OUTCOME OF ALLOGENEIC (ALLO) STEM CELL TRANSPLANT (SCT) AFTER FAILURE OF A PRIOR SCT: A SINGLE CENTER’S EXPERIENCE
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Introduction: SCT is a curative option for patients with hematological malignancies. Treatment options for patients who relapse after a prior SCT are limited and often not curative. There is little experience of allo-SCT in this setting because of concerns of transplant related mortality.

Methodology: Retrospective review was performed of all patients who received an allo-SCT at Methodist University Hospital between February 2003 and February 2008 after failing a prior SCT. There were 12 (7 males, 5 females) patients. The median age was 45.5 range (25-75) years at the time of allo-SCT. Primary diagnosis included lymphoma -5 (4 non-hodgkin,1 hodgkin), acute leukemia -3 and multiple myeloma (MM) -4. Median number of prior therapies was 4 range (2-7). Prior SCT was autologous (auto) in 10 patients (1 patient-3 autoSCT; 1 patient-2 autoSCT) and alloSCT in 2. Eight patients had active disease and 4 were in complete remission (CR) prior to their allo-SCT. Four patients (all with MM) had developed a secondary MDS/AML prior to their allo-SCT.

Co-morbidities were: age ≥ 8 in 3 and ≤ 2 in 4 patients. Median time from a previous SCT to allo-SCT was 11.6 range (8.6-75.3) months. Donor was a matched sibling for 8 and unrelated donor for 4 patients. Preparative regimen was Fludarabine/F/Melphalan (140mg/m2) ± antithymocyte globulin (ATG) ± Rituxan (R) in 8, F/cytosan ± ATG ± R in 3 and Melphalan (200mg/m2) in one patient. Graft versus host disease prophylaxis was tacrolimus/cyclosporine/mycophenolate mofetil in 10 patients and cyclosporine/mycophenolate mofetil in 2 patients. All 11 evaluable patients engrafted with a median time to neutrophil engraftment of 11 range (10-16) days and a median time to platelet engraftment of 19 range (9-37) days. Nine patients achieved a CR and 2 had persistent disease after the allo-SCT.

Seven patients died at a median of 151 range (7-524) days post allo-SCT: 5 from transplant related mortality (TRM) and 2 from progressive disease. Five patients are alive and disease free at 9,16, 25,42 and 66 months post allo-SCT. Two patients are off all immunosuppressive therapy.

Conclusion: Allo-SCT after failure of a prior SCT is feasible and can result in prolonged survival.

STABLE MIXED DONOR-DONOR CHIMERISM AFTER DOUBLE CORD BLOOD TRANSPLANTATION
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Unbilical cord blood is increasingly used as a source of stem cells in allogeneic stem cell transplantation due to it’s naïve cell content and high permissiveness for HLA-mismatch. To overcome problems of limited cell numbers, double cord blood transplantation (DCBT) has proven both safe and efficacious. Concerning chimerism analysis after DCBT, previous studies have indicated single unit predominance early after DCBT. In the present study we evaluated the chimeric pattern in T-, B- and myeloid cells using PCR based chimerism analysis in patients after DCBT. Of the seven patients included in this study, five had acute leukemia and two patients had lymphoma. Five patients received myeloablative conditioning, and two patients were given reduced intensity conditioning. Interestingly, three patients showed mixed donor chimerism in all cell lineages at 100 days post-transplantation, and two of them still at 25 and 29 months after DCBT, respectively. These two patients are doing clinically well, with no infectious complications or signs of relapse, and neither of them developed acute GVHD after DCBT. All patients received high dose antithymocyte globulin (ATG)/orthotopic DCBT, which could be an explanation for an increased tolerance between the cord blood units. Immunological studies revealed phenotypic differences between the two cord blood units. Among other things, antigen presenting cells and T cells of memory phenotype predominated in one cord blood unit, whereas natural killer cells were found in higher frequencies in the other unit. In conclusion, this study donor-donor mixed chimerism was common after high dose ATG and DCBT, and in these cases phenotypical differences between the two cord blood units regarding memory phenotype were found.

PREVENTION OF ACUTE GVHD DURING HAPLO-BMT: EVALUATING THE EFFICACY OF T-CELL COSTIMULATION BLOCKADE USING A NOVEL RHEUMATOID MACAQUE MODEL
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We have developed a fully pedigreed and MH C-typed Rhesus macaque BMT model, with which to study GvHD and its prevention. For the current study, we have concentrated on MHC haplo-identical BMT, and determined the effect of T cell costimulation blockade on GvHD prophylaxis. Our preparative regimen consists of TBI (8 Gy) with lung shielding to 6 Gy and GvHD is graded using standard clinical grading scales. Here we report on the first experimental cohort. The first animal served as a control for TBI-based preparation, and, as expected exhibited profound pan cytopenia. The second animal was transplanted with haploidentical hematopoietic stem cells (4.47x10^6 total nucleated cells/kg and 1.10 x10^6 CD3+ T cells/kg) and was treated with only rapamycin for immunosuppression. He exhibited profound neutropenia and necrotic skin changes within 8 days of transplant, coincident with early engraftment, and was sacrificed at day 14. A diagnosis of Grade IV skin GvHD was rendered on