PATIENT HLA GENOTYPE AND REGISTRY DIVERSITY STRONGLY INFLUENCE DONOR SEARCH DURATION AND SUCCESS

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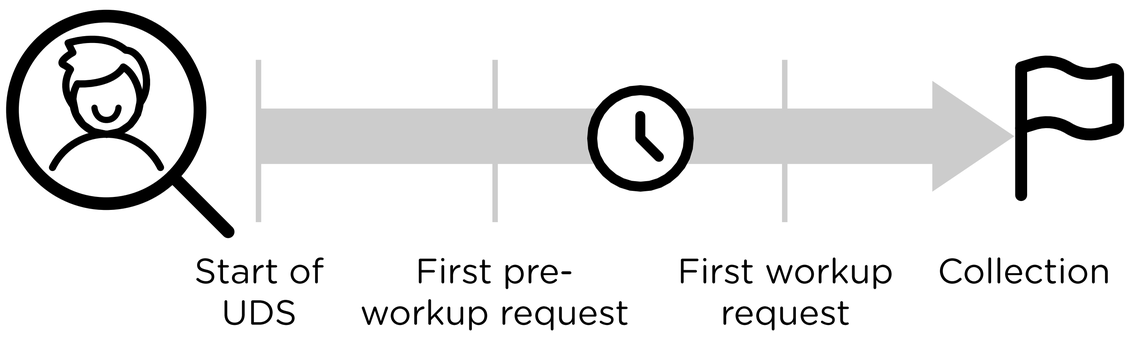
Introduction

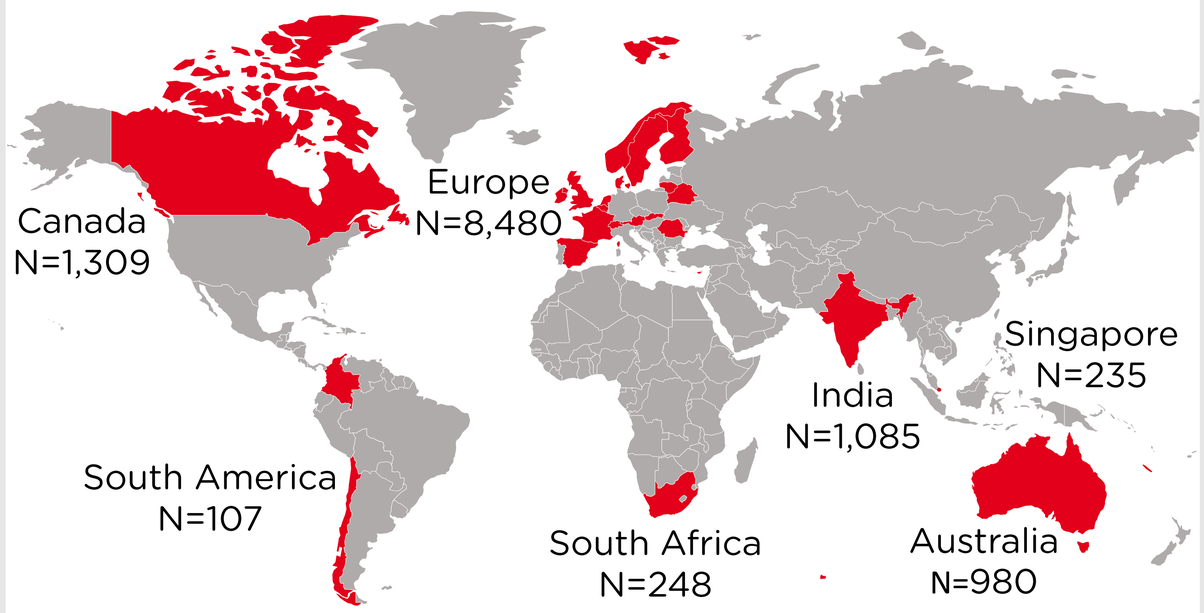
Success and duration of unrelated stem cell donor searches (UDS) have been investigated from the perspective of a donor registry.



Methods

UDS was considered as a time-dependent process with identification of a DKMS donor as event of interest. We analysed impact factors on completed UDS by means of multivariate logistic and Cox models, respectively. Univariate analyses and graphical representation of UDS were based on Kaplan-Meier curves.

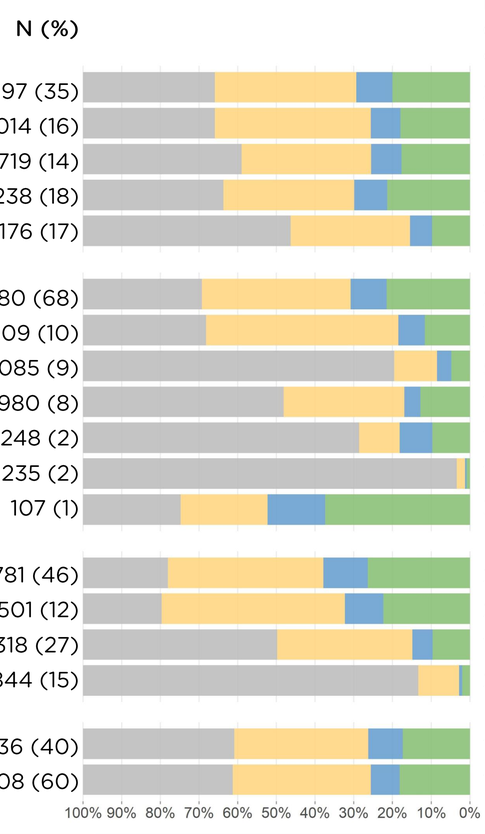
Data



12,444 unrelated donor search requests from transplant centres (w/o Germany and USA) between July 2021 and June 2022.

