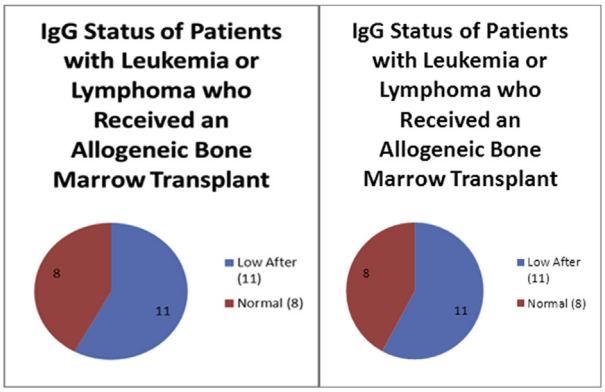

gender, disease type and type of transplant. The IgG levels in the normal range and the IgG levels in the low range were compared and analyzed based on type of transplant, disease, age (at transplant), and gender.

Results: 76 charts were reviewed. 10 charts had no post-transplant levels ever documented. 53 had normal IgG levels, and 13 had low IgG levels post-transplant. Characteristics common to the majority of patients with low IgG included allogeneic transplantation and leukemia or lymphoma as a diagnosis.

Conclusions: IVIG replacement is not indicated based on levels of IgG in patients undergoing autologous stem cell transplantation or who have an underlying diagnosis other than leukemia or lymphoma.

288

Physical and Psychological Symptom Burden and Prognostic Understanding during Hospitalization for Hematopoietic Stem Cell Transplantation

Areej El-Jawahri [1,2], Lara Traeger [3], Kailyn Kuzmuk [4], Justin Eusebio [4], Emily Gallagher [4], Harry VanDusen [4], Joseph Greer [3], William Pirl [5], Karen K. Ballen [4], Thomas R. Spitzer [6], Steven L. McAfee [7], Bimalangshu R. Dey [8], Vicki Jackson [9], Yi-Bin Chen [4], Jennifer Temel [10]. [1] Hematology-Oncology, Massachusetts General Hospital, Boston, MA; [2] Hematology-Oncology, Dana-Farber Cancer Institute, Boston, MA; [3] Psychology, Massachusetts General Hospital, Boston, MA; [4] Massachusetts General Hospital, Boston, MA; [5] Psychiatry, Massachusetts General Hospital, Boston, MA; [6] Bone Marrow Transplantation Unit, Massachusetts General Hospital, Boston, MA; [7] BMT Program, Dept of Medicine, Massachusetts General Hospital, Boston, MA; [8] Bone Marrow Transplant Unit, Massachusetts General Hospital, Boston, MA; [9] Palliative Care, Massachusetts General Hospital, Boston, MA; [10] Oncology, Massachusetts General Hospital, Boston, MA

Introduction: During hematopoietic stem cell transplantation (HSCT), patients receive high dose chemotherapy during a prolonged hospitalization and endure significant side effects in the hopes of curing their disease. While many studies have focused on the long-term outcomes of patients undergoing HSCT, the acute impact of hospitalization for HSCT on patients' quality of life (QOL), symptom burden, and mood is unknown. Furthermore, data on patients' perception of their prognosis and likelihood of cure with HSCT are lacking.

Table 1
Longitudinal QOL and Mood by type of HSCT

Outcomes	Type HSCT	Week-1	Week-2	Week-3	P-Value
QOL, M	Auto	105.8	95.4	93.7	P = 0.0003
	Allo	101.1	97.6	96.3	**P = 0.01**
Fatigue, M	Auto	34.4	27.0	27.3	P < 0.0001
	Allo	39.0	34.9	29.7	**P= 0.01**
HADS depression > 7, N (%)	Auto	7 (23%)	11 (37%)	13 (43%)	P = 0.0003
	Allo	3 (13%)	6 (26%)	6 (26%)	**P = 0.05**

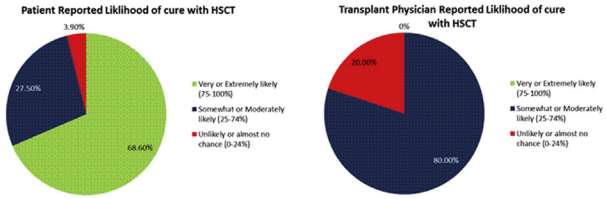

Figure 1. Perception of Likelihood of cure with HSCT (P < 0.0001)

Methods: We conducted a prospective longitudinal study of patients hospitalized at the Massachusetts General Hospital for HSCT. At baseline and weeks 1, 2, and 3 of hospitalization, we assessed QOL (Functional Assessment of Cancer Therapy-Bone Marrow Transplantation [FACT-BMT]; higher scores indicate better QOL), fatigue (FACT-Fatigue; higher scores indicate less fatigue), and mood (Hospital Anxiety and Depression Scale score > 7 on anxiety or depression subscale considered clinically significant). Using a 10-item questionnaire, we measured patients' information preferences, and perception of their prognosis.

