CYP2C9 and VKORC1 Genes Polymorphism in Georgian Population

Maia Gaiozishvili, Teimurz Lezhava, Tinatin Jokhadze, Tamar Buadze

e-mail: gaiozishvilimaia@tsu.ge

Division of Genetics, Department of Biology, Faculty
of Exact and Natural Sciences, Ivane Javakhishvili
Tbilisi State University, University st. 13

Was studied the frequency of VKROC1 and CYP2C9 genes different alleles for healthy donors and for patients with thrombosis, in two regions of Georgia – in Samegrelo and in Tbilisi. The relevance of the study due to the interdependence of the studied genes products in the treatment of thrombosis with warfarin. Warfarin is an anticoagulant, causing the inactivation of the VKORC1 gene product, which is one of the clotting factors. The protein product of CYP2C9 gene is involved in the metabolism of warfarin. Genotyping of blood samples for studied genes alleles was carried out using a tube scanner (ESE Quant Tube Scaner), allowing to identify SNPs.

In the studied group of patients with thrombosis from Samegrelo region the wild-type homozygotes by the gene VKORC1 were - 90%; heterozygotes - 10%; mutant homozygotes have not met at all. In the studied group of patients with thrombosis from Tbilisi, also predominated homozygous wild type (60%); heterozygotes were - 40%; mutant homozygotes were not met. The genotypes of healthy donors fromTbilisi does not differed from the same indicator of of Samegrelo (homozygous "wild" AA - 37%; genotype AB - 47%; and mutant genotype - BB - 16%).

In patients with thrombosis, from Samegrelo, wild-tipe homozygotes and heterozygotes by CYP2C9 gene were almost the same rate (51% and 49% -, respectively); mutant homozygotes were not revealed. In patients from Tbilisi, the frequency of wild-type homozygotes was 70%, heterozygotes and mutant homozygotes was 20% and 10% - respectively. The ratio