Sonali M. Smith [7], Mehdi Hamadani [4]. [1] University of Minnesota Medical Center, Minneapolis, MN; [2] Division of Biostatistics, Medical College of Wisconsin, Milwaukee, WI; [3] CIBMTR (Center for International Blood and Marrow Transplant Research), Medical College of Wisconsin, Milwaukee, WI; [4] CIBMTR, Medical College of Wisconsin, Milwaukee, WI; [5] Clinical Research Division, Fred Hutchinson Cancer Research Center, Seattle, WA; [6] Institut Català d'Oncologia, Hospital Duran i Reynals, Barcelona, Spain; [7] University of Chicago, Chicago, IL

Introduction: A negative PET scan predicts improved outcomes of autologous HCT in lymphoid malignancies. However, the prognostic utility of pre-transplant PET scan status in predicting outcomes of alloHCT in NHL is unclear. We examined the impact of pre alloHCT PET scan status on the outcomes of NHL patients reported to the CIBMTR.

Methods: Adult patients with follicular lymphoma, diffuse large B-cell lymphoma (DLBCL), mantle cell lymphoma (MCL) and T- or NK-cell NHL undergoing alloHCT between 2007-12 were eligible. Chemorefractory pts (by CT criteria), and cases where interval between PET scan and alloHCT was >3 months were excluded.

Results: Three hundred and thirtysix patients eligible for this analysis were divided into PET+ve and PET-ve groups, based on pre alloHCT PET status, as determined by individual transplant centers. Baseline patients characteristics shown in Table. Patients in the PET+ve cohort were more heavily pretreated, and more frequently had extranodal disease, marrow involvement and bulky disease. The non-relapse mortality (NRM), relapse/progression, progression free survival (PFS) and overall survival (OS) of PET-ve vs. PET+ve groups at 3years were 27% vs.18% (p=0.05), 27% vs. 38% (p=0.02), 47% vs. 44% (p=0.66) and 59% vs. 58% (p=0.81), respectively. On multivariate analysis, PET+ve status was associated with a higher risk of relapse/progression (RR 1.76; 95%CI 1.19-2.6; p=0.004), but was not predictive of inferior OS (RR 1.29; 95%CI 0.92-1.8; p=0.13), PFS (RR 1.28; 95%CI 0.95-1.72; p=0.09) or NRM (RR 0.79 95%CI 0.50-1.24; p=0.31). PET status had no impact on incidence of grade II-IV acute GVHD and chronic GVHD.

Table

	Negative PET N=171	Positive PET N=165
Median age, range	54 (19-71)	55 (18-70)
KPS ≥90%	123 (72)	105 (64)
Diagnosis		
Follicular NHL	41 (24)	63 (38)
DLBCL	40 (23)	45 (27)
MCL	41 (24)	28 (17)
T/NK-cell NHL	49 (29)	29 (18)
Response with CT @HCT		
CR	141 (82)	13 (8)
PR	30 (18)	152 (92)
≥ 3 chemotherapy lines preHCT	88 (57)	106 (70)
Extranodal disease at HCT	20 (12)	58 (35)
Bone marrow involved at HCT	8 (5)	22 (13)
Interval from diagnosis to HCT, months	27 (3-208)	27 (4-352)
Bulky disease	1 (1)	16 (10)
Interval between PET & HCT, months	1 (0.2-2.8)	1 (0.07-2.8)
Prior autoHCT	40 (23)	29 (18)
Donor type		
Sibling	62 (36)	60 (36)
Adult unrelated donor	83 (49)	78 (48)
Umbilical cord blood	26 (15)	27 (16)
Conditioning		
Myeloablative	47 (27)	43 (26)
RIC	69 (40)	67 (41)
NMA	55 (32)	55 (33)
Median FU, months	49	48

Conclusions: A positive pre-alloHCT PET scan in otherwise chemosensitive NHL patients is associated with a modestly increased risk of relapse/progression, but is not predictive of inferior OS and PFS. The results of PET imaging may direct the early post-transplant interventions to prevent relapse, however positive PET should not preclude alloHCT.

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Successful Salvage of High-Risk B-Cell Non-Hodgkin and Hodgkin Lymphoma (NHL/HL) with Double-Unit Cord Blood Transplantation (DCBT) Provides a Platform for Further Optimization

Parastoo Dahi [1], *Craig Sauter [1], Sean Devlin [2], Marissa Lubin [1], Doris M. Ponce [1], Sergio Giralt [1], Guenther Koehne [3], Miguel-Angel Perales [1], Andrew D. Zelenetz [4], Craig H. Moskowitz [4], Juliet Barker [1]. [1] Department of Medicine, Adult Bone Marrow Transplant Service, Memorial Sloan Kettering Cancer Center, New York, NY; [2] Department of Biostatistics and Epidemiology, Memorial Sloan Kettering Cancer Center, New York, NY; [3] Department of Medicine, Adult Bone Marrow Transplant Service, Memorial Sloan-Kettering Cancer Center, New York, NY; [4] Department of Medicine, Lymphoma Service, Memorial Sloan Kettering Cancer Center, New York, NY*

Introduction: While DCBT is an alternative therapy for patients (pts) with high-risk lymphomas its efficacy is not established.

