HLA-DPB1 Matching on the Outcome of Unrelated Donor Hematopoietic Stem Cell Transplantation

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Abstract : Objective: The clinical influence of HLA-DPB1 mismatches on clinical outcome of HSCT is less clear. This is the first meta-analysis to study the HLA-DPB1 matching statues on clinical outcomes after unrelated donor HSCT. Methods: We searched the CIBMTR, Cochrane Central Register of Controlled Trials (CENTRAL) and related databases (1995.01–2017.06) for all relevant articles. Comparative studies were used to investigate the HLA-DPB1 loci mismatches on clinical outcomes after unrelated donor HSCT, such as the disease-free survival (DFS), overall survival, GVHD, relapse, and transplant-related mortality (TRM). We performed meta-analysis using Review Manager 5.2 software and funnel plot to assess the bias. Results: At first, 1246 articles were retrieved, and 18 studies totaling 26368 patients analyzed. Pooled comparisons of studies found that the HLA-DPB1 mismatched group had a lower rate of DFS than the DPB1-matched group, and lower OS in non-T cell depleted transplantation. The DPB1 mismatched group has a higher incidence of aGVHD and more severe (≥ III degree) aGvHD, lower rate of relapse and higher TRM. Moreover, compared with 1-antigen mismatch, 2-antigen mismatched led to a higher risk of TRM and lower relapse rate. Conclusions: This meta-analysis indicated HLA-DPB1 has important influence on survival and transplant-related complications during unrelated donor HSCT and HLA-DPB1 donor selection strategies have been proposed based on a personalized algorithm.

Keywords : human leukocyte antigen, DPB1, transplant, meta-analysis, outcome
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