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Influence of differentiated occurrence of HLA genes and haplotypes on defined clinical parameters in patients after allo-HSCT in association with HLA polymorphism

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Abstract

Background: In the Memorial R.M. Gorbacheva Institute of Children Hematology and Transplantation of St. Petersburg Pavlov State Medical University (SPSMU) more than 170 allo-HSCTs from unrelated donors were performed between 2000 and 2009. The International Registers network facilitated the finding of HLA unrelated donor matches for approximately 50% of Russian patients. Nevertheless, the number of Russian recipients has not yet matched the number of unrelated donors in the BMDW database.

Materials and methods: We have analyzed the distribution frequency of HLA-A, -B, -C, -DRB1, and -DQB1 genes and haplotypes for SPSMU patients in comparison to donors listed in the BMDW and SPSMU registries and the influences of differentiated occurrence of HLA genes and haplotypes on defined clinical parameters—such as acute GVHD and TRM—in patients after allo-HSCT. The HLA-typing was performed in an SPSMU HLA typing laboratory using PCR SSP "PROTRANS" technology. The donors' high resolution confirmatory typing (CT) was performed in an EFI-accredited HLA-typing laboratory in the EU.

Results: As a result of the conducted research the difference in occurrence of certain genes and haplotypes in Russian patients and donors in comparison to donors listed in the BMDW database is authentically proved. A certain dependence between differentiated occurrence of HLA genes and haplotypes and defined clinical parameters in patients after allo-HSCT has been revealed.

Conclusion: There are certain differences in the occurrence of separate HLA genes and haplotypes in the group of Russian donors and recipients in comparison to donors listed in the BMDW database. Differentiated relative occurrence of HLA genes and haplotypes in patients and donors can be considered as one of the factors influencing defined clinical parameters in patients after allo-HSCT.

Keywords: HLA genes, haplotypes, polymorphism, MUD search