Methods: We analyzed overall survival (OS) and progression-free survival (PFS) after 4-6/6 HLA-matched DCBT in adults with B-cell NHL or HL transplanted 2/2006-5/2013.

Results: Pt characteristics and outcomes by diagnosis are shown (Table). 47 pts (median 46 years, range 20-70) had a median of 4 prior regimens (range 1-13), 47% had a prior autologous transplant. The median HCT-CI score was 2 (range 0-6). 60% were in CR. Conditioning was reduced intensity (RI) in 16 (8 Cy/Flu/Thio/TBI400, 8 Mel/Flu) or non-myeloablative (NMA, Cy/Flu/TBI200) in 31. CB grafts had a median TNC dose x 10^7/kg of 2.7 and 1.9, and a median 5/8 (range 1-7) donor-recipient HLA-allele match. 98% engrafted (95%CI:77-99, median 22 and 10 days after RI and NMA conditioning, respectively). Day 100 grade II-IV acute GVHD (20 grade II, 7 grade III, 1 grade IV) and 1-year chronic GVHD were 61% (95% CI:45-74) and 17% (95%CI:8-29), respectively. Day 180 transplant-related mortality (TRM) was 17% (95%CI:8-29) and 3-year disease progression was 22% (95%CI:11-34, median 3.4 months, range 2.8-58.0). With a median 60-month (range 15-101) follow-up, 3-year OS and PFS are 56% (95%CI:44-73) and 44% (95%CI:31-61), respectively (Figure). 7 pts died of progressive disease whereas 16 had TRM. Best PFS was seen in follicular NHL (3-year PFS 62%) & HL (3-year PFS 47%) whereas pts with diffuse large B-cell lymphoma did poorly. There were no differences in 3-year PFS according to age, HCT-CI, number of prior regimens or prior autologous transplant, and 28 CR pts had a 42% 3-year PFS compared to 46% in 19 non-CR pts, p = 0.57. Four of 11 pts who relapsed survive (range 29-81 months) after chemotherapy (n = 3) or CB-derived mobilized peripheral blood stem cell (PBSC) transplant (n = 1).

Conclusions: PFS after DCBT in pts with follicular NHL or HL is similar to that of adult donor allografts and warrants further investigation. However, DCBT in other histologies is not as favorable. TRM may be influenced by the extent and intensities of prior therapy. Strategies to risk adapt therapy, reduce TRM and prevent disease progression are all required. Finally, chemotherapy to treat post-CBT relapse and CB-derived PBSC transplant are potential therapeutic options in selected patients.

Table
Patients Characteristics and Outcomes by Diagnosis

Disease type (N)	Median (range) age	Median (range) HCT-CI	Remission status	Median (range) prior regimens / N prior auto	Regimen intensity	PFS
Follicular (n = 13)	52 yrs (29-63)	1 (0-4)	5 CR, 5 PR, 3 SD	4 (2-8) / 3/13 (23%)	3 MA 10 NMA	3-yr: 62%
Diffuse large cell (n = 13)	53 yrs (35-64)	2 (0-6)	8 CR, 4 PR, 1 SD	4 (1-7) / 3/13 (23%)	4 MA 9 NMA	3-yr: 23%
Mantle cell (n = 5)	57 yrs (37-71)	2 (1-6)	5 CR	3 (2-4) / 4/5 (80%)	5 NMA	2 disease-free (29-70 months)
Hodgkins (n = 15)	35 yrs (20-50)	3 (0-5)	10 CR, 3 PR, 1 SD, 1 PD	4 (2-13) / 12/15 (80%)	8 MA 7 NMA	3-yr: 47%
T-cell rich B-cell NHL (n = 1)	38 yrs	2	PR	7 / No auto	1 MA	Died at 1.5 months

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Clinical Outcomes of Multiple Myeloma Patients with TP53 Gene Deletion after Autologous Stem Cell Transplantation: The MD Anderson Cancer Center Experience

Sameh Gaballa [1], *Rima Saliba* [1], *Jonathan E. Brammer* [1], *Gary Lu* [2], *Nina Shah* [1], *Qaiser Bashir* [1], *Simrit Parmar* [1], *Fabian Bock* [1], *Chitra Hosing* [1], *Uday R. Popat* [1], *Ruby Delgado* [1], *Gabriela Rondon* [1], *Jatin Shah* [3], *Elisabet Manasanch* [3], *Robert Z. Orlowski* [3], *Richard E. Champlin* [1], *Muzaffar H. Qazilbash* [1]. [1] *Stem Cell Transplantation and Cellular Therapy, The University of Texas MD Anderson Cancer Center, Houston, TX;* [2] *Hematopathology, The University of Texas MD Anderson Cancer Center, Houston, TX;* [3] *Lymphoma and Myeloma, The University of Texas MD Anderson Cancer Center, Houston, TX*

Introduction: Deletion of *TP53* gene mapped to 17p13, which can be identified by conventional cytogenetics or fluorescent in situ hybridization (FISH), is associated with poor outcome in multiple myeloma (MM), even after the introduction of novel agents and the use of high-dose chemotherapy and autologous (auto) or allogeneic (allo) hematopoietic stem cell transplantation (HCT). Here we report the outcomes of patients (pts) with *TP53* deletion (del) on FISH studies who underwent an auto- or allo-HCT at our institution.

