

HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR HIGH RISK NEUROBLASTOMA: THE IRANIAN EXPERIENCE

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Introduction

Neuroblastoma is the most common extracranial, solid tumor in children, accounting for 8% to 10% of all childhood cancers. Significantly, autologous transplantation appears to have the largest impact on the survival of the high risk subset of patients.

Patients and methods

This study includes high risk, relapse, or refractory patients with NBL who underwent Stem Cell Transplantation (SCT) from 1998 until 2009. There were 11 patients with NBL consisting of eight males and three females. Among the 11 neuroblastoma patients who received transplantation, ten patients received autologous transplantation and one patient received an allogenic transplantation of a full matched sibling. The main conditioning regimen consisted Carboplatin (400 mg/m² for 3 days), Etoposide (200 mg /m² for 3 days), and Melphalan (75 mg /m² for 2 days). Patients transplanted after 2008 received 13-cis-retinoic-Acid 120-160 mg/m²/2 weeks per month, as maintenance from day sixty after SCT until one year later. In this study, two patients had MIBG positive test before transplantation and received MIBG 12 (mCi/kg) with myeloablative chemotherapy.

Results

The median age of recipients was 5.5 years (range: 2-8 years). The source of stem cells was peripheral blood in nine patients and bone marrow in two patients. The median duration required to achieving an Absolute Neutrophil Count (ANC) > 500×10⁹/μl was 10.5 days (range: 8-31 days). The median duration required to achieving a platelet count of > 20×10⁹/μl was 16 days (range 4-40 days). Six of the 11 recipients had relapses. At present, five patients are still living. One of them had relapse and the four remaining patients are in complete remission. All of them have passed 250 days after SCT. Relapse was the only cause of death.

Conclusion

Regarding these studies, we can conclude that in high risk Neuroblastoma patients, SCT is a feasible and effective method of treatment for patients with high risk neuroblastoma exhibiting resistance to chemotherapy.

Keywords: Stem cell transplantation, Neuroblastoma, Peripheral blood.