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Treatment of acquired aplastic anemia in children

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Abstract

The major treatment options for patients with severe aplastic anemia (AA) include allogeneic stem cell transplantation (SCT) and immunosuppressive therapy (IST). Because the response rate to IST ranges from 60 to 70%, 30 to 40% of patients require second line therapies such as a second round of IST or SCT from alternative donors. We prospectively compared the efficacy of repeated IST with SCT from an alternative donor in non-responders to an initial course of IST. Failure free survival (FFS) was much better in the SCT group compared with the IST group, which suggests that SCT from an alternative donor offers a better chance of FFS than a second IST.

To improve outcomes in AA patients who receive unrelated bone marrow transplantation (UBMT), it is crucial to define acceptable HLA mismatching of the unrelated donor. We retrospectively analyzed the impact of HLA mismatching (HLA-A,-B,-C,-DRB1,-DQB1) on the transplant outcome for 301 patients with AA who received UBMT through the Japan Marrow Donor Program. The additional impact of HLA-DPB1 was analyzed for 10/10 or 9/10 matched pairs (n=169). The probability of overall survival (OS) at 5 years was comparable among complete matched pairs and HLA 1 allele mismatched pairs. In contrast, OS in transplants from a donor with 2 or more allele mismatches was significantly worse. HLA -DPB-1 mismatching did not provide any additional effect on survival, acute, and chronic GVHD. A 10/10 matched unrelated donor is optimal, but 9/10 (any locus) matched unrelated donors are acceptable for patients with AA.

Optimization of donor selection, conditioning regimen, and GVHD prophylaxis will improve the outcome of AA patients who receive bone marrow transplantation from an unrelated donor.

Keywords: aplastic anemia, children, ATG, UBMT, HLA

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