Handling facilities and high efficiency of transplant centres in the last 2-3 years, there is still a requisite expertise. Although, there is a sudden rise in sero-therapy exposure good OS (low NRM) was noted in a high-risk group of HCT patients.

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Evaluation of Outcomes of Allogeneic Stem Cell Transplantations Performed for Various Haematological Disorders: A Single Centre Experience from India
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Background: In India, there is an urgent need to enhance the hematopoietic stem cell transplant (HSCT) facilities. It is also important to be certain that these procedures can be carried out within the existing infrastructure of hospitals with requisite expertise. Although, there is a sudden rise in numbers of transplant centres in last 2-3 years, there is still a lack of dedicated HSCT units equipped with special air-handling facilities and high efficiency air (HEPA) filter rooms. It is important to ascertain the safety of performing allogenic HSCT in single rooms without HEPA filters.

Aim: To evaluate short and long term outcomes of allogenic HSCT performed in non-HEPA filtered single rooms.

Patients and Methods: We analysed first 123 consecutive patients, who underwent an allogenic HSCT performed in non-HEPA filtered air-conditioned single rooms with barrier nursing over 7 years from July 2005 to August 2012. The preferred source of stem cells was GCSF mobilised peripheral blood stem cells (PBSC). In small donors, where PBSC was preferred source of stem cells was GCSF mobilised peripheral blood stem cells (PBSC). In small donors, where PBSC was preferred source of stem cells was GCSF mobilised peripheral blood stem cells (PBSC).

Results: We present our experience of performing 123 consecutive HLA matched sibling donor allogenic transplantations. Source of stem cells was peripheral blood in 105 (85.4%), bone marrow in 16 (13.0%) and combined in 1 (0.8%), and one died during the period conditioning regimen was administered before infusion of stem cells. The indications were severe aplastic anemia (SAA) 58 (47.2%), CML 16 (13%), AML 17 (13.8%), ALL 7 (5.7%), biphenotypic AL 3 (2.4%), thalassemia/CDA 17 (13.8%) and myelodysplastic syndrome 4 (3.2%), PRCA 1 (0.8%). The mean age was 23.8 years (range: 2.2 – 52 years, SD: 12.5 years) with 28 (22.8%) females and 95 (77.2%) males. Mean CD34 cell dose was 5.35 x 10^5/kg (range: 0.7 – 10.24, SD: 2.08). Median time to neutrophil engraftment was 10 days (range 8 – 21 days). Two patients with thalassemia major who received bone marrow as stem cell source did not engraft and succumbed to fungal pneumonia. Fever occurred in 104 (85.6%) patients for a median of 6 days (range 2 – 10 days). Systemic antibiotics were used in all those who had fever and antifungals in 48 (39%) cases. The 30 day mortality was 11 (8.9%) and 100 day mortality was 17 (13.8%). There were 26 (21.1%) fatalities in total, due to failure to engraft 2, platelet refractoriness leading to intracranial bleed 2, VOD 2, relapse 3, graft rejection 3, acute GVHD 3, chronic GVHD 2, infections like disseminated TB 3 and aspergillosis 6.

Conclusion: The result of this study highlights the fact that allogenic BMT can be performed successfully with manageable toxicity in majority of cases under resource crunch settings.

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Risk Factors for Recurrent Clostridium Difficile Infection in Allogeneic Hematopoietic Stem Cell Transplant Recipients
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Background: Clostridium difficile infection (CDI) is one of the leading causes of hospital-acquired infections in recent times. Hematopoietic stem cell transplantation (HSCT) confers increased risk for CDI because of prolonged hospital stay, immunosuppression, the need to use broad spectrum antibiotics and a complex interplay of preparative regimen and graft versus host disease (GVHD)-induced gut mucosal damage. Although there have been studies describing the epidemiology and risk factors (RF) for CDI in HSCT recipients, there are little data regarding recurrence rate of CDI and RF associated with recurrence in this particular patient population, especially given the ubiquity of traditional RF for CDI in this population.

Aim: To evaluate the recurrence rate and RF associated with recurrent CDI in allogeneic HSCT recipients.

Design and Methods: We conducted a retrospective, single center study of 499 allogeneic HSCT recipients transplanted between 2005 and 2012; of these, 61 (12%) developed CDI within 6 months prior to transplant or 2 years after transplant and were included in the analysis. Recurrent CDI was defined as recurrence after appropriate treatment of first episode which occurred in 20 (33%) of patients. Variables including age, antibiotic use, proton pump inhibitor use, presence of GVHD and other patient and transplant characteristics were analyzed as potential RFs for recurrence.

Results: The 61 patients had a median age of 49 yrs (range 2-73 yrs) and M:F ratio of 1.1. 74% received myeloablative regimen and 26% received non-myeloablative regimen for HSCT and acute GVHD was seen in 59% of patients. Once-year incidence of CDI recurrence in our study was 31% compared to ~ 20% recurrence in other series. Fine and Gray regression analysis identified the number of antecedent antibiotics other than those used to treat CDI as the only significant RF for recurrence. Hazard ratio (HR) 1.196, 95% Confidence Interval (CI) 1.09-3.52, P = 0.025. Most recurrences occurred...
within 6 months of first CDI (17/20, 85%) and recurrence of CDI was associated with a trend for increased risk of mortality (HR 2.36 [95% CI 0.98-5.71], P = 0.06).

Conclusion: Use of antecedent antibiotics other than those used to treat CDI was associated with an increased risk of recurrent CDI in allogeneic HSCT recipients. CDI recurrence rate is high in the first 6 months following first episode of CDI and is associated with a trend for increased risk of mortality. This prompts the need for further investigation into secondary prophylaxis to prevent recurrent CDI.

