choice for young patients (pts) with severe manifestations of the disease. In this study, we analyze the results in 19 boys transplanted in 2 BMT centers between 04/92–03/05. Age: 7 months to 14 years (M: 2 years). All but one pt had the classical syndrome with many serious infections (especially CMV related) or autoimmunity prior to transplant.Stem cell source: Bone marrow from related: 9 pts or cord blood (CB) from unrelated donors:10 pts. HLA disparities: Bone marrow: 6/6: 7 pts and 5/6: 2 pts; CB: 6/6: 1 pt, 5/6: 6 pts and 4/6: 3 pts. Preparatory regimen: Busulfan(BU) + Cyclophosphamide(CY) ± ATG: 17 pts; BU + Fludara: 1 pt, and BU + CY + Thiotepa: 1 pt. GVHD prophylaxis:cyclosporine (csa) + methotrexate: 8 pts; csa + steroids: 10 pts, and csa + MMF: 1 pt. ATG was added to pts receiving transplants from donors other than HLA identical siblings. TNC infused: bone marrow 2, 3—10 × 10*8/kg (M: 3, 08) and CB: 4, 9*mdash;8,8–10*7/kg (6, 12). Sixteen pts (84%) are alive between 117 to 3997 days (M: 776 days) after SCT. All pts survived more than 28 days and were evaluable for engraftment. Mucositis grade I-II occurred in most pts. VOD (mild): 2 pts. Three pts died on day +34 (Unrelated CB 4/6, pulmonary aspergilosis), day +65, and day +117 (HLA identical siblings*mdash;CMV pneumonitis). Primary graft failure occurred in 2 pts who received Unrelated 4/6 CB and only 1 pt is alive and well on day +370 after the second CB infusion. This pt developed acute (grade III) and chronic (extensive) GVHD and many other severe viral infections. Seventeen pts engrafted and the median time to reach ANC > 500/ul was 22 days (10–30) and platelets > 20.000/ul was 35 days (14–77). Acute GVHD occurred in 7/17 pts (only one pt grade IV) and chronic GVHD in 3/16 pts (extensive and severe). Three pts are still receiving treatment with immunosupressive drugs. Full donor chimerism was achieved in 15/16 surviving pts.Viral infections were frequent complications, especially in the URD cord blood transplants.We conclude that SCT in pts with WAS has an excellent survival and should be indicated to young pts with severe manifestations of the disease.

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EARLY HEPATIC COMPLICATION IN FIRST YEAR AFTER BONE MARROW TRANSPLANTATION IN MAJOR βTHALASSEMIA PATIENTS

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Liver complications are one of the major causes of morbidity and mortality following BMT. Determination of the factors of liver injury leads to earlier diagnosis after BMT and improves prognosis. We studied 113 major βthalassemic patients who have been transplanted from 1990–2000 in bone marrow transplantation center of Shariati Hospital. Sixty-two were male and 51 were female. Twenty-seven patients were class 1, 56 were class 2, and 30 were class 3. The median age of each class were 6.5, 6.3, and 8.7 year. Conditioning regimen consisted of busulfan (3.5–4 mg/Kg) and cyclophophamide (40–50 mg/Kg).For GVHD prophylaxis we gave cyclosporine ± metothoroxate. Grade of liver fibrosis was defined by biopsy in all patients before BMT. All patients and their donors tested for HBSAg, HBSAb, HCVAb, and CMVAb with RIA method. We assessed causes of liver dysfunction before and after transplantation and effect of high ferritin level on liver function. Hepatic dysfunction in first year after transplantation was seen in 86 (76%) patients. Causes of liver dysfunction consisted of 53.1% GVHD, 15.93% cyclosporine hepatotoxicity, 7.07% conditioning regimen hepatotoxicity, and VOD. In all three classes hepatic GVHD, cyclosporine toxicity, death, and normal liver function post BMT had significant relation with hepatic dysfunction before BMT ($P = .001$). In patients with ferritin level more than 1000, there was significant hepatotoxicity with conditioning regimen ($P = .001$). According to our study, hepatic GVHD (%53.1) is the most common cause of hepatic dysfunction in all three classes.

