

The Probability of Finding a Fully Matched Related Donor: Can it Be Helpful to Determine the Best Alternative Donor Source?

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Background: In Western society, only one-third of patients who need bone marrow transplantation (BMT) would have a fully matched sibling donor (MSD). In Arab countries, there is scarce information about the likelihood of finding a fully MSD, although higher chance might be expected due to large family size.

Objective: To report the probability of finding a fully matched sibling/related donor and probe the best strategy for alternative donor source.

Design: A Retrospective Study.

Setting: King Fahad Specialist Hospital-Dammam (KFSH-D), Saudi Arabia.

Method: HLA-typing of 1,252 samples from 240 consecutive patients and their corresponding potential donors referred for HSCT were reviewed. HLA-low to medium resolution molecular typing by PCR -SSO for A, B, C, DR and DQ loci were performed on Luminex platform. The probability of finding a matched donor was determined by calculating the percentage of patients who are 10 out of 10 matched with corresponding donors.

Result: The probability of finding MSD or relative in our populations was 59%. Ninety-five percent had fully matched siblings, 4% had fully matched parent/s, and 1% had fully matched relative. However, this rate was age dependent (28% in young children, 50% in older children and 70% in adults).

Conclusion: There is an overall high-rate of finding fully matched relative donors in Saudi compared to Western societies. Strategies to develop alternative donor sources should be prioritized taking into consideration this high rate, the current difficulty in establishing large registries and the promising outcome of haploidentical and cord blood transplantation.