

## HEMATO-ONCOLOGY

**HEMATOPOIETIC STEM CELL TRANSPLANTATION - WHERE WE ARE AND THE WAY FORWARD**

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**Abstract:** Hematopoietic stem cell transplantation is potentially curative in several stem cell disorders. The process involves HLA typing, donor selection, conditioning, harvesting stem cells, infusion, supportive care, engraftment and immunosuppression to prevent graft versus host disease and graft rejection. A team of experienced pediatric intensivists, dedicated nurses, antibiotic stewardship and infection control measures are essential components for providing optimal care. With advances in molecular diagnosis and whole-exome sequencing, the indications for hematopoietic stem cell transplantation are expanding and several hitherto unrecognized life-threatening conditions have a potential for cure. Pediatricians are the key personnel to maintain the shared care and follow up for late effects, thus ensuring intact and quality survival.

**Keywords:** HSCT, Children, Survival, Cure.

**Points to Remember**

- Hematopoietic stem cell transplantation (HSCT) is potentially curative in several congenital and acquired stem cell disorders including thalassemia major, primary immune deficiency disorders, Fanconi anemia and malignancies.
- HLA typing of Class I (A, B, C) and Class II (DP, DQ, DR) antigens is the key to determining the compatibility of the donor and in planning the type of HSCT namely matched related, matched unrelated, mismatched related or unrelated and haploidentical stem cell transplantation.
- Although 30% of patients can find a compatible match within the family, alternative donor transplantation is an option in the remaining 70%, including unrelated and haploidentical transplants.
- The source of stem cells could be peripheral blood, bone marrow or cord blood and donation of stem cells is safe for the donor.
- Supportive care is the key to ensuring optimal outcomes.
- Teamwork between experienced pediatric intensivists and nursing groups, antibiotic stewardship and infection control measures are the essential components of care.
- Immunosuppression is only for a short duration of one year on average unlike solid organ transplantation where the children are on lifelong medications. However, follow up for late effects of chemotherapy utilizing shared care with pediatricians is essential for optimal outcomes.

**Acknowledgments:** We would like to acknowledge the immense support provided by the stem cell apheresis team, infectious disease specialists, and pediatric critical care group at Apollo Hospitals, Chennai, in the management of these children.

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