with or without application of G-CSF during the procedure. In both groups initial mobilization was performed with only G-CSF. We compared the initial number of CD34+ cells per microliter at the beginning and their number per kilogram BW in the apheresis product. We also calculated the ratio of the percentage of these cells in the peripheral blood and in the apheresis product.

Results: In both groups the initial number of CD34+ cells per microliter is comparable (33.804(13.539-83.402) in the group without G-CSF and 36.762(9.432-64.88) in the group with additional G-CSF application). The number of harvested CD34+ cells is higher in the group with application of growth factor during apheresis with average number of 3.347 (0.97 to 11.98) versus 2.698 (0.540 to 5.185). The percentage ratio of CD 34+ cells in peripheral blood and apheresis product was 3.119 (1.127 to 6.600) vs. 4.19 (1.400 to 8.800) in the group receiving G-CSF during apheresis.

Conclusions: Receiving the necessary dose of stem cells for transplantation can be a real challenge, especially in bad mobilizers and very often reaching the necessary dose for a tandem transplantation is difficult. Application of granulocyte colony stimulating factor during cytapheresis is a feasible approach to improve stem cell harvests.