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Clinical Profile and Outcome of Patients with Graft Rejection Following Related HLA Matched Allogeneic Stem Cell Transplantation for β Thalassemia Major
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Allogeneic stem cell transplantation (SCT) remains the only curative option for patients with β thalassemia major (TM). Graft rejections post SCT are unfortunately a common problem in this condition. There is limited data on the clinical profile and long term outcome of patients who have had a graft rejection post allogeneic SCT.

From October, 1991 to April, 2013, 400 HLA matched related transplants for TM was done at our center. The median age was 8 years (range: 1-24) and there were 250 (62.5%) males. 154 (38.5%) were Lucarelli Class II and 229 (57.2%) were in the Class III risk group. Majority (72%) received a busulfan based conditioning regimen while 22% received a treosulfan based regimen. Bone marrow was the source of stem cells in 81% and PBSC in the rest.

There were 48 (12%) graft rejections in this cohort. Among these 26 (54%) were primary graft failures (PGF) while 22 (46%) were secondary graft failures (SGF). The median time to a SGF was 122 days (range: 40 - 2210). Of the 26 PGF, 9 (34.6%) had autologous recovery with recurrence of transfection - fusion dependence while 17 (65.4%) had pancycopenia. 11 (42.3%) of PGF died prior to second transplant, 10 (38.5%) had a second transplant and the rest had recurrence of TM but were alive and well. Among the 22 SGF, 10 (45.5%) had autologous recovery. Of the SGF’s, 2 died prior to a second transplant while 9 had a second transplant and the remaining (n=11) had recurrence of TM and were on conservative management.

Among the 29 cases that did not receive a second transplant 14 died at a median time of 20 days (range: 0-3268). The major cause of death in this group was graft failure with infection (n=10) and regimen related toxicity (RTT; n=4). The remaining cases (n=14) are alive and well on conservative management (transfusion dependent, one with pancycopenia).

19 (39%) of the patients with graft rejection underwent a second allogeneic SCT. Conditioning regimen for second SCT was busulfan based in 5 (26.3%), treosulfan based in 5 (26.3%) and the rest received non-myeloablative conditioning regimens (fludarabine based, low dose TBI, OKT3, Cy-OKT3) in view of pancycopenia. The source of stem cells was BM in 7 (36.8%) and PBSC in the rest. All cases conditioned with treosulfan based regimen received a PBSC graft. The OS and EFS of the patients that had a second transplant was 41.4±12.8% and 37.6±12.2% respectively. None of the patients conditioned with a treosulfan based regimen died or had a second graft rejection. Of the remaining 14 patients 11 died of second graft rejection while 3 (all busulfan based conditioning) are alive and well at 3, 23 and 81 months from second transplant.

In conclusion graft rejection following allogeneic SCT for patients with TM are associated with poor clinical outcomes. A treosulfan based reduced toxicity myeloablative regimen with a PBSC graft has potential to significantly improve the outcome in this group of patients.

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Factors Influencing Tolerance to Total Body Irradiation (400 cGy) for Hematopoietic Stem Cell Transplantation
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Objective: To investigate the tolerance to 400 cGy of total body irradiation (TBI) as part of a myeloablative conditioning regimen for hematopoietic stem cell transplantation (HSCT) and to identify factors influencing tolerance to TBI.

Patients and method: We conducted a prospective study grading the tolerance to 400 cGy of TBI combined with Fludarabine and Busulfan as myeloablative-conditioning (FluBuTBI) for HSCT. FluBuTBI consists of Fludarabine 50 mg/m²/day x 5 days, Busulfan (3.2 mg/kg/day x 4 days) and total body irradiation (200 cGy/day x 2 days). We also conducted an exploratory analysis for factors affecting tolerance. Thirty-six (36) patients received FluBuTBI. We graded tolerance to TBI as Very Good (VG) — minor breaks during treatment overall treatment time not doubled, Good (G) — important breaks, treatment time at least doubled and Poor (P) — major breaks with clinical toxicity of E (emesis), D (diarrhea), or S (syncopal episode). We grouped VG and G as one category with 19 patients (VG=12 + G=7), and poor as the other category (n=16). We then analyzed age, sex, BMI, remission status, comorbidity index, Karnofsky score comparing the 2 categories. Diagnoses included AML (n=13), ALL (n=4), NHL (n=13), Hodgkin lymphoma (n=3) and CML (n=1). Twenty (20) patients underwent allogeneic and 16 autologous transplant.

Results: Median age was 45 years in the VG/G category versus 54 years in the P category (p=0.11). 74% of patients in the VG/G category were male versus 35% of patients in the P category (p=0.02). Heavily pre-treated was 37% in VG/G category and 88% in the P category (p=0.0009). The BMI was identical in both the groups at 30. The HCT-CI was also similar in both groups with medians of 1.6 (VG/G group) and 1.9 (P group). The Karnofsky score was 90 in both groups. 74% of patients in the VG/G group and 41% of patients in the P group were in complete remission. 74% patients in the VG/G category underwent allogeneic transplant while only 29% of patients in the P category did so (p=0.002).

Conclusion: Our data shows that sex and prior therapy affect tolerance to TBI. Males tolerated TBI better than females. Patients who were heavily pretreated tolerated TBI less well. Surprisingly, Karnofsky score, HCT-CI, disease and BMI had no effect on the tolerance to TBI. Better prophylactic strategy is warranted in the at risk population. Factors affecting tolerance to TBI deserves further study in a larger cohort.