(0,0099). У потенциальных доноров регистра Республики Беларусь установлены 1365 HLA-гаплотипов. Наиболее распространенными являлись следующие: A*01-B*08-C*07-DRB1*03-DQB1*02 (0,0445), A*03-B*07-C*07-DRB1*15-DQB1*06 (0,0330), A*02-B*13-C*06-DRB1*07-DQB1*02 (0,0294), A*02-B*07-C*07-DRB1*15-DQB1*06 (0,0194), A*03-B*35-C*04-DRB1*01-DQB1*05 (0,0179), A*02-B*18-C*07-DRB1*11-DQB1*03 (0,0159), A*25-B*18-C*12-DRB1*15-DQB1*06 (0,0141), A*02-B*57-C*06-DRB1*07-DQB1*03 (0,0118), A*11-B*35-C*04-DRB1*01-DQB1*05 (0,0112), A*23-B*44-C*04-DRB1*07-DQB1*02 (0,0109), A*02-B*27-C*02-DRB1*16-DQB1*05 (0,0105). В результате сравнительного анализа выявлены не только сходство, но и различия в распределении HLA-гаплотипов у доноров белорусского и российского регистров. В частности, частота гаплотипов A*02-B*13-C*06-DRB1*07-DQB1*02, A*02-B*57-C*06-DRB1*07-DQB1*03, A*02-B*27-C*02-DRB1*16-DQB1*05 достоверно выше у доноров регистра Республики Беларусь (p=0,04; 0,01 и 0,01 соответственно). Частота гаплотипа A*02-B*41-C*17-DRB1*13-DQB1*03 значимо выше у доноров регистра ФГБУ РосНИИГТ ФМБА России (p=0,03).

Выводы

Профили HLA-A*-B*-C*-DRB1*-DQB1*-гаплотипов потенциальных доноров ГСК белорусского и российского регистров имеют характерные особенности. Использование в процессе поиска объединенных донорских ресурсов позволит повысить шансы пациентов на подбор неродственных доноров с оптимальными иммуногенетическими характеристиками.

Ключевые слова

Регистр доноров, гемопоэтические стволовые клетки, HLA-гаплотипы.

OID-05

Arrangement of the blood donor registry typed for the red blood cell antigens

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Introduction

Among patients in need of transfusions there are people with rare erythrocyte antigens. In case of urgent transfusion there may be no compatible blood components available due to erythrocyte antigens mismatch. Also, antibodies directed against erythrocyte antigens may be a problem. There are a lot of sensitized individuals among hematological and oncohaematological patients, e.g. for those with thalassemia and sickle cell anemia it may be as high as 30%. The creation of blood donors registry containing blood typed by erythrocyte antigens may be a solution to donor/recipient pair matching problem. Since 2018 a registry of blood donors with RH, Kell, Kidd, Duffy, MNS, and Dombrock erythrocyte antigens typed functions in Russian NIIGT. We aimed to evaluate the occurrence of most clinically significant erythrocyte antigens of the RH, Kell, Kidd, Duffy, MNS, and Dombrock systems in registry donors.

Materials and methods

A total of 427 blood donors from RosNIIGT (119 women and 308 men) were examined. The median age was 35 years. All donors were typed for RH, Kell, Kidd, Duffy, MNS, and Dombrock erythrocyte antigen systems. The serological typing of RH system antigens and K antigen was performed using gel technology in ID cards (Bio Rad, USA). Alleles of genes mediating antigenic properties of erythrocytes of RH, Kell, Kidd, Duffy, MNS, Dombrock systems were determined by real-time PCR with a set of reagents RBC-FluoGene vERYfy (Inno-Train, Germany).

Results

In Kell system, the K-k+ phenotype was determined in 87.8% of donors, and the K+k+ phenotype was determined in 11.5%. The K+k-phenotype was detected only in 0.7% of donors. The Kidd system antigens were distributed as follows: Jk^a+Jk^b+ in 50.6% of subjects, Jk^a+Jk^b- in 21.3%, and Jk^a-Jk^b+ in 28.1%. In the Duffy system the Fy^a+Fy^b+ phenotype was found in 45.1% of donors, Fy^a+Fy^b in 23.0% and Fy^a+Fy^b+ in 21.9%. Fy_x antigen was present in 18 donors (4.2%) and U+var (P2) antigen was detected in 2 cases (0.5%). In the MNS system the S+s+ phenotype was detected in 43.1% of donors, S+s in 11.2% and S-s+ in 45.7%. Antigen M was present in 56.9% of the samples, antigen N in 44.3%. The Dombrock Do^a+Do^b+ phenotype was found in 47.3% of donors, Do^a+ Do^b- in 8.2% and Do^a-Do^b+ in 44.5%. Antigen C^w the RH systems was detected in 7.3%. The RH system antigens D, C, c, E, e, K serological typing results correlated with genotyping results by 98.2%. In one case the D antigen was not serologically detected and Rh affiliation was determined as negative. During genotyping an allele of the *RHD* gene encoding Dweak typ 4.1 was detected; Rh affiliation is positive.

Conclusions

The occurrence of RH, Kell, Kidd, Duffy, MNS, and Dombrock erythrocyte antigen phenotypes in registry donors was analyzed. Further work is planned to investigate occurrence of rare antigens types as well as registry volume expansion.

Keywords

Registry, donors, erythrocyte antigens.