Results: We enrolled 53 consecutive patients undergoing autologous (n=30), or myeloablative allogeneic (n=23) HSCT. Patients' QOL declined (FACT BMT mean scores week 1:107.5 àweek 2: 96.3 àweek 3: 94.8, p < 0.0001), and fatigue increased (FACT Fatigue mean scores week1: 36.4 à week 2: 30.5 à week 3: 28.3, p < 0.0001) throughout hospitalization. The proportion of patients with depression symptoms increased from baseline to week 3 (18.9% to 35.8%; p=0.002) whereas the proportion of patients with anxiety symptoms did not change significantly from baseline (22.6%; p=0.7). These patterns remained consistent when data were stratified by the type of HSCT [Table 1]. Although 90.6% (48/53) of patients stated that it is 'extremely' or 'very' important to know about their prognosis, 76.0% (38/50) reported inaccurate and overly optimistic perception of their prognosis compared to their physicians (p < 0.0001) [Figure 1].

Conclusion: Patients with hematologic malignancies undergoing HSCT report an overly optimistic perception of their prognosis and experience significant decline in QOL with increasing symptom burden and rates of depression throughout their hospitalization. Results suggest that interventions to both improve the QOL and psychological outcomes of patients hospitalized for HSCT and enhance their prognostic awareness are clearly warranted.

289

Risk Factors for Infections in Recipients of Hematopoietic Cell Transplantation in Relation to Donor Source

Aron Flagg [1], Rabi Hanna [2], Sherif B. Mossad [3], Lisa Rybicki [4], Betty Ky Hamilton [5], Aaron Gerds [5], Ronald Sobecks [6], Hien Duong [7], Steven Andresen [5], Brian Bolwell [8], Navneet S. Majhail [9], Matt E. Kalaycio [5]. [1] Pediatric Hematology/Oncology, Cleveland Clinic, Cleveland, OH; [2] Cleveland Clinic, Cleveland, OH; [3] Infectious disease, Cleveland Clinic Foundation, Cleveland, OH; [4] Quantitative Health Sciences, Cleveland Clinic Taussig Cancer Institute, Cleveland, OH; [5] Hematologic Oncology and Blood Disorders, Cleveland

Table
Donor source and infection risk (multivariate analysis)

	Hazard ratio for UCB vs. BM/PBSC (95% CI)	*P*-Value
Any infection	3.2 (2.3-4.4)	<0.001
Bacterial	3.9 (2.8-5.5)	<0.001
Viral	1.8 (1.1-2.7)	0.01
Fungal	2.7 (1.1-6.5)	0.03

Clinic Taussig Cancer Institute, Cleveland, OH; [6] Hematologic Oncology and Blood Disorders, Taussig Cancer Institute, Cleveland Clinic, Cleveland, OH; [7] Taussig Cancer Institute, Cleveland Clinic Foundation, Cleveland, OH; [8] Hematologic Oncology & Blood Disorders, Cleveland Clinic Foundation, Cleveland, OH; [9] Blood and Marrow Transplant Program, Cleveland Clinic Foundation, Cleveland, OH

