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**Introduction:** In 2005, India had less than 10 bone marrow transplant (BMT) centres, mostly adult BMT programs performing 300 BMT/year. There was a need to train more doctors in pediatric BMT and set up more BMT centres focussing on pediatric BMT. Here we describe how capacity for pediatric BMT was increased in India.
**Methods:** Initially send doctors to train abroad and then start a local training program with these initial mentors. Keep mentoring fellows passing out and help them go abroad to train further in pediatric BMT. Encourage them to return to home country & set up new BMT programs, become mentors themselves & start training young fellows and keep the cycle going.
**Results:** Over the course of 13 years (2005 to 2018) initial 2 mentors have trained further 68 fellows of whom 12 are still in training. A total of 28 went abroad for further training (Fig 1). Of them 17 have returned to home country and 11 are still in training abroad. Five joined 3-year doctorate of medicine (DM) program in pediatric hemato-oncology to train further. The remaining 25 opted to train no further and join practice. More than half of the fellows; 36 are active BMT consultants and have helped set up 22 pediatric BMT programs across 9 states (Fig 2).Of these 22 centres, 4 have been accredited for fellowship of National Boards (6 students/year). Indian Academy of Pediatrics fellowship has also started in these centres (6 students/year).One centre has started a DM program (2 students/year). This group collaborated to analyse outcome data of pediatric BMT from 8 centres across India and reported overall survival of 70% for 717 children at EBMT 2018 meeting. As per Indian stem cell transplant registry report 2018, overall BMT centres have increased to 77 from just 10 in 2005 and annual BMT have increased in India to 2000/year. Among the allogeneic BMT >50% are pediatric. In last 5 years (2012 to 2017), 3329 pediatric BMT have been performed in India (autologous-434 & allogenic-2895 including 636 haploidentical and 348 matched unrelated donor BMT).
**Conclusion:** In last decade, with mentorship, training & international collaboration, capacity to do pediatric BMT in India has improved substantially.

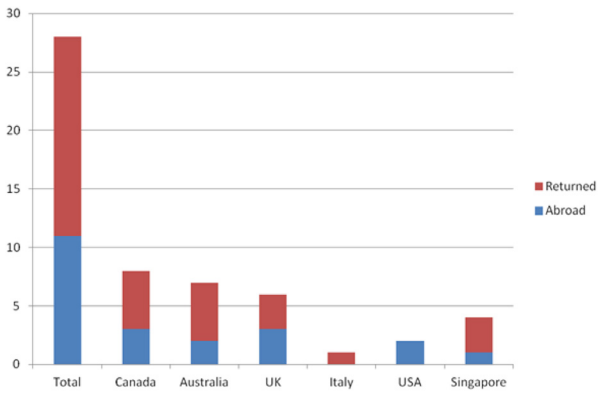


**Figure 1.** International training of fellows.

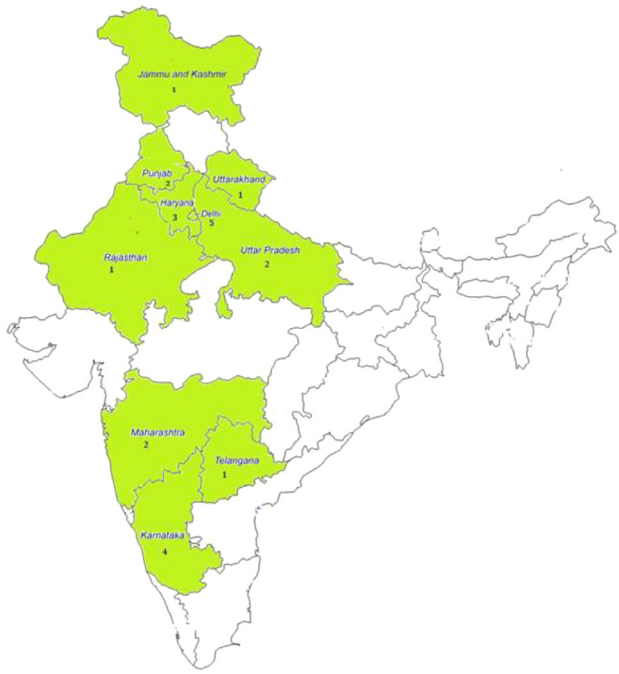


**Figure 2.** Fellows working in Pediatric BMT centres across India.

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### Does Outcomes of HSCT Differ According to Patients' Socioeconomic Status? Real-World Data from an Outpatient-Based Center in Mexico

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**Introduction:** The relationship between socioeconomic status (SES) and HSCT outcomes has not been well described in developing countries. Our center has established an outpatient-based HSCT program to reduce costs and improve its access to patients with different socioeconomic backgrounds. Nevertheless, post-HSCT follow-up implies an economic spending that many patients are unable to afford and may have a clinical impact.
**Objective:** We aimed to study the relationship between SES in transplant patients and clinical outcomes.
**Methods:** From August 2017 to May 2018, adult patients who received an HSCT and continued follow-up in our unit were recruited. They were enrolled into one of two cohorts: Cohort A included patients who received their first HSCT from January 2007 to July 2017, and Cohort B included those who were transplanted from August 2017 to May 2018. A validated questionnaire was applied to determine patients' SES and demographic features. Clinical data were also obtained. Study endpoints included appearance of infections, mucositis, and hospitalizations by day 100. In patients with allo-HSCT, the cumulative incidence (CI) of acute GVHD (aGVHD) by day 100, and one-year CI of chronic GVHD (cGVHD) were assessed. In patients from Cohort B, one-year overall survival (OS) and disease-free survival (DFS) were analyzed by Kaplan-Meier method.