Methods: We identified 39 pts with MM who had *TP53* del on FISH studies prior to HCT at our institution between 2008 and 2014, and compared their outcomes to a matched control group (CG) (n=117) without *TP53* del who were treated during the same time period. Matching was based on age and response to the last therapy prior to HCT.

Results: Patient characteristics are summarized in the attached Table. The ISS stage at diagnosis was available for 27 pts in the *TP53* group (*TP53* Grp), 52% of whom had stage III disease. Most pts in the *TP53* Grp had received a proteasome inhibitor (PI) (95%) or an immune modulatory agent (IMiD) (72%) prior to HCT. The response to last therapy was either stable or progressive disease in 36% of patients in both groups. The median follow-up intervals were 16 and 26 months (m) for the *TP53* Grp and CG, respectively. The median overall survival (OS) in the *TP53* Grp was 21 m vs 57 m in the CG; 2-year OS in the *TP53* Grp was 46% vs 86% in the CG (both, $P<0.001$). Median progression-free survival (PFS) in the *TP53* Grp was 8.5 m vs 28 m in the CG; 2-year PFS in the *TP53* Grp was 18% vs 56% in the CG (both, $P<0.001$) (Figure 1). Three of the five pts in the *TP53* Grp who received an allo-HCT relapsed post-HCT, and none died of non-relapse causes. In the *TP53* Grp, univariate analysis identified a trend toward a higher risk of disease progression in pts who underwent HCT with relapsed disease (HR=2.4, 95% CI 0.99-5.8, $P=0.053$). Otherwise, age, response prior to HCT, time from diagnosis to HCT, ISS stage, allo vs auto HCT, conditioning regimen, cytogenetics, and prior exposure to PI or IMiD were all non-significant factors. On multivariate analysis for the entire cohort, *p53*del (HR=3.2, 95% CI 1.9-5.3, $P<0.001$) and relapsed disease at HCT (HR 2.2, 95% CI 1.3-3.6, $P=0.002$) were independent factors associated with a higher risk of early progression.

Conclusions: In the era of PI, IMiD, and HCT, *TP53* del remains a poor prognostic factor in MM. Relapsed disease at the time of HCT was associated with a higher risk of progression. Novel approaches and perhaps early allogeneic HCT require evaluation in this high-risk population.

Table

	TP53 Grp	CG
Median age, years (range)	58 (34-69)	58 (31-79)
Sex (M/F)	24/15	62/55
Disease status at time of HCT, %		
Relapse	64	42
Other	36	58
HCT type, %		
Auto	87	97
Allo	13	3
Diagnosis to HCT >12 months, %	46	42
Maintenance therapy, %	59	62

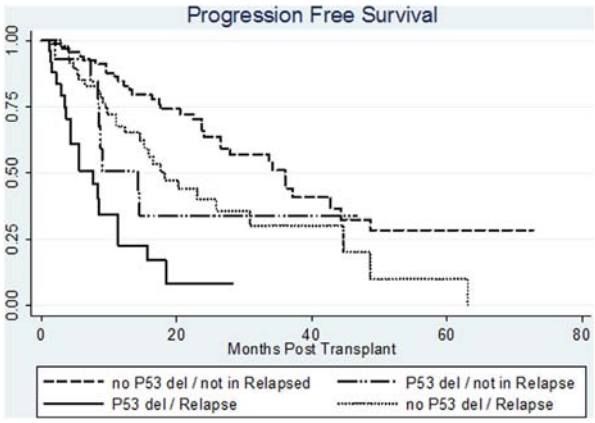

Figure. Progression free survival.

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Haploidentical Stem Cell Transplantation (HAPLO-HSCT) with Busulfan (BUX) Based Reduced Intensity Conditioning (RIC) Regimens and Post-Transplant Cyclophosphamide (PT-CY) as GVHD Prophylaxis in Patients with Relapsed or Refractory Hodgkin Lymphoma (HL)

Jorge Gayoso [1], *Pascual Balsalobre* [1], *Maria Jesús Pascual* [2], *Cristina Castilla-Llorente* [3], *Dolores Caballero* [4], *Mi Kwon* [1], *David Serrano* [1], *José Luis Piñana* [5], *Pilar Herrera* [6], *Christelle Ferrá* [7], *Cristina Pascual* [1], *Inmaculada Heras* [3], *Pau Montesinos* [8], *Eduardo Olavarría* [9], *Leyre Bento* [10], *Ismael Buño* [1], *José Luis Diez-Martin* [1]. [1] *HGU Gregorio Marañón, Madrid, Spain;* [2] *Hospital Carlos Haya, Malaga, Spain;* [3] *Hospital Morales Messeguer, Murcia, Spain;* [4] *Hospital Clínico, Salamanca, Spain;* [5] *Hospital Clínico, Valencia, Spain;*