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HLA-DPB1 mismatch and acute graft-versus host disease in HLA-identical sibling donors

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Allogeneic hematopoietic stem cell transplantation (HSCT) is an established curative therapy for a variety of hematologic malignancies. Genotypically HLA-identical sibling donors (ISDs)--who are available for about 30% of white patients are still considered as the best donors for HSCT. HLA-DPB1 is characterized by a high polymorphism, weak linkage disequilibrium with HLA-DR and -DQ loci, and its role as a transplantation antigen is controversial. We investigated the impact of HLA-DPB1 mismatch in HLA-identical sibling donor transplantation on a Graft-versus-host disease (GVHD). We Typed HLA-DPB1 by Innolipa in 33 patient-donor pairs with different hematologic diseases. Four (12.2 %) pairs with HLA-DPB1 mismatched were identified without identity. The incidence of grades II-IV aGVHD was higher in the HLA-DPB1 mismatched group (p=0.014, OR=26). Univariate analysis of risk factor for aGVHD II-IV showed that HLA-DPB1 is the only significant association (p=0.014), while non significant association was found between the age and sex of the patient, age of the donor, disease of the patient, and ABO compatibility, and positive CMV serology in patients and donors. It is concluded that HLA-DPB1 can mediate alloreactive responses and that HLA-DPB1 mismatch increases the risk of aGVHD in sibling donor stem cell transplantation.