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Frequencies of human platelet antigens among the Moroccan blood donors

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Background & Aim: The frequency of Human Platelet Antigens (HPA) varies among populations. And so far, typing of HPA systems has not been carried on the Moroccan population. Therefore, the frequencies of these antigens, their risk of alloimmunization and their clinical implications and complications associated with the Moroccan population are unknown. The anti-HPA alloimmunization of the platelets concentrates receivers is frequently manifested by transfusion platelets inefficiency. In addition, the anti-HPA alloimmunization can have serious consequences, such as fetal and Neonatal Alloimmune Thrombocytopenia (NAIT). The study aims in defining allele frequencies and genotypes in the Moroccan population of the five HPA1-5 systems and evaluate the potential risk of platelet alloimmunization in the Moroccan population.

Method: The gene polymorphisms of HPA-1, - 2, -3, -4 and -5 were determined by the (PCR-SSP) technique on a sample of 103 Moroccan blood donors for the system HPA- 1, 104 for the HPA-2 system, 99 for the HPA-3 system, 106 for the HPA-4 system and 105 blood donors for HPA-5 system.

Result: Alleles frequencies for the HPAs systems are, HPA-1a: 0.709, HPA-2a: 0.683, HPA-3a: 0.798, HPA-4a: 0.99 and HPA-5a: 0.686. The alleles HPA-1b: 0.291, HPA-2b: 0.317, HPA-3b: 0.203, HPA-4b: 0.01 and HPA-5: 0.314. Theoretical genotype frequencies in the descendants at risk of alloimmunization are 0.206 for HPA-1, 0.216 for HPA-2, 0.161 for HPA-3, 0.009 for HPA-4 and 0.215 for HPA-5.

Conclusion: The study of HPAs polymorphism helped us to infer the genetic constitution of the population and to predict the risk of anti-platelet alloimmunization. This will allow anticipating the size and causes of NAIT and the inefficiency of platelets transfusion in our community by the definition of the most possible allo-antigens involved in these phenomena.

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