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BOOSTING OF THYMIC T LYMPHOCYTE MATURATION AND EXPORT BY INFUSION OF T CELL DEPLETED DONOR PERIPHERAL BLOOD STEM CELLS TO A SCID PATIENT WITH DECLINING T LYMPHOCYTE COUNTS AFTER HLA MISMATCH ALLOGENEIC BMT

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The patient was born June 1971. The diagnosis of SCID was established at 3 months of age. Retrospective analysis revealed JAK3 mutations compatible with autosomal recessive SCID. In December 1971, he was treated with 3 infusions of BM aspirates, totaling 7×10^7 nucleated cells from his mother's brother, selected because of a negative donor versus recipient MLR. Retrospective HLA-typing revealed DRB1 and DQB1 identity but multiple class I mismatches. No conditioning or GvHD prophylaxis was given. A skin rash was observed 2 weeks after the first infusion. No other signs of GvHD occurred. The lymphocyte count was 5100 per mL one year after transplantation, ca. 50% of the PBMC expressed the not shared donor derived HLA class I antigens and 63% were SRBC rosetting cells. Mitogen responses were normalized but there was persistent absence of donor derived Rh(D) positive red blood cells and of IgG and IgA production, whereas IgM isoagglutinin developed normally. Low blood T lymphocyte count was noted in 1988. In 2000, the blood CD4+ count was decreased to 200 per mL, and the CD8+ count to 300 per mL. The TRECs containing CD4+ cell count was 0.02 per mL and the TRECs containing CD8+ cell count 0.03 per mL (1 to 2% of normal for age). Bone marrow CD34+ cells, peripheral blood neutrophils, and B lymphocytes were of recipient origin, whereas the few circulating T lymphocytes were of donor origin (microsatellite analysis). A peripheral blood stem cell harvest was procured (December 2001) from the original donor and CD34+ purified using the CliniMACS device and the CliniMACS CD34 reagent set. The patient received a total of 2.7×10^6 CD34+ cells and 0.08×10^4 CD3+ cells per kg BW. Cyclosporin was given for 3 month as GvHD prophylaxis. No evidence of GvHD occurred. Subsequent blood tests have shown no major change in the number of circulating CD3+, CD4 + CD45RA, or CD8 + CD45RA lymphocytes over time. However, the number of CD4 and CD8 cells containing TRECs increased within the 600 days after boosting to 1.5 and 2.5 per mL, respectively, (normal for recipient age). A subsequent decline has been observed. We conclude that descendants from the boosting donor CD34+ cells were able to undergo maturation in the thymus but a persistent take of donor derived CD34+ cells was not established.

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BUSULFEX®, CYCLOPHOSPHAMIDE, THYMOGLOBULIN® (BU/CY/Thymo) AS PREPARATIVE REGIMEN FOR ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) IN CHILDREN WITH NON-MALIGNANT DISORDERS (NMD)

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Background: Graft failure and GVHD remain major causes of failure in HSCT for children with non-malignant disorders (MND). Oral busulfan (BU), cyclophosphamide (CY), equine antithymocyte globulin (ATG) is a standard preparative used for children with NMD. We present preliminary data for a preparative regimen of Bulsufex®, cyclophosphamide, and Thymoglobulin® (BU/CY/Thymo). The regimen was developed for ease of administrtion, especially for young children, and theorectic reduction of GVHD secondary to more in vivo T cell depletion associated with Thymoglobulin® compared to equine ATG. **Methods:** The regimen included Busulfex® [0.8 mg/kg (>12 kg) or 1.1 mg/kg (≤12 kg)] q6 hour × 16 (dose adjusted to target AUC = 1125 μM-minute). Cyclophosphamide (50 mg/kg/day × 4), Thymoglobulin® (2.5 mg/kg/day × 4) with CSA and short course MTX (or methylpredisone for