SCT-1_V1.10

OUTCOME IN ALLOGENEIC T CELL DEPLETED HAPLO-IDENTICAL TRANSPLANTATION WITH TCR α/β AND CD 19 DEPLETION IN PEDIATRIC PATIENTS: A SINGLE-CENTER EXPERIENCE FROM SOUTH INDIA

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Introduction: One of the methods of T cell depletion has been developed which provides efficient depletion of α/β T cells from the graft while retaining large number of effector cells including γ/δ T cells.
Methods: We reviewed outcomes and immune reconstitution of pediatric patients who underwent a haplo-identical HSCT with TCR α/β and CD 19 depleted graft.
Results: 19 patients with a median age of 62 months underwent 20 Haplo-HSCT with this technique over two years. Indications of transplant were acute leukemia (ALL 7 and AML 1), thalassemia (n=4), one each for osteopetrosis, primary hemophagocytic lymphohistiocytosis, chronic granulomatous disease, amegakaryocytic thrombocytopenia, juvenile myelo-monocytic leukemia, sickle cell disease, and unstable hemoglobin disease. The conditioning regimens were myeloablative using TBI (n=9) or chemotherapy (n=10). The median infused doses of CD34+ cell, α/β^+ T cells, γ/δ^+ T cells and CD19+ cells were 16.6×10^6/kg, 0.055×10^6/kg, 9.89×10^6/kg and 0.22×10^6/kg respectively. All except a salvage transplant achieved neutrophil engraftment, at median of 12 days (range 9 – 20) and platelet engraftment at 11 days (range 7 - 27). Only one patient experienced graft failure and was retransplanted. Four patients (21%) developed acute GVHD grade II-IV (three with gut stage 1 and one with skin stage 3). None of the patients developed chronic GVHD. Viral infection/reactivation was seen with CMV (n=7), EBV (n=2) and adenovirus (n=1). Five patients died due to relapse (n=2), sepsis (n=1), CMV (n=1) and adenoviral infection (n=1). With a median follow-up of 379 days (range 53 - 756), the probability of event-free survival for the whole cohort was 73 % (SE 12.1). Immune reconstitution kinetics showed a robust NK cells recovery in the immediate post-transplant period.
Conclusions: Haplo-identical transplantation using TCR α/β and CD 19 depleted graft may be associated with reduced risk of acute GVHD. Infectious complications especially viral infections are common.

SCT-1_V1.11

REDUCED TOXICITY AND EXCELLENT OUTCOMES USING A TREOSULPHAN BASED CONDITIONING REGIMEN AND UNRELATED HAEMATOPOIETIC STEM CELL TRANSPLANTATION IN CHILDREN WITH THALASSAEMIA MAJOR

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Aim: Thalassaemia major affects 10,000 new babies each year in our country and these children need to be treated with lifelong monthly blood transfusion and chelation. Haematopoietic stem cell transplantation is the only curative option for these patients. Unfortunately, only 35% of our patients have a fully matched family donor. With increasing awareness and access to donor registries with Indian donor databases, we have been able to find optimally matched donors for our patients. We have analysed the outcome in children with thalassaemia major who underwent fully matched unrelated haematopoietic stem cell transplantation with a treosulfan based conditioning regimen at our centre.
Patients and methods: We conducted a retrospective study of children with thalassaemia major who underwent fully matched unrelated bone marrow transplantation in our centre from 2012 to 2016. The match level accepted was 10/10 for an adult donor and 8/8 for cord blood stem cells. Acute events like sepsis graft versus host disease, bleeding and sinusoidal obstruction syndrome and chronic complications like graft versus host disease, graft rejection and mortality were recorded. The children were treated using a uniform protocol of thiotepa, treosulphan, fludarabine and antithymocyte globulin with tacrolimus as the drug of choice for immunosuppression.
Results: A total of 21 children have undergone an unrelated fully matched haematopoietic stem cell transplantation at our centre using cord blood as a source in 3 children and adult peripheral blood stem cells in 18 children. Twelve were boys and 9 were girls ranging from 1 year to 14 years of age. There was one death due to gram negative sepsis in a child undergoing cord blood stem cell transplantation resulting in a mortality rate of 4.7%. Acute skin graft versus host disease (GVHD) occurred in 30% children, acute gut GVHD in 35% and mild chronic skin and mouth GVHD in 45% patients. Posterior reversible encephalopathy syndrome due to a combination of steroids and tacrolimus was seen in 24% children and steroid induced diabetes in 5% children. Reactivation of cytomegalovirus was seen in 38% children and routine CMV PCR monitoring and pre-emptive therapy helped prevent CMV disease in these children. Rare manifestation of GVHD in the form of immune cytopenia was seen in 20% children. There were no graft rejection or sinusoidal obstruction syndrome seen.
Conclusion: Unrelated donor transplantation is now a realistic therapy for children with thalassemia major in India. Treosulfan based conditioning therapy, optimal donor selection and early transplantation before the onset of iron overload has resulted in outcomes on par with sibling donor transplantation with over 90% cure rates. We need to create greater awareness to increase our donor databases and we also need to work with NGOs and government to expand access to care to cover the cost of 25 lakhs needed for each of these procedures.

Solid Tumors

ST-1_V1.1

PEDIATRIC EWING SARCOMA: EXPERIENCE FROM TATA MEDICAL CENTER, KOLKATA

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Aim: Survival in children with localized Ewing sarcoma is ~70% in Western studies. Our aim was to evaluate the clinical profile and outcome in a new tertiary non-profit cancer hospital in Eastern India.
Material & Methods: Children (<18-years) with Ewing's sarcoma were enrolled between January 2011 and May 2016. Information was collected retrospectively from hospital records. Demographic profile, clinical features, pathology, treatment and outcome were analyzed. Kaplan-Meier method was used for survival analysis. Multivariate logistic regression analysis was used to evaluate risk factors for relapse/progression.
Results: Thirty-four children were enrolled. Median age was 10.5-years (Range:1.4–16.9). Male:female was 2:1. Presenting complaints included: swelling (21;61%), pain (19;55%), restriction of movement (7;20%), fever (6;17%), neuropathy (6;17%), and, respiratory distress (1).
Diagnosis was confirmed by histopathology in all. EWSR1 gene rearrangement was performed in 7 patients and was positive in 6. Disease in localized in 21 (70%) and metastatic in 9 (30%); data was missing in 4 patients. Six (20%) had presented with relapse/refractory disease. Origin was skeletal in 26 (76%) and extra-skeletal in 8 (23%). Nineteen (55%) had axial tumor, while 15 (44%) had non-axial disease. Sites of axial disease included the pelvis (7;36%), spine and vertebra (5;26%), chest-wall (5;26%), abdomen (1;0.05%), and, head and neck (1;0.05%). Sites of non-axial disease included the upper extremity (7;46%) and lower extremity (8;53%). The most frequently involved bone was the tibia. Metastatic sites included: isolated lung (4;44%), isolated bone (2;22%), lymph nodes (2;22%), disseminated disease (lung, bone, bone marrow: 1;0.1%).
Twenty-seven (79%) children received treatment, including 4 who received palliative chemotherapy. There was heterogeneity in the