**Results:** We included 83 patients: 50 in cohort A and 33 in cohort B. Thirty-seven patients received auto-HSCT (44.6%), 22 HLA-identical allo-HSCT (26.5%), and 24 HLA-haploidentical allo-HSCT (28.9%). Most common diagnosis were lymphoma, acute leukemia, and myeloma (30.1, 25.3 and 21.7%, respectively). Median follow-up was 9 months (1-107). Patients were divided into 3 groups according to SES. Excluding CMV status, there were no significant differences in pre-transplant features (Fig 1). We compared outcomes according to SES. We found more infectious episodes and hospitalization requirements by day 100 in patients with low-SES (70.8 and 62.5%, respectively), whereas incidence of mucositis was greater in patients with high-SES (58.3%); p>0.05. In patients receiving allo-HSCT, CI of aGVHD was higher in those with high-SES (33.3%), while patients with low-SES had a superior one-year CI of cGVHD; p>0.05 (Fig 2). One-year OS and DFS in patients from Cohort B were 93.5 and 74.1%, respectively. There was a trend to find a decreased one-year OS and DFS in subjects with low-SES compared to those with middle and high-SES (90 and 62.5% vs 94.1 and 77.8% vs 100 and 100%, respectively); p>0.05.

| | Overall | | High SES | | Middle SES | | Low SES | | |
|---|---|---|---|---|---|---|---|---|---|
| | N, mean | %, SD | N, mean | %, SD | N, mean | %, SD | N, mean | %, SD | P value |
| TOTAL | 83 | 100% | 12 | 14.5% | 47 | 56.6% | 24 | 28.9% | |
| Cohort group | | | | | | | | | |
| Cohort A | 50 | 60.2% | 6 | 50.0% | 30 | 63.8% | 14 | 58.3% | 0.665 |
| Cohort B | 33 | 39.8% | 6 | 50.0% | 17 | 36.2% | 10 | 41.7% | |
| Age at HSCT, years | 42.2 | ±16.2 | 49.5 | ±18.9 | 40.4 | ±15.9 | 41.8 | ±15.1 | 0.226 |
| Gender | | | | | | | | | 0.252 |
| Females | 46 | 55.4% | 9 | 75.0% | 26 | 55.3% | 11 | 45.8% | |
| Type of transplant | | | | | | | | | |
| Autologous | 37 | 44.6% | 6 | 50.0% | 22 | 46.8% | 9 | 37.5% | |
| HLA-Identical Allo-HSCT | 22 | 26.5% | 5 | 41.7% | 10 | 21.3% | 7 | 29.2% | 0.398 |
| HLA-Haploidentical Allo-HSCT | 24 | 28.9% | 1 | 8.3% | 15 | 31.9% | 8 | 33.3% | |
| Place of origin | | | | | | | | | |
| Foreign (>20km) | 62 | 74.7% | 10 | 83.3% | 32 | 68.1% | 20 | 83.3% | 0.285 |
| Local (≤20km) | 21 | 25.3% | 2 | 16.7% | 15 | 31.9% | 4 | 16.7% | |
| Type of population | | | | | | | | | |
| Urban | 74 | 89.2% | 12 | 100.0% | 46 | 97.9% | 16 | 66.7% | <0.001 |
| Rural | 9 | 10.8% | 0 | 0.0% | 1 | 2.1% | 8 | 33.3% | |
| Health insurance | | | | | | | | | |
| Government support | 51 | 61.4% | 1 | 8.3% | 27 | 57.4% | 23 | 95.8% | <0.001 |
| IMSS/ISSSTE | 18 | 21.7% | 5 | 41.7% | 12 | 25.5% | 1 | 4.2% | |
| Others | 14 | 16.9% | 6 | 50.0% | 8 | 17.0% | 0 | 0.0% | |
| Funding of HSCT | | | | | | | | | |
| Government | 47 | 56.6% | 1 | 8.3% | 25 | 53.2% | 21 | 87.5% | <0.001 |
| Patient's resources | 19 | 22.9% | 6 | 50.0% | 13 | 27.7% | 0 | 0.0% | |
| Other institutions | 17 | 20.5% | 5 | 41.7% | 9 | 19.1% | 3 | 12.5% | |
| Disease Risk Index | | | | | | | | | |
| Benign | 7 | 8.4% | 0 | 0.0% | 5 | 10.6% | 2 | 8.3% | 0.719 |
| Low – Intermediate | 60 | 72.3% | 10 | 83.3% | 30 | 63.8% | 20 | 83.3% | |
| High – Very high | 16 | 19.3% | 2 | 16.7% | 12 | 25.5% | 2 | 8.3% | |
| CD34+ cell count, million/kg | 7.3 | ±4.9 | 6.9 | ±5 | 7 | ±4.9 | 8.1 | ±5.1 | 0.668 |
| Form of conditioning | | | | | | | | | |
| Outpatient | 76 | 91.6% | 11 | 91.7% | 44 | 93.6% | 21 | 87.5% | 0.68 |
| Inpatient | 7 | 8.4% | 1 | 8.3% | 3 | 6.4% | 3 | 12.5% | |
| Intensity of conditioning regimen | | | | | | | | | 0.359 |
| NMA / RIC | 34 | 41.0% | 5 | 41.7% | 22 | 46.8% | 7 | 29.2% | |
| Myeloablative | 49 | 59.0% | 7 | 58.3% | 25 | 53.2% | 17 | 70.8% | |

