

Letter to Editor

Chances of finding a matched parent-child in hematopoietic stem cell transplantation in Saudi Arabia

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Hematopoietic stem cell transplantation (HSCT) is a life-saving procedure used to treat several congenital and malignant diseases. Related matched stem cell donors give better outcome than unrelated donors. However, high-resolution matching for HLA-A, -B, -C, and -DRB1 alleles was found to be associated with higher rates of survival in unrelated donors [1].

Recently we showed that Saudi patients awaiting HSCT have higher chances of finding a matched sibling donor, overall 60% of those patients found a fully matched donor. Adult patients had even higher chances (68%) of finding related donors, which was mainly due to family size [2]. On average Saudi families have 5 children [3]. This plays a major role in the higher than average chances of finding a matched sibling [2]. In Canada, the chance of identifying a matched sibling in 2009 was 37.1%, this is predicted to be 24.6% in 2014 and only 16.6% in 2024, because of declining family size [4].

In this report we have analyzed data collected on 244 families who had both parents available and typed for HLA-A, B, C, DRB1 and DQB1 using PCR-SSOP Luminex method using LABType SSO (One Lambda Inc., Canoga Park, CA). The aim was to find out the chance of finding a parent-child full HLA match. A total of 26 families (10.7%) fulfilled our criteria of parent-child matching. **Table 1** shows the different combinations of parent-child donor-recipient matches. More than one third (38.5%) of the families had a father matching a diseased son followed by a

mother to daughter (26.9%) and a father to daughter (23.1%) combinations. Three of the 26 families showed homozygous haplotypes in both parent and child. In addition, out of the 244 families investigated here, 3 families (1.2%) showed 9/10 matching (due to a recombination event at the HLA-A locus).

Consanguinity among Saudi families is amongst the highest in the world; almost 60% of the Saudi families are consanguineous marriages [5]. First cousin marriage is a tradition that is passed from one generation to another. In Turkey, Balci et al analyzed 203 patient family who underwent BMT [6], they found that 74% of patients found matching sibling, 12% found a matching father and 10% a matching mother, almost 96% of the patients have the chance to find a matching donor. This was primarily due to the high consanguinity amongst their patients' families, consanguinity between parents of their patients was 61% [6].

For one of the parents to be fully matched with an offspring, both mother and father must share at least one haplotype. This comes usually through several generations of first cousin marriages which lead to increased chances of having a shared haplotypes between the father and the mother. Thus increasing chances of finding a matched parent-child scenario.

In conclusions, our data here show that there is a relatively high chance of finding a parent-child match, this suggests that whenever possible,

Table 1. Number of different combinations of HLA- matched parent-child in stem cell transplantation donor search.

Patient	Donor	N (%)
Son	Father	10 (38.5)
Daughter	Mother	7 (26.9)
Daughter	Father	6 (23.1)
Son	Mother	3 (11.5)

typing the parents might add to the chances of finding a matched donor. Same for sick mothers or fathers, typing both of them would give an idea about chances of finding a matched offspring.

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