OPTIMIZING DONOR AGE FOR ALLOGENEIC TRANSPLANT IN ALL IN THE ERA OF PTCY GVHD PROPHYLAXIS

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INTRODUCTION

AlloHSCT provides curative potential for patients with ALL. PTCy GVHD prophylaxis has changed this paradigm. Impact of donor age is unknown in the PTCy era.

Aim - To clarify the impact of donor age and type on outcomes of ALL patients in the contemporary era of PTCy based GVHD prophylaxis

METHOD

Registry based retrospective analysis of 1,381 de-identified ALL patients in CR receiving alloHSCT between 2017-2021 with PTCy GVHD prophylaxis were included.

CONCLUSION

Our results show that, compared to Haploidentical donor age 45+, MUD donor and haplo donor age 18-29 groups demonstrated superior NRM, while haplo donor age 30-44 trended towards superior NRM. Haplo donor age 18-29 was associated with significantly superior OS compared to haplo donor age 45+. Disease free survival and relapse were similar in outcomes across all donor groups.

FUTURE DIRECTION

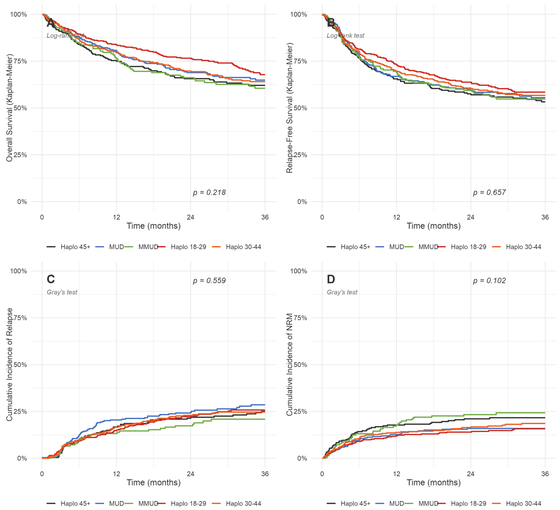
Our findings call for further granular identification of the optimal donor age in larger cohorts to ensure timely implementation into practice.

RESULTS

Baseline Characteristics Table

Variable	MUD	Haplo	MMUD	P value
N (%)	287 (20.8%)	940 (68.1%)	154 (11.1%)	
Age, years, median (IQR)	47 (33-60.5)	42 (28-57)	47.5 (34-59)	<0.001
Age - 60+	78 (27.2%)	179 (19.0%)	34 (22.1%)	0.012
Donor age, median (IQR)	27 (23-34)	35 (26-45)	28 (24-33.8)	<0.001
KPS (<90)	126 (43.9%)	347 (36.9%)	69 (44.8%)	0.034
HCT-CI				0.298
0-2	157 (54.7%)	532 (56.6%)	73 (47.4%)	
3-4	88 (30.7%)	305 (32.4%)	71 (46.1%)	
5+	42 (14.6%)	103 (11.0%)	10 (6.5%)	
Year of HCT				0.026
2017-2019	122 (42.5%)	484 (51.5%)	79 (51.3%)	
2020-2021	165 (57.5%)	456 (48.5%)	75 (48.7%)	
Disease status at HCT				0.056
CR1	220 (76.7%)	670 (71.3%)	121 (78.6%)	
CR2+	67 (23.3%)	270 (28.7%)	33 (21.4%)	
Graft source (Peripheral blood)	262 (91.3%)	776 (82.6%)	119 (77.3%)	<0.001
Conditioning intensity (MAC)	169 (58.9%)	559 (59.5%)	80 (51.9%)	0.212
D/R Sex				0.049
F-M	55 (19.2%)	183 (19.5%)	34 (22.1%)	
F-F	47 (16.4%)	176 (18.7%)	40 (26.0%)	
M-F	66 (23.0%)	224 (23.8%)	40 (26.0%)	
M-M	119 (41.5%)	357 (38.0%)	40 (26.0%)	
D/R CMV serostatus				0.056
CMV negative recepient	88 (30.7%)	237 (25.2%)	50 (32.5%)	
CMV positive recepient	199 (69.3%)	703 (74.8%)	104 (67.5%)	

Kaplan-Meier and Cumulative Incidence Estimate Plots



Forest Plots of Multivariate Cox Analyses

Reference: Haplo 45+

OS

Comparator	HR (95% CI)	P-value
Haplo 45+ (ref)	1.00 (reference)	
MUD	0.82 (0.60–1.10)	p=0.187
MMUD	1.04 (0.74–1.46)	p=0.820
Haplo 18-29	0.73 (0.54–0.97)	p=0.033
Haplo 30-44	0.81 (0.61–1.08)	p=0.157

RFS

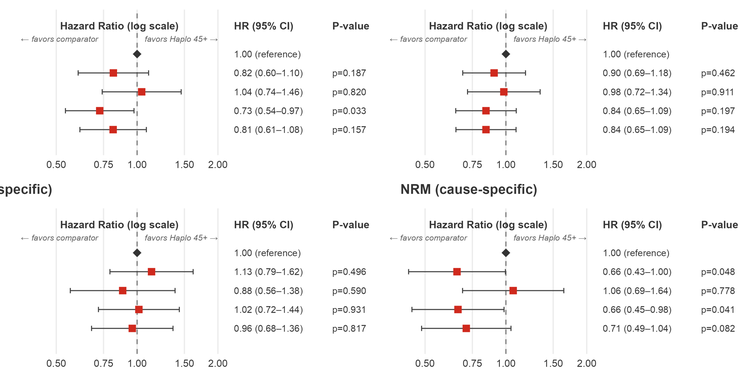
Comparator	HR (95% CI)	P-value
Haplo 45+ (ref)	1.00 (reference)	
MUD	0.90 (0.69–1.18)	p=0.462
MMUD	0.98 (0.72–1.34)	p=0.911
Haplo 18-29	0.84 (0.65–1.09)	p=0.197
Haplo 30-44	0.84 (0.65–1.09)	p=0.194

Relapse (cause-specific)

Comparator	HR (95% CI)	P-value
Haplo 45+ (ref)	1.00 (reference)	
MUD	1.13 (0.79–1.62)	p=0.496
MMUD	0.88 (0.56–1.38)	p=0.590
Haplo 18-29	1.02 (0.72–1.44)	p=0.931
Haplo 30-44	0.96 (0.68–1.36)	p=0.817

NRM (cause-specific)

Comparator	HR (95% CI)	P-value
Haplo 45+ (ref)	1.00 (reference)	
MUD	0.66 (0.43–1.00)	p=0.048
MMUD	1.06 (0.69–1.64)	p=0.778
Haplo 18-29	0.66 (0.45–0.98)	p=0.041
Haplo 30-44	0.71 (0.49–1.04)	p=0.082



Multivariable Cox models adjusted for: Recipient Age, KPS, HCT-CI, Year of HCT, Disease Status, Graft Source, Conditioning Intensity, Donor-Recipient Sex, D-R CMV Serostatus.

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