EBMT risk score and Karnofsky index predict OS and relapse mortality

	Projected 5-year OS	P	Cumulative 2-year NRM	P	Cumulative 5-year relapse mortality	P
HCT-CI low	43% (29-58)	NS	25% (14-37)	NS	29% (17-42)	NS
HCT-CI intermediate	38% (35-50)		18% (10-29)		37% (25-49)	
HCT-CI high	40% (21-59)		26% (12-43)		34% (16-53)	
PAM category 1+2	42% (27-59)	NS	16% (7-28)	NS	35% (20-50)	NS
PAM category 3+4	39% (29-49)		25% (17-33)		33% (24-42)	
ERS < 3	59% (42-73)	0.0002	20% (10-33)	NS	20% (10-33)	0.0172
ERS = 3	43%(26-61)		22% (10-29)		34% (19-50)	
ERS > 3	20% (9-32)		33% (23-50)		44% (30-57)	
KI 100%	51% (39-64)	0.0162	20% (15-34)	NS	23% (14-34)	0.0163
KI <= 90%	29% (18-41)		24% (11-30)		44% (31-55)	

PAM and ERS were grouped according to similar 5-year OS.

AUTOLOGOUS

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COMPARISON OF GRAFT DURABILITY AMONG LYMPHOMA PATIENTS WHO RECEIVED PLERIXAFOR IN COMBINATION WITH G-CSF FOR PRIMARY VERSUS FAILED MOBILIZATION

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Introduction: The addition of plerixafor to G-CSF (P + G) successfully mobilizes sufficient hemtopoietic stem cells (HSC) for autologous stem cell transplantion (ASCT) in patients with non-Hodgkin's lymphoma (NHL). In this analysis, we compare 12-month graft durability among NHL patients receiving P + G as a front-line or rescue mobilization regimen.

Methodology: Patients enrolled in the Phase III study who failed to mobilize $\geq 2 \times 10^6$ CD34+ cells/kg could enter into the rescue arm of the study and receive P + G. Following a rest period of ≥7 days, patients were re-mobilized with G-CSF (10 mcg/kg/day) for four days, and on the evening of day four, plerixafor (240 mcg/kg SQ) was administered. On day five, all patients received a morning dose of G-CSF before apheresis. The apheresis was a 3 volume ± 10% apheresis. Patients continued to receive P + G followed by daily apheresis for up to four days or until $\geq 5 \times 10^6$ CD34+ cells/kg were collected. Graft durability was measured at 3, 6 and 12 months; grafts were considered durable if at least 2 of the 3 following criteria were met: platelet count >50,000/μl without transfusion for at least 2 weeks prior to follow-up, hemoglobin level ≥ 10 g/dL with no erythropoietin support or transfusions for at least 1 month before follow-up, absolute neutrophil count >1,000/μl with no G-CSF for at least 1 week before follow-up visit. Patients who had disease progression or died with a stable graft were censored.

Results: As reported before, 130/150 (87%) patients receiving P + G as a front-line regimen and 37/62 (60%) receiving P + G as a rescue regimen collected $\geq 2 \times 10^6$ CD34+ cells/kg. 135 patients in the front-line group and 52 patients in the rescue group underwent ASCT. Data to evaluate graft durability at 12-months were available for 112/135 (83%) patients in the front-line group and 44/52 (85%) patients in the rescue group. At 12-months, the proportion of patients that maintained a durable graft in the front-line group was 98.2%. One patient had graft failure due to pre-existing myelodysplastic syndrome and one patient had AML. Comparatively, based on laboratory and clinical criteria, 100% of rescue patients maintained a durable graft at 12-months.

Conclusion: These data demonstrate that the quality of the HSC collected with P + G in the rescue arm resulted in graft durability rates that were comparable to cells transplanted when P + G was used as a front-line mobilization regimen among patients with NHL.

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TREATMENT-RELATED MORTALITY IN PATIENTS WITH AL AMYLOIDOSIS UNDERGOING HIGH-DOSE MELPHALAN AND STEM CELL TRANSPLANTATION: TREND OVER THE PAST 14 YEARS AT A SINGLE INSTITUTION

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AL amyloidosis is caused by a clonal plasma cell dyscrasia leading to multisystem organ failure and death. Aggressive treatment of AL amyloidosis with high dose intravenous melphalan followed by autologous stem cell transplantation (HDM/SCT) is effective in inducing hematologic remissions and in extending survival. However, HDM/SCT is a challenging treatment for patients with AL amyloidosis, given their multisystem disease. Morbidity and mortality are associated with all phases of HDM/SCT: during stem cell mobilization and collection, during post-treatment myelosuppression, and following hematopoietic engraftment. Between 7/94 and 7/08, 496 HDM/SCT were performed for patients with AL amyloidosis, (median age = 56, range 28–80), at Boston University Medical Center. Treatment-related mortality is defined as deaths during stem cell mobilization and collection (SCMC) phase as well as within 100 days after SCT. Overall treatment-related mortality was 12% (58/496). Of the 58 deaths, 11 (2%) occurred during the stem cell mobilization and collection phase of treatment, while 47 (9%) occurred within 100 days after SCT. Deaths during SCMC were associated with arrhythmia (n = 1), irreversible congestive heart failure (n = 2), refractory hypotension (n = 3), myocardial infarction due to small vessel amyloid disease (n = 1), GI bleeding (n = 3) and pulmonary embolism (n = 1). There were 5 deaths during the stem cell infusion procedure. There were additional 42 deaths from D + 1 to D + 100 after SCT. Deaths during this period were associated with sepsis (33%), cardiac arrhythmia (26%) and bleeding complications (10%). Overall treatment-related mortality was 14% (52/371) during the period from 7/94 to 7/04, the first decade of HDM/SCT for patients with AL amyloidosis. However, overall treatment-related mortality has improved to 5% (6/125) during the period from 8/04 to 7/08. Improvement in treatment-related mortality rate over the past 14 years may be due to improved patient selection, to improvement in supportive care and to the cumulative experience of the treating multidisciplinary team members. In summary, HDM/SCT in AL amyloidosis presents unique challenges. Both clinicians and patients must be prepared for both the usual and unusual toxicities that may occur. Treatment-related mortality can be expected to be greater at centers with limited experience with HDM/SCT for AL amyloidosis, compared with centers that focus on this complex disease.

GRAFT PROCESSING

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EX VIVO EXPANSION OF HUMAN CORD BLOOD PROGENITOR CELLS WITH THE NOTCH LIGAND DELTA1 RESULTS IN RAPID MYELOID RECONSTITUTION IN VIVO FOLLOWING MYELOABLATIVE CORD BLOOD TRANSPLANTATION

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We herein report results of the first 8 patients with leukemia enrolled in a phase I study evaluating the safety and potential efficacy of cord blood (CB) progenitors cultured in the presence of the Notch ligand, Delta1. Following a myeloablative preparative regimen, patients received a CBU followed by a second unit that was expanded ex vivo. Median age and weight of the patients enrolled is 26 years (range 3 to 43) and 53 kg (16 to 76). After culture, the average CD34 fold increase was 135 (41 to 382) with an average total nucleated cell (TNC) fold increase of 570 (146 to 1496).