**Figure 1.** Socioeconomic and clinical characteristics of 83 patients undergoing HSCT.

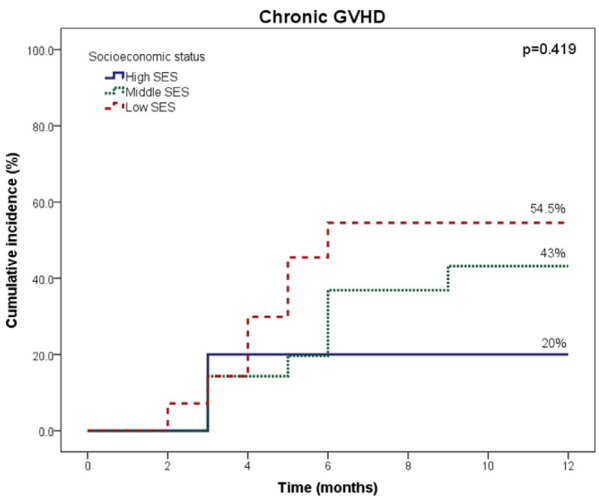


**Figure 2.** Cumulative incidence of chronic GVHD in 46 patients receiving allogeneic HSCT.

**Conclusion:** Outcomes after HSCT can be favorable even in low resource settings. There was a trend to find HSCT-related complications more frequently in patients with low-SES, including infections, cGVHD and reduced DFS. Special attention should be given to patients with limited socioeconomic conditions and adequate compliance must be emphasized to achieve satisfactory outcomes.

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### High Body Mass Index (BMI) Is Associated with Lower Survival and Increased Chronic GVHD after Allogeneic Hematopoietic Stem Cell Transplantation.

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**Introduction:** Contrary to conventional wisdom, the obesity epidemic is not restricted to industrialized societies. over 115 million people suffer from obesity-related problems in developing countries.(1)

The traditional view of adipose tissue as a passive storage depot of excess energy has been challenged. Adipose tissue is a highly active endocrine organ with the capacity to synthesize and secrete a variety of adipokines creating a chronic inflammatory state. (2)

We tested whether pre-transplant BMI can affect transplant outcomes in a homogeneous population of patients underwent HLA-identical sibling transplant with PBSCT graft.

**Objectives:** To investigate the impact of Pre-transplant BMI on HSCT outcome.

**Methods:** Adult patients who underwent Allo HSCT (2000-2014) at Nasser Institute for Research and Treatment, Cairo, Egypt, were included.

Patients received their 1st allo HSCT from 6/6 HLA-matched sibling donors using PBSC graft for treatment of SAA, MDS, AML, ALL or CML.

Patients aged >50 years and those who received syngeneic transplant were excluded. The final data set included 971 patients.

Patients were classified according to pre-transplant BMI into five groups following WHO 2007 BMI classification system: underweight BMI < 18.5, average weight BMI 18.5 to < 25, over weight BMI 25 to < 30, obese class I BMI 30 to < 35, and obese class II and III BMI ≥35 (combined into one group for analysis).

HSCT outcome was assessed with the following parameters: time to engraft, development of acute GVHD, development of chronic extensive GVHD, relapse, non-relapse mortality and overall survival. Each outcome was adjusted for other statistically significant variables.

Cox regression models were used to evaluate the impact of BMI on overall mortality, NRM, relapse, and cGVHD. Logistic regression was used to evaluate the relationship between BMI and AGVHD.

**Results:** Our results showed that obesity class II and III was associated with increased risk of developing chronic extensive GVHD (HR=1.98, 95% CI 1.12-3.53, P value 0.02), lower OS (HR=1.51, 95% CI 1.04-2.20, p=0.03) and higher non-relapse