Results

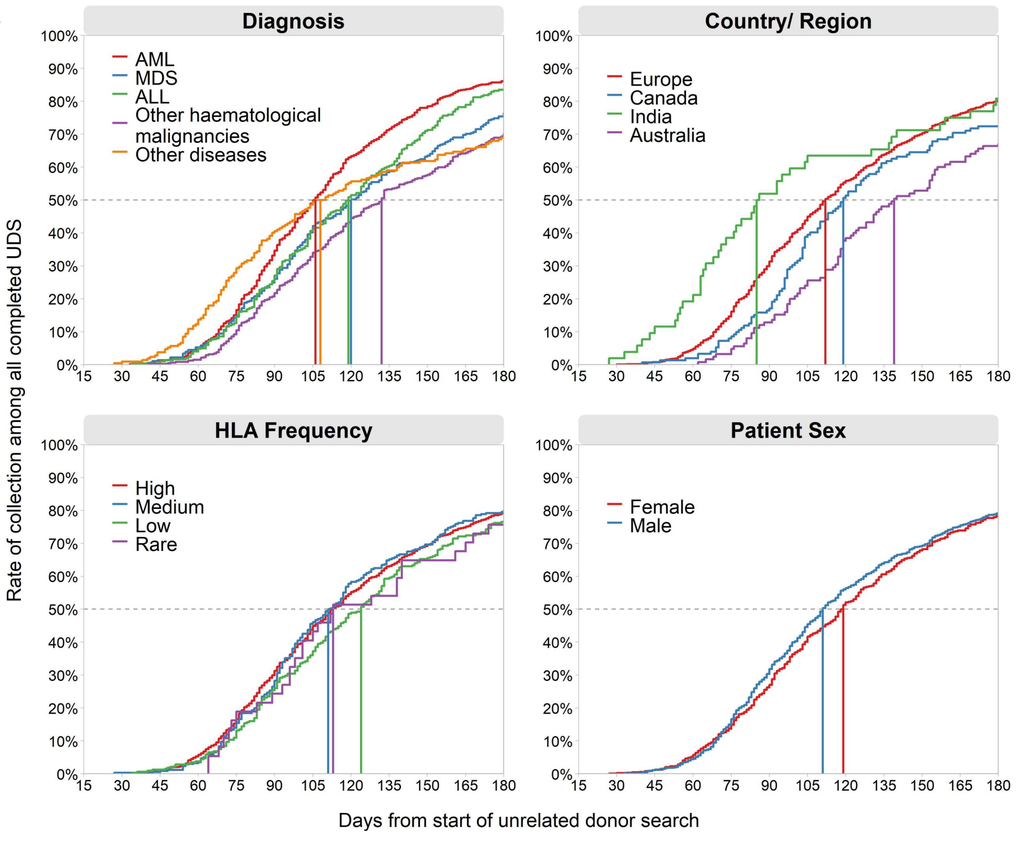
Rate of finding a donor



Duration of donor search

	N (%)	Rate of collection	From UD search to workup	From UD search to collection
		%	Median[days]	Median[days]
Diagnosis				
AML	4297 (35)	20 (ref)	52 (ref)	106 (ref)
MDS	2014 (16)	18*	65***	120***
ALL	1719 (14)	18	62**	119**
Other haem. diseases	2238 (18)	21	72***	132***
Other diseases	2176 (17)	10***	61***	108***
Country/ Region				
Europe (w/o Germany)	8480 (68)	21 (ref)	57 (ref)	112 (ref)
Canada	1309 (10)	12***	67***	119**
India	1085 (9)	5***	46	85
Australia	980 (8)	13***	86***	139***
South Africa	248 (2)	10	101**	174*
Singapore	235 (2)	1**	53	100
South America	107 (1)	37***	45**	85***
HLA Frequency[a]				
High	5781 (46)	26 (ref)	58 (ref)	113 (ref)
Medium	1501 (12)	22*	56	111
Low	3318 (27)	10***	66***	124**
Rare	1844 (15)	2%***	69	113
Patient Sex				
Female	5036 (40)	17% (ref)	62 (ref)	119 (ref)
Male	7408 (60)	18%	59**	111*

***p<0.001, **p<0.01, *p<0.05



Among 2,207 completed UDS 82% of the donors were 10/10 HLA matched, 17% were 9/10 HLA matched, 73% of the donors were registered with DKMS Germany and 17% with DKMS Poland.

[a] High; medium; low; rare: high matching probability of >2 10/10; 1-2 10/10; ≥1 9/10; no 9/10 HLA matched donors (HLA-A, -B. -C, -DRB1, -DQB1).

Discussion

We analysed UDS retrospectively using data from DKMS Registry. We could analyze only completed UDS as reasons for cancellations (e.g. other donor, alternative therapy, death, patient's decision, administrative reasons) are not systematically reported to DKMS Registry.

Success and duration were negatively affected by the challenges during corona pandemic and temporary bottlenecks in collection center capacities.

A follow-up study is planned to resolve the data limitations. In this study the impact of HLA match, sex match and CMV match will be analysed primarily.

Conclusion

UDS depends on patient's HLA frequency as well as the size and diversity of the genetically relevant donor pool (e.g. DKMS-BMST India ~50,000 donors), whereas this pool is "increased" for malignant diagnoses by higher acceptance of mismatched donors.

In addition, the duration of UDS depends on patient's diagnosis, country, sex, and urgency of transplant (data not shown).

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