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POSTER ABSTRACTS

732.ALLOGENEIC TRANSPLANTATION: DISEASE RESPONSE AND COMPARATIVE TREATMENT STUDIES

Influence of Pre-Transplant Estimated Glomerular Filtration Rate (eGFR) on Outcomes after Allogeneic Hematopoietic Cell Transplantation

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Assessment of pre-transplant renal function as measured by estimated Glomerular Filtration Rate (eGFR) is a standard criterion for selection of patients for allogeneic hematopoietic cell transplantation (alloHCT). Despite refinements in alloHCT and reductions in toxicity over time, we hypothesized that baseline renal function is still independently associated with differences in outcomes in the contemporary era. The aim of this study was to identify an optimal eGFR cut point for identifying those at increased risk of HCT-related mortality.

Patients who underwent first alloHCT from January 2012 to December 2021 were identified from our institutional database, excluding syngeneic and umbilical cord grafts. eGFR was calculated using the CKD-EPI Creatinine Equation (Inker et a. *NEJM* 2021). Optimal pre-HCT eGFR cut point for high-risk of non-relapse mortality (NRM) after alloHCT was identified using Cox restricted cubic spline plot. eGRF was grouped into multiple categories based upon the observed association in the spline plot alone with an established cut point of 90 ml/min/1.73 m² for abnormal kidney function. Associations of eGFR, demographics, prognostic factors, and HCT characteristics with NRM and overall survival (OS) were evaluated using survival analysis; non-HCT related death was considered as a competing risk in the NRM analysis.

724 adult patients were studied with a median age of 58 yrs (range, 18-79), 57% males, 92% Caucasian, and 76% KPS >90. HCT-CI: 52% high, 31% intermediate, and 17% low risk. Transplants included 43% myeloablative and 57% reduced-intensity conditioning; 64% peripheral blood and 36% bone marrow grafts. Donor type: 28% related, 55% unrelated and 17% haploidentical. The median (IQR) of pre-transplant eGFR was 96.7 ml/min/1.73 m² (79.6, 107.5). eGFR was categorized as <70 (15.8%), 70-89 (22.4%), 90-119 (52.4%), and >120 ml/min/1.73 m² (9.4%). NRM was significantly higher for the eGFR <70 ml/min/1.73 m² group compared to the others (3-year NRM: 44.9% in eGFR <70 vs 25.0% in 70-89, 23.6% in 90-119, and 13.8% in >120 ml/min/1.73 m²) which was confirmed on multivariate analysis (Figure and Table). Overall survival (OS) was also significantly worse for those with an eGFR <70 ml/min/1.73 m² on multivariate analysis (3-year OS: 34.1% in eGFR <70 vs 51.7% in 70-89, 52.4% in 90-119, and 64.8% in >120 ml/min/1.73 m²) (Table) along with baseline KPS and high ASBMT Request for Information (RFI). The most common causes of death for both the eGFR<70 and >70 ml/min/1.73 m² groups were relapse (44% vs 60%, respectively) and infection (25% vs. 19%, respectively). Both NRM and OS differences among the 3 higher eGFR groups were not statistically significant in multivariate analyses. eGFR was not associated with relapse.

We conclude that pre-transplant eGFR <70 ml/min/1.73m^2 is an independent prognostic factor for mortality after alloHCT. Future investigation with larger subgroup analyses regarding specific diagnoses, conditioning regimens and transplant modalities may further identify which patients are more appropriate for transplant and those who may benefit from alternative treatment approaches. Our results also suggest that additional efforts to preserve renal function prior to transplant by limiting nephrotoxic exposures may have implications for optimizing outcomes after transplant, particularly in those with other comorbidities.

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Figure. Cumulative Incidence of NRM for Pre-transplant eGFR categories

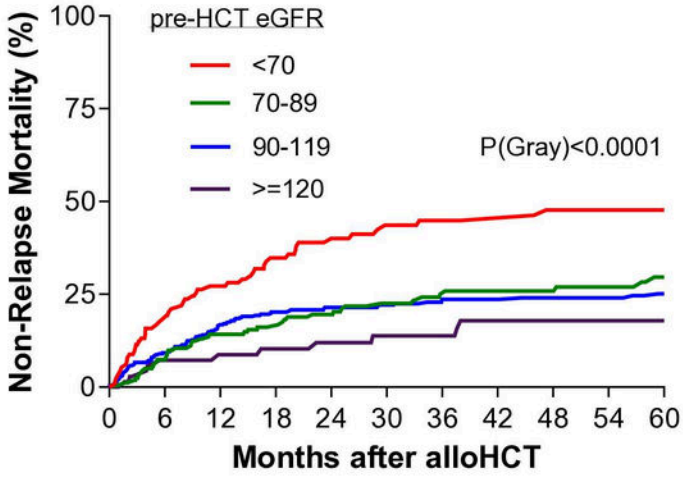

Table. Multivariate Results for Pre-transplant eGFR: NRM and Overall Survival

eGFR (ml/min/1.73 m²)	N (%)	Non-Relapse Mortality*			Overall Survival**		
		3-year NRM (%)	HR (95% CI)	P value	3-year OS (%)	HR (95% CI)**	P value
<70	114 (15.8)	44.9	2.85 (1.37, 5.94)	0.005	34.1	2.07 (1.25,3.43)	0.005
70-89	162 (22.4)	25.0	1.57 (0.76, 3.22)	0.22	51.7	1.38 (0.85,2.24)	0.20
90-119	379 (52.4)	23.6	1.47 (0.73, 2.96)	0.28	52.4	1.39 (0.89,2.17)	0.14
≥120	68 (9.4)	13.8	1		64.8	1	

* Adjusted for age, KPS, intensity of conditioning, graft type, donor source, Busulfan/Fludarabine conditioning and PTCy use. eGFR <70 vs 70-89, p=0.004 and eGFR<70 vs. 90-119, p=0.0004.

**Adjusted for age, KPS, ASBMT RFI, intensity of conditioning, graft type, Busulfan/Fludarabine conditioning and PTCy use. eGFR <70 vs 70-89, p=0.02 and eGFR<70 vs 90-119, p=0.01.

Figure 1

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