Infection is a major source of morbidity and mortality in patients undergoing allogeneic hematopoietic cell transplantation (HCT). Umbilical cord blood (UCB) recipients appear to be at increased risk, and strategies to better identify and mitigate infection are needed. To investigate patterns and risk factors for infections by graft source (UCB vs. bone marrow (BM) or peripheral blood stem cells [PBSC]), we conducted a single center retrospective study of 308 consecutive adult allogeneic HCT recipients transplanted between 2006 - 2011 (BM 156, PBSC 103, UCB 49 patients). All documented and presumed infections during the first year post-HCT were reviewed by a single reviewer. Among BM/PBSC recipients, 53% received HCT using an unrelated donor. Median age for UCB and BM/PBSC groups was 50 and 51 years. Diagnosis and disease status, HCT-CI scores, performance status, and conditioning regimen intensity were comparable among the two groups. Median time to neutrophil recovery (>500/μL) was 27 days in UCB and 13 days in BM/PBSC recipients. The median length of transplant hospitalization was 46 and 30 days, respectively. Bacterial infections were more common for CB recipients (94% vs. 63%, $P < 0.001$), without significant differences in viral, fungal, or *C. difficile* infections. The day of first infection was notably earlier in the UCB recipients (median 6 vs. 30 days, $P < 0.001$), and >1 infection (bacterial, viral or fungal) occurred in 65% of UCB vs. 34% of BM/PBSC recipients. Incidences of acute and chronic GVHD were similar between groups, however CB recipients were less likely to have GVHD prior to diagnosis of bacterial (11% vs. 35%, $P < 0.001$) or viral infection (36% vs. 59%, $P = 0.03$). On multivariate analysis, UCB donor source remained a significant risk factor prognostic for all infection types (Table). Bacterial infection was associated with increased mortality (HR 2.92, $P < 0.001$), as was fungal infection (HR 2.58, $P < 0.001$), but not viral infection/reactivation. In conclusion, UCB recipients have increased risk of infections compared to BM/PBSC. Infections occurred earlier and before engraftment in UCB recipients, suggesting the role of factors other than prolonged neutropenia in their pathogenesis. The association of donor source and post-HCT infections is likely multifactorial.

290

Management of Hemorrhagic Cystitis after Allogeneic Hematopoietic Stem Cell Transplantation

Gunhan Gurman [1], Erden Atilla [1], Mehmet Ozen [1], Pinar Kubilay [2], Gulden Yilmaz [3], Mehmet Gunduz [1], Onder Arslan [1], Muhit Ozcan [4], Taner Demirer [1], Hamdi Akan [1], Osman Ilhan [4], Meral Beksac [4], Pervin Topcuoglu [1].
[1] Department of Hematology and Stem Cell Transplantation Unit, Ankara University Faculty of Medicine, Ankara, Turkey; [2] Department of Internal Medicine, Ankara University Faculty of Medicine, Ankara, Turkey; [3] Department of Clinical Microbiology and Infectious Disease, Ankara University Faculty of Medicine, Ankara, Turkey; [4] Hematology, Ankara University School of Medicine, Ankara, Turkey

Hemorrhagic cystitis is one of the important causes of morbidity, which may occur after allogeneic hematopoietic stem cell transplantation (allo-HSCT). Using high dose cyclophosphamide (Cy) as the conditioning regimen is associated with early-onset hemorrhagic cystitis (HC). It is reported that the administration of mesna protects against early-onset HC, caused by Cy. However, late-onset HC may be seen frequently due to viral infections, mostly cytomegalovirus (CMV) and BK/JC virus.
We have retrospectively analyzed 182 patients, who developed HC after allo-HSCT, from 1988 to 2013. Characteristics of the patients were shown in Table 1.
We also present 44 HC patients having detailed data between 2010 and 2013. In these 44 patients median date of the development of HC was calculated as 46 days (4-144). We defined early-onset HC is HC when developed before the 21st day of HSCT, which consists of 7 patients and late-onset HC is HC when developed afterwards of the 21st day of HSCT, which consists of 37 patients. Graft versus Host Disease and HC developed simultaneously in 28 patients.
Patients were initially treated with intravascular hydration and constant bladder irrigation. This treatment was effective within most of the patients. The treatment failed in 11 cases and 5 of them underwent a cystoscopy for evacuation of blood clots. Two patients infected with CMV and 9 patients

Table 1
Characteristics of the Patients

Variable		Number of Patients
Gender		
	Female	67
	Male	115
Diagnosis		
	Acute Leukemia	93
	Chronic leukemia	48
	Bone Marrow Failure	31
	Lymphoma	5
	Multiple Myeloma	4
	Severe Combined Immune Deficiency	1
Donor		
	Related	158
	Unrelated	24
HSC Source		
	Bone Marrow	65
	Peripheral Blood	109
	Bone Marrow+ Peripheral Blood	3
	Umbilical Cord Blood	5
Conditioning Regimen		
	With Cy	174
	Without Cy	8
	Ablative	164
	Reduced intensity	18
Response		
	Complete Remission	147
	Partial Remission	4
	Not assessed	31
HC		
	Grade 1	83
	Grade 2	43
	Grade 3	42
	Grade 4	14