radiographic diagnosis of relapse is early enough to confer advantage over relapse diagnosed by clinical means in patients with relapsed lymphoma undergoing subsequent auto-SCT.

Methods: In an attempt to answer the above question, we grouped all the patients with relapsed lymphoma (Hodgkin and non-Hodgkin's lymphoma) who were referred to our center for auto-SCT between January 1, 2007 till December 31, 2012 in Cohort A (Relapse diagnosed by radiological surveillance) and Cohort B (Relapse diagnosed by clinical means based on new symptoms and examination findings). All patients had biopsy proof of relapse prior to salvage chemotherapy.

The primary objectives were post-transplant relapse and disease-free survival. Kaplan-Meier and the Log-rank test were used for analysis.

Results: A total of 133 patients were included in the analysis, with 74 patients in the radiographic screening Cohort A and 59 patients in the symptomatic/clinical relapse Cohort B. Clinically important patient characteristics were similar between the two cohorts. The clinical stage at relapse leading to transplant, salvage chemotherapy regimens and number of cycles used prior to transplant, response to salvage chemotherapy, time to transplant, and 100-day post-transplant outcomes were not statistically different between the two groups. Nine patients died in cohort A, 5 of whom were due to disease relapse. Thirteen patients died in cohort B, 7 due to disease relapse. The 3-year relapse-free survival was 54% in Cohort A and 46% in Cohort B. There was no statistically significant difference in the relapse-free-survival between the two cohorts (p=.26). The median duration of follow-up for Cohort A was 23.7 months (range 0.61-73.11) and for Cohort B was 13.57 months (range 0.36-57.0). When the same analysis was conducted in patients with non-Hodgkin's lymphoma (excluding data for Hodgkin's disease), the results were similar. Median duration of survival was not reached, so no attempt was made to comment on overall survival in this small cohort with few events to analyze.

Conclusions: In this single center study, we showed that routine radiological surveillance after completion of chemotherapy did not improve relapse-free-survival in patients with lymphoma undergoing subsequent auto-SCT. We plan to start a prospective study exploring the role of routine radiological surveillance after auto-SCT in patients with lymphoma to answer another important question.

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A Comparison Between Peripheral Blood Stem Cell Transplantation Versus Bone Marrow Transplantation in Thalassemia Major

Ardeshir Ghavamzadeh [1], Amir Ali Hamidieh [1], Kamran Alimoghaddam [1], Mohammad Jahani [2], Seyyed Asadollah Mousavi [3], Babak Bahar [3], Mohammad Vaezi [4], Leyla Sharifi Aliabadi [1], Arash Jalali [1], Mahdi Jalili [3]. [1] Hematology, Oncology and Stem Cell Transplantation Research center, Tehran University of Medical Sciences, Tehran, Iran; [2] Hematology;oncology stemcell transplantation research center, Tehran, Iran; [3] Hematology-Oncology and Stem Cell Transplantation Research Center, Tehran University of Medical Sciences, Tehran, Iran; [4] Hematology,Oncology and Stem cell Transplantation Research Center, Tehran, Iran

Introduction: HSCT is the treatment of choice for patients with thalassemia. Here, we report our hematopoietic stem cell transplantation experience in the treatment of thalassemia major patients, using PBSCT versus BMT.

Table 1
Overall survival rate (OS) and thalassemia-free survival rate (TFS) of BMT and PBSCT stratified by disease classes:

BMT					PBSCT				
OS	1 y	2 y	5 y	p-value	**OS**	1 y	2 y	5 y	p-value
I	92.3%	92.3%	90.1%	.148	I	81.7%	80.7%	78.0%	.011
II	79.7%	79.7%	77.6%		II	87.9%	85.2%	79.5%	
III	79.7%	78.3%	76.3%		III	75.1%	69.5%	64.0%	
TFS	1 y	2 y	5 y	p-value	**TFS**	1 y	2 y	5 y	p-value
I	80.8%	80.8%	78.8%	.167	I	78.9%	77.9%	75.2%	<.001
II	68.4%	67.0%	65.4%		II	85.5%	81.9%	76.1%	
III	67.7%	64.7%	60.6%		III	66.0%	59.7%	55.2%	

Patients and Methods: From 1992 to 2013, 574 patients underwent HSCT in our centre. 221 patients received HSCT from BMT and 353 patients from PBSCT. The median age in the BMT group was 7years (2-26years) and in the PBSCT group was 8 years (2-29 years) (P-Value=.001). In BMT group 89(40.3%) patients were class III whereas in PBSCT group were 121(34.3%) (P-Value=.196).

