

PERIPHERAL STEM CELL TRANSPLANT : PILOT STUDY

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INTRODUCTION

Autologous stem cell transplantation (ASCT) is a common treatment modality in which the patient's own healthy stem cells are used to replace the diseased stem cells in the bone marrow. ASCT following intensive chemotherapy has been used in patients with hematological malignancies, such as multiple myeloma (MM), lymphoma, or solid tumors.

OBJECTIVE

- 1) Correlation of recovery time of patients with stem cell dose
- 2) To observe the outcome of infusion of cryopreserved versus non-cryopreserved peripheral blood stem cells (PBSC)

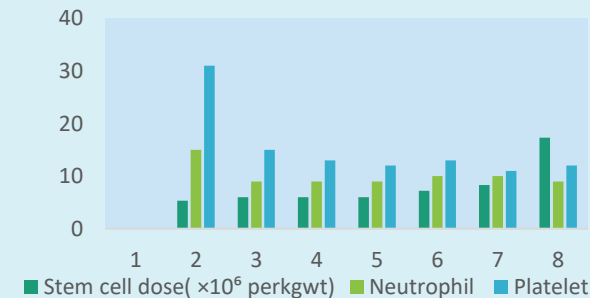
RESULT

- ASCT done in 16 patients inclusive of 11 cases of Multiple myeloma and 5 cases of Hodgkin lymphoma out of which 14 were male and 2 were female admitted at the Dept of Clinical Hematology, KGMU.
- All 16 participants were transfused mean dose of stem cells i.e 7.2×10^6 (2.8 – 17.1×10^6 cells/kg)..
- The average time for the harvesting procedure was 246 min (220–280 min)
- Mean time for neutrophil and platelet engraftment is 10 days and 15 days respectively with no significant difference seen in recovery time with increasing stem cell dose.
- Mean time for Non cryopreserved stem cells engraftment is 9 days .
- Mean time for cryo preserved stem cells engraftment is 12 days
- All the follow-ups thereafter were uneventful

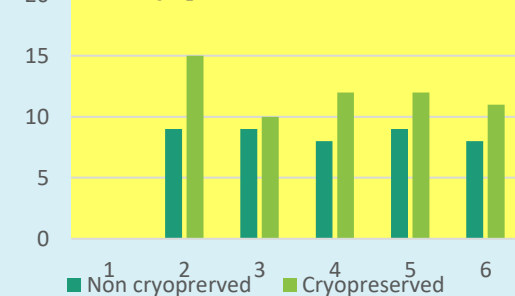
METHODOLOGY

- This is ambispective analysis of 2 years duration for study of ASCT (2023-2024).
- Granulocyte colony stimulating factor (G-CSF) 10 mcg/kg/day in two divided doses was given till apheresis. Plerixafor 0.24 mg/kg stat dose was given 11 hours prior to transplant.
- This was followed by apheresis by COMTEC (Fresenius Kabi) via central venous access in the internal jugular vein.
- Stem cell dose was calculated using CD34+ cells and the total blood volume processed.
- After chemoablation by high dose melphalan, the collected product was transfused.
- The patients' response was gauged by assessing the engraftment by measuring:
 - 1) ANC
 - 2) Platelet Count

Correlation of stem cell dose with neutrophil and platelet engraftment



comparison of noncryopreseed and cryopreserved stem cells



REFERENCES

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CONCLUSION

- 1) Non Cryo preserved stem cells generally engraft adequately and earlier due to higher cell viability.
- 2) CD34+ count used as a good indicator for calculating dose of stem cells and the volume of the product can be adjusted accordingly. Increasing dose of stem cells does not change the recovery time.
- 3) Further studies with greater sample size is required for further understanding the various factors affecting HSCT collection