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POSTER ABSTRACTS

903.HEALTH SERVICES AND QUALITY IMPROVEMENT -MYELOID MALIGNANCIES

Day 100 Risk Assessment Tool Predicts 1 Year Survival in Allogeneic Hematopoietic Cell Transplant Patients

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Introduction

Allogeneic hematopoietic cell transplant (HCT) is a potentially curative therapy for many advanced malignancies; however, it is associated with a significant risk of non-relapse mortality. Several validated measures have been developed to estimate 1-year overall survival (OS) and non-relapse mortality (NRM), but these rely solely on pre-transplant factors to estimate risk. We previously described a "Day 100 risk assessment tool" (PMID 34628474) that aimed to identify the most effective way to deliver high quality care. The score is based on factors primarily occurring within the first 100 days of HCT, demonstrating that, independent of traditional pre-transplant variables, factors identified at day 100 significantly impacted longer term outcomes. This previous analysis included 163 patients who were transplanted from 2015-2018. We now aim to validate our scoring system in a larger, more contemporary cohort.

Methods

The Day 100 risk tool includes 11 binary variables: HCT-comorbidity index $\geq$ 3, distance from transplant center > 1 hour, day 100 ECOG performance status (PS > 2), acute GVHD requiring systemic corticosteroids, infection requiring intravenous antibiotics, concerns regarding caregiver support, coping skills, substance use, poor health literacy, medication compliance, and "other" concerns from the care team. Patients were given a point for each factor (0 or 1) and total points were summed as the risk score for analysis. Patients who survived at least 100 days were included in analysis. One year survival estimates were analyzed using the Kaplan-Meier method (overall survival [OS]) and cumulative incidence methods (non-relapse mortality [NRM]). Prognostic factors were identified with Cox regression (OS) or Fine and Gray regression (NRM). All patients who died after 1-year were censored at 12 months.

Results

From 1/2018-7/2022, 407 patients underwent first allogeneic HCT and survived at least 100 days without progression of disease. Median age of patients was 61 years old (range 20 - 76) and the majority of patients were: Male (54.3%, N=221), White (88.7%, N=361), diagnosed with acute myelogenous leukemia (AML) (45%, N=183), received peripheral blood stem cells (72%, n=294) had a matched unrelated donor (62.7%, n=255), underwent reduced intensity conditioning (64%, n=259), and received post-transplant cyclophosphamide graft-versus-host disease prophylaxis (52.6%, n=214). Stratified according to best fit for survival, 46.7% (n=190) were classified as "low risk" (0-1), 42.5% (n=173) "intermediate risk" (2-3), and 10.8% (n=44) as "high risk" ($\geq$4) based on Day 100 score.

One-year OS was significantly worse for the high risk $\geq$4) compared to low risk (0-1) and intermediate risk (2-3) (Figure 1). Multivariable analysis demonstrated that the high-risk Day 100 score was significantly associated with 1-year OS and NRM (Table 1).

Conclusion

In a larger contemporary cohort, we validate our Day 100 risk assessment tool as prognostic for 1-year outcomes. Future dynamic scoring systems incorporating post-transplant events may help to identify high risk patients and potential interventions to improve longer-term outcomes.

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Table 1: Multivariable analysis for Overall Survival and Non-Relapse Mortality

	Overall Survival		Non-Relapse Mortality	
	Adj-HR (95% CI)	P-value	Adj-HR (95% CI)	P-value
Risk Score				
0-1	1		1	
2-3	1.38 (0.80,2.38)	0.25	1.82 (0.77, 4.32)	0.17
≥4	**2.70 (1.38,5.29)**	**0.004**	**6.35 (2.85, 14.14)**	**<.0001**
≥4 vs 2-3	**1.96 (1.01,3.78)**	**0.045**	**3.49 (1.65, 7.41)**	**0.001**
Age				
20 - 59				
60 - 74	1.58 (0.81,3.09)	0.18	2.15(0.979, 4.77)	0.0598
≥ 75	1.10 (0.24,5.10	0.91	2.31 (0.29, 18.38)	0.4295
Conditioning Regimen				
Myeloablative				
Reduced intensity	1.09 (0.53,2.26)	0.81		
DRI				
Low				
High	**2.01 (1.16,3.49)**	**0.013**		
Pre-HCT ECOG				
0				
1	1.25 (0.73,2.14)	0.42	0.36 (0.18, 0.74)	0.2077
Income				
≥ $52,000				
≤ $52,000	0.54 (0.26,1.15)	0.11		
Graft Source				
Bone marrow				
Umbilical cord blood			0.58 (0.06, 5.99)	0.6446
Peripheral blood stem cells			1.691 (0.61, 4.68)	0.3117
GVHD Prophylaxis				
Other				
Post-transplant Cyclophosphamide			**0.363 (0.18, 0.74)**	**0.0051**
Infection w/in 100 days				
No				
Yes			1.542 (0.79, 3.02)	0.0628

Figure 1: Overall Survival

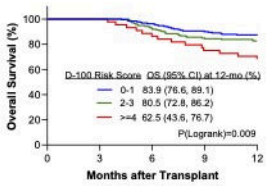

Figure 1

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