Results: Acute graft versus host disease (GvHD) occurred in 141(63.80%) and 253(71.70%) of patients in the BMT and PBSCT, respectively (P-Value=.048). Chronic GvHD was 19.30% in the BMT and 32.70% in the PBSCT (P-Value=.001) in survivors after 100 days. With a median follow-up of 50months, the 5-year thalassemia-free survival rate (TFS) of BMT and PBSCT were 76.3% and 67.5%, respectively (P-Value=.294). The 5-year overall survival rate (OS) in BMT and PBSCT were 80.1% and 73.8%, respectively (P-Value=.119). The rejection was 16.3% and 6.5% in BMT and PBSCT, respectively. The most common causes of death were GvHD and infections in both groups. TFS and OS results stratified by disease class showed better survival rates in lower classes (Table1).

Conclusion: The PBSCT was an easier procedure for donors with lower cost compared with BMT. Acute GvHD was slightly more in PBSCT but chronic GvHD was more frequent. Chronic GvHD was alleviated over time and also it seems that the rejection is lower in PBSCT. These results show that HSCT should be considered for lower class of thalassemia and PBSCT is an acceptable alternative.

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Patterns of Referral for, and Utilization of, Blood and Marrow Transplantation (BMT) By Race

Alyssa Clay [1], Brittany Peoples [2], Levi Ross [3], Kirsten Moysich [2], Yali Zhang [1], Philip L. McCarthy [1], Theresa Hahn [1]. [1] Medicine, Roswell Park Cancer Institute, Buffalo, NY; [2] Cancer Prevention and Control, Roswell Park Cancer Institute, Buffalo, NY; [3] Cancer Health Disparities, Roswell Park Cancer Institute, Buffalo, NY

Racial and ethnic disparities have been reported in the utilization of autologous and allogeneic BMT and in the availability of allogeneic donors for minority populations. In addition, adults in general, and minorities in particular, have low rates of participation in research studies. Several factors may lead to under-utilization of BMT and lack of clinical trial participation, such as differential access to care, co-morbidities, tobacco use, obesity and mistrust of the medical system due to previous unethical practices with minorities in research studies. We investigated the low rates of minorities 1) referred for BMT consultation, 2) undergoing BMT as therapy, and 3) participating in biospecimen and survey research at a single U.S. center by performing a population based analysis using New York State (NYS) Department of

Persons aged 18-75 years			
	European American	African American	Other
US Census data 2007-2010, 8 counties of WNY	90%	9.5%	<1%
NYS DOH Cancer Registry, 2005-2010 cases of acute and chronic leukemia, lymphoma and myeloma in 8 counties of WNY	91%	8%	<1%
Total Referrals to BMT program at RPCI 2005-2011	90.5%	7%	2.5%
Total Referrals to BMT program at RPCI 2005-2011, and resided in 1 of 8 counties in WNY	90%	8%	2%
All patients who received a BMT at RPCI 2005-2011	92%	6%	2%
Received a BMT at RPCI, 2005-2011 and resided in 1 of 8 counties in WNY	91%	7%	2%
Proportion of BMT referrals who participated in biospecimen research, 2005-2011	95%	95%	88%
Proportion of BMT referrals who participated in survey research, 2005-2011	70%	37%	67%

Health (DOH) Cancer Registry and 2007-2010 U.S. Census Data. From 2005-2011, 1106 patients aged 18-75 years were referred to our center for BMT consultation, the majority of whom (74%) reside in the 8 counties of Western NY (WNY). The Table compares the race of BMT patients, referrals, cancer cases and general population estimates. Reasons for not receiving a BMT differed by race with European Americans (EAs) mostly due to patient decision (20%) and African Americans (AAs) mostly due to death before BMT (16%). We further examined patient characteristics which might influence referral for BMT consultation and utilization of BMT by conducting a retrospective cohort study of the 1106 BMT referrals who participated in our Databank and Bio-Repository (DBBR) biologic specimen banking (one-time blood sample collection) and epidemiologic questionnaire (written at 9th grade level, 45 minutes to complete). As shown in the Table, participation in biospecimen research did not vary by race, however AAs were significantly less likely to participate in survey research than EAs and other races. While the minority rates of referrals and BMT may appear low, they reflect the race distribution of the cancer cases and general population in WNY. AAs are equally likely to participate in biospecimen banking, but further study is needed to elucidate reasons for lower participation in survey research.

