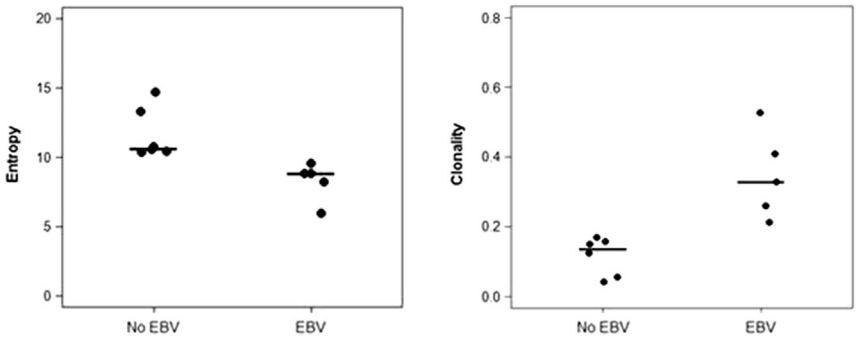
View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Elsevier - Publisher Connector






virus (EBV) is a gammaherpes virus that is reactivated from latent to lytic cycle and can cause aggressive lymphomas known as post transplant lymphoproliferative disorder (PTLD) in immunocompromised hosts. We attempted to distinguish immune reconstitution profiles in double UCBT recipients who developed EBV viremia from those who did not. Thirty-one patients with hematologic malignancies received dUCBT with melphalan, fludarabine, ATG conditioning and tacrolimus plus sirolimus for GvHD prophylaxis. During the first 12 months after dUCBT, 14 of 31 (45%) patients developed EBV viremia and four (13%) developed PTLD. At one month after dUCBT, patients with EBV viremia displayed higher numbers of CD19+ B cells ($p=0.04$) and CD4+CD25+ Treg cells ($p=0.03$) compared with patients who never became viremic. Surprisingly, EBV viremia correlated with increased numbers of CD3+ ($p=0.04$), CD4+ ($p=0.015$) and CD8+ ($p=0.021$) T cells, but this response was ineffective at controlling the virus. One explanation for this unexpected result might be skewing towards a late effector memory T cell phenotype, a stage in which T cells are incapable of mounting protective immune responses. We examined naïve vs. memory T cell distribution and determined that patients who developed EBV reactivation had higher numbers of memory cell subsets (CD4+CD45RO+, $p=0.023$; CD8+CD45RO+, $p=0.019$) at two months after dUCBT. Analysis of repertoire diversity by deep-sequencing on PCR-amplified CDR3 regions of the TCRb gene using the ImmunoSEQ assay showed a more diverse TCR repertoire, as determined by higher entropy ($p=0.03$) and lower clonality ($p=0.03$), among patients who did not develop EBV reactivation. Assessment of SCF and IL-7, critical regulators of hematopoietic stem cell and naïve T cell homeostasis, respectively, showed that patients without EBV viremia had higher levels of SCF ($p=0.0016$) and IL-7 ($p=0.046$) compared with patients who developed viremia and PTLD. Our findings suggest that control of EBV reactivation after dUCBT might be linked to the support of naïve T cell homeostasis, which enables maintenance of a diverse TCR repertoire.

## 202

### Effect of Mobilization Method on Immune Reconstitution Post High Dose Chemotherapy and Autologous Stem Cell Transplantation

*Melhem Solh [1], Tori Smith [1], Alicja Copik [2], Yasser Khaled [1].*
*[1] Florida Hospital Cancer Institute, Orlando, FL; [2] Florida Center for Cellular Therapy, Orlando, FL*

**Introduction:** Plerixafor is a reversible CXCR4 antagonist that has been approved by the food and drug administration for autologous hematopoietic stem cell mobilization in patients with multiple myeloma and non-hodgkin's lymphoma. Patients mobilized with Plerixafor were shown to have a higher proportion of primitive stem cells (CD34+/CD133+/CD38-), CD4+ T cells and Natural killer cells (CD3-/CD16+/CD56+) in the graft composition when compared to patients mobilized with chemotherapy plus G-CSF alone. We investigated the effect of Plerixafor on immune reconstitution at thirty and sixty days post autologous stem cell transplantation.

**Methods:** Patients eligible for autologous stem cell transplantation were enrolled on a single arm prospective immune reconstitution trial. A complete blood count, differential and lymphocyte flow cytometry panel (T cell, NK cell and B cell markers) was checked on Days 30 and 60 post autologous transplantation. Stem cell mobilization was carried per our institutional standards. All patients received subcutaneous G-CSF at a dose of 10 μg per kilogram body weight for four consecutive days. On Day4, patient with a peripheral CD34 count of $\leq 20/\mu l$ received plerixafor 0.24mg/kg. Collection was started on day 5 and continued till collection goal was reached or patient failed to get the minimal cell dose after 4 consecutive days of pheresis.

**Results:** 49 patients were enrolled during the period from September 2010 till May 2012. Median age at time of transplantation was 54 years (range 21;72 years). 35 patients had multiple myeloma and 14 had non-Hodgkin's lymphoma. 16 patients received GCSF alone (group A) and 33 had plerixafor plus GCSF (group B) for mobilization. All patients achieved the minimum target of CD34 collection. The mean number of collection days was 1.9 and 1.4 days ($p=0.05$) with a total collection dose of 7.76 and 7.61 CD34 $x10^6$/Kg for groups A and B respectively. The percentage proportion of CD34 in the aphaeresis product was 0.73% and 0.75% ($p=0.9$) for group A and B. Total infused CD34 dose was similar in both groups (4.88 and 4.56 CD34$x10^6$/kg) with time to engraftment of 11.68 vs 11.69 days for neutrophils and 20.62 vs 21.39 for platelets in groups A and B respectively. There was no difference between day 30 absolute lymphocyte count (1.09 vs 1.44 $x10^3/mm^3$ $p=0.18$); Absolute NK cell (0.31 vs 0.35 $x10^3/\mu l$; $p=0.51$); absolute T cell count (0.71 vs 0.96 $x10^3/\mu l$ $p=0.33$) and absolute neutrophil count (2.98 vs 2.63 $x10^3/mm^3$ $p=0.37$). The cell count recovery was also not significantly different when analyzed per disease (myeloma or non-Hodgkin's lymphoma) and at day 60.

**Conclusion:** Our study shows that patient mobilized with plerixafor and G-CSF have similar immune reconstitution at 30 and 60 days post autologous transplantation compared to patients mobilized with G-CSF alone.

## LATE EFFECTS/QUALITY OF LIFE/PSYCHOSOCIAL ISSUES

## 203

### Retrospective Assessment of the Stanford Integrated Psychosocial Assessment for Transplantation (SIPAT) in Hemotopoietic Stem Cell Transplantation (HCT) Recipients

*Geoffrey Barkley [1], Hannah E. Spencer [2], Diana O. Rexrode [3], Amer Beitinjaneh [2], Leonid Volodin [2], Gina Petroni [4], Tamila L. Kindwall-Keller [2]. [1] Stem Cell Transplant, University of Virginia, Charlottesville, VA; [2] Hematology Oncology, University of Virginia School of Medicine, Charlottesville, VA; [3] Stem Cell Tansplant Program, University of Virginia, Charlottesville, VA; [4] Applied Statistics, University of Virginia, Charlottesville, VA*

**Background:** HCT is a lengthy, complex procedure with the potential for decreased quality of life, transplant related mortality, relapsed disease, and graft-versus-host disease. Psychosocial assessments are a part of the overall HCT evaluation process, but there are very few validated psychosocial instruments for this patient population. Recently, the SIPAT has been shown to predict outcomes in solid organ transplantation. A retrospective pilot study was performed on 25 consecutive HCT patients to investigate whether SIPAT results correlated with HCT outcomes.
**Methods:** The retrospective pilot study was modeled after methodology published in any earlier SIPAT study conducted by JR Maldonado (Psychosomatics, 2012). Two experienced HCT reviewers, a physician and a social worker, and an inexperienced reviewer, a transplant coordinator, conducted the retrospective chart review, completing the SIPAT for 25 consecutive HCT recipients at the University of Virginia between January and October 2012. A clinical research coordinator independently reviewed each patient's medical records and interviewed transplant coordinators to record HCT recipient outcomes.
**Results:** HCT recipients (median age 52, 56% male) received HCT's for myeloma, lymphoma and leukemia. 14 recipients received an allogeneic transplant, while 11 received an autologous one. The inter-rater reliability between the SIPAT reviewers was inconsistent. 2 reviewers correlated well (R=.84), while the other correlations between reviewers were weak (R=.62 and R=.55). It was noted that there was a response shift in SIPAT reviewer 3 to lower scores, indicating potential bias in reviewers 1 and 2 due to prior patient exposure. To test possible associations of psychosocial assessments with recipient outcomes, individual reviewer SIPAT scores were plotted. These indicated higher assessment scores were associated with poorer social support and compliance, and increased drug relapses, and psychiatric symptoms. Other outcome measures such as graft failure, treatment related mortality, re-hospitalization and disease relapse failed to show a relationship with SIPAT scores.
**Conclusion:** SIPAT scores may indicate positive relationships between HCT psychosocial assessments and various psychosocial outcomes. Due to the limited number of transplant recipients in the retrospective review, it was not possible to completely blind the experienced reviewers. Bias may have been introduced resulting in higher scores for these reviewers compared to the third reviewer, who was new to the program. Additionally, the poor inter-rater reliability of the SIPAT (in spite of education and practice) may have arisen from the challenges of scoring patients retrospectively through chart reviews, as the program's psychosocial assessment was not as detailed as the SIPAT. These issues can be addressed in future prospective studies.

## 204

### A Population Care Management Approach within a Vertically Integrated, Community-Based, MULTI-Center Health Care System Promotes Quality Hematopoietic STEM CELL Transplant Survivorship Care

*Jerry C. Cheng [1], Sharon Desposito [2], Mary Hurst [3]. [1] Pediatrics, Southern California Permanente Medical Group, Los Angeles, CA; [2] Kaiser Foundation Hospital, Los Angeles, CA; [3] Kaiser Permanente, Los Angeles, CA*

**Background:** Through the use of an electronic medical record (EMR) based system, care managers, and single provider physician oversight, we previously reported high concordance rates of post hematopoietic stem cell transplant (HSCT) screening based on ASBMT guidelines in a community based, multi-facility care delivery system.
**Objective:** To demonstrate that case management in a vertically integrated, EMR based community practice spanning 9 medical centers in a large metropolitan region can consistently promote high concordance rates with published ASBMT guidelines and lead to timely recognition of common transplant associated complications.
**Methods:** Retrospective chart review of 74 consecutive pediatric HSCT survivors (0-18yrs) from 2005-2013 looking for concordance rates with 2012 ASBMT late effects guidelines. The frequency of thyroid dysfunction, cataracts, pulmonary disease, and ovarian dysfunction were noted as well as the mean time to development. Majority of patients were treated with fractionated TBI and therefore were at high risk of developing late effects.
**Results:** We observed a sustained high level of concordance (>90%) with screening guidelines in the period after a population care management approach was implemented (2009-2013). This led to the timely identification and management of HSCT associated complications.
**Conclusion:** An EMR based, vertically integrated health care system facilitates effective community based post-HSCT survivorship care in the pediatric population.

## 205

### Symptom Burden, Quality of Life, and Employment Status after Stem Cell Transplantation

*Shahrukh Hashmi [1], Eleshia Morrison [2], Shawna L. Ehlers [3], Carrie Bronars [4], Christi Patten [5], William Hogan [1], Dennis Gastineau [1]. [1] Division of Hematology, Mayo Clinic, Rochester, MN; [2] Psychiatry and Psychology, Mayo Clinic, Rochester, MN; [3] Mayo Clinic, Rochester, MN; [4] Psychiatry and Psychology, Mayo Clinic, Rochester, MN; [5] Mayo Clinic, Rochester, MN*

**Background:** Patients of stem cell transplantation (SCT) may experience long-term symptoms that impact quality of life and adjustment. Employment status has been identified as an important marker for post-transplant adjustment.