Young Fellow and Best Abstract Presentations

Title: Comparison of clinical outcome following G-CSF alone versus G-CSF and cyclophosphamide as peripheral blood stem cell mobilization in multiple myeloma

Presenter: Dr. Frankie King-Wai TAM, Hong Kong

Background: Autologous haematopoietic stem cell transplantation is standard treatment for multiple myeloma. Successful stem cell mobilization and harvest is the first and important step for transplantation. Use of granulocyte colony stimulating factor (G-CSF) alone and cyclophosphamide with G-CSF are the two most commonly used mobilization strategies. There is no straightforward consensus on the selection and application of mobilization strategies and the optimal strategy is still debatable.

Objective: To compare the mobilization outcome between G-CSF alone versus cyclophosphamide and G-CSF for multiple myeloma patients in local perspective.

Method: This is a retrospective study of two local hospitals in Hong Kong. Patients diagnosed of multiple myeloma with age of 18 years old or above who had their first stem cell mobilization within study period of January 2013 to December 2018 are included. Stem cell mobilization outcome, subsequent transplant engraftment and survival data were reviewed.

Result: Total 74 patients were identified of which 47 used G-CSF alone (with or without additional Plerixafor) and 27 used cyclophosphamide plus G-CSF (CTX+G-CSF) as mobilization strategy. Total stem cell yield was significantly higher in CTX+G-CSF group (median of 14.11 vs. 6.72 x 106 cells/kg, $p < 0.01$). Less number of apheresis session (median of 1 vs. 2 sessions, $p < 0.01$) was required for CTX-G-CSF group but the total duration from mobilization to completion of stem cell collection was longer (median of 11 vs. 6 days, $p < 0.01$). Subgroup analysis of 15 patients from G-CSF alone group who received addition of Plerixafor found the total stem cell yield remained significantly higher in CTX+G-CSF group (medium of 7.55 vs. 14.11 x 106 cells/kg, $p = 0.02$) but the success rate on collecting the optimal target stem cell dose of ≥ 5x 106 CD 34+ cells/kg was not significantly different (86% vs. 91%, $p = 0.63$). 8 out of 27 (30%) patients of the CTX+G-CSF group experienced febrile neutropenia while only 1 patient had fever in the G-CSF group. With regard to the transplant outcome analysis, CTX+G-CSF group showed faster neutrophil engraftment (median of 10 vs. 11 days, $p < 0.01$) but no survival difference.

Conclusion: CTX+G-CSF mobilization achieves better stem cell dose in the expense of risk of febrile neutropenia and longer mobilization process. Addition of Plerixafor to G-CSF improves stem cell collection without added toxicities.