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Maximum Tolerated Dose of Lomustine in Combination with Etoposide, Cytarabine and Melphalan in a Short Conditioning Regimen in the Transplantation of Hematopoietic Stem Cells in Patients with Lymphoma

AbrahÃo Elias Hallack Neto Sr.[1], *Kelli Borges Santos*[1], *Angelo Atalla*[1], *Milton Ruiz*[2], *Luciano J. Costa*[3]. [1] *Hematology and Bone Marrow Transplantation Dept, UNIVERSIDADE FEDERAL DE JUIZ DE FORA, JUIZ DE FORA, Brazil;* [2] *Hematology and Bone Marrow Transplantation Dept, UNIVERSIDADE FEDERAL DE JUIZ DE FORA, S?o Paolo, Brazil;* [3] *Medical University of South Carolina, Charleston, SC*

The maximum tolerated dose (MTD) of lomustine when used in combination with etoposide, ara-C, and melphalan (LEAM) in a conditioning regimen prior to autologous hematopoietic stem cell transplantation (HSCT) for lymphoma is unknown. We performed a phase 1 clinical trial with traditional 3+3 design to determine the MTD of lomustine administered on D-4 followed by etoposide (1 g/m2 D-3), ara-C (4g/m2 D-2), and melphalan (140 mg/m2 D -1). Dose-limiting toxicity (DLT) was defined as grade 3 or 4 non-hematologic or infectious toxicity, delayed engraftment beyond D+30 or death from any cause. The initial dose of lomustine was 200 mg/m2 (L200 cohort), increased by 200 mg/m2 at each subsequent cohort (L400, etc). Because L400 exceeded MTD, a third cohort was created with 300 mg/m2 of lomustine (L300). Fourteen subjectes entered the trial being 9 with Hodgkin lymphoma, 2 with mantle cell lymphoma, 1 with diffuse large B-cell lymphoma, 1 with follicular lymphoma and 1 with peripheral T-cell lymphoma. Subjects were either in PR (n=6) or CR (n=8) after the most recent salvage theapy. Median age of subjects was 36 years. Six patients were treated with L200 (1 DLT, death by sepsis), two patients were treated with L400 (2 DLT, grade 4 gastrointestinal toxicity) and 6 patients were treated at an intermediate dose of 300 mg/m2 (L300, 1 DLT, neurological grade 4, reversible) and L300 was declared the MTD. A median number of 6.91 CD34 cells/kg (range 1.37-18.8) were infused. The average duration of neutropenia (neutrophils <500/mm3) was 7.8 days, lower than the historical control of 13 days with cyclophosphamide, BCNU, and etoposide (CBV) conditioning. Neutrophils and platelet engraftment occurred on average at day 10 and 12 respectively. We concluded that 300mg/m2 is the MTD of lomustine in combination with etoposide, ara-C and melphalan (LEAM) conditioning in autologous-HSCT in patients with lymphoma. More detailed toxicity profile and anti-lymphoma activity will be obtained from ongoing expansion of the L300 cohort. LEAM is a simple conditioning regimen with rapid dosing, consequent short period of neutropenia and acceptable toxicity.

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Mobilization for Autologous Stem Cell Transplantation in Hodgkin's Lymphoma and Non-Hodgkin's Lymphoma: A Single Institution Experience

Bradley M. Haverkos[1], *Susan Geyer*[2], *Ali McBride*[3], *Sam Penza*[4], *Steven M. Devine*[5], *Leslie A. Andritsos*[4], *Samantha Jaglowski*[1]. [1] *Division of Hematology, Ohio State University Medical Center, Columbus, OH;* [2] *Division of Biostatistics, The Ohio State University, Columbus, OH;* [3] *Barnes Jewish Medical Center, Saint Louis, MO;* [4] *Division of Hematology, The Ohio State University, Columbus, OH;* [5] *James Cancer Center, Ohio State Medical Center, Columbus, OH*

Background: Plerixafor (Mozobil) plus G-CSF is an FDA-approved strategy to mobilize hematopoietic stem cells (HSCs) in patients (pts) with NHL and Multiple Myeloma. We report our institutional experience mobilizing HSCs with and without plerixafor in pts with NHL and HL.

Methods: We collected data on all NHL (n=85) and HL (n=44) pts who underwent mobilization without chemotherapy between 2010 and 2012 at Ohio State University under IRB approved protocols. Our standard is plerixafor on day 4 of G-CSF in pts who received radiation, ≥10 cycles of chemotherapy, are ≥age 60, or on day 5 to pts who had a CD34 count of <10/μL that morning. Our target CD34+ cell yield is >5x10^6 /kg recipient weight, with a minimum of >2x10^6 /kg. Factors associated with sufficient mobilization were evaluated using univariate logistic regression models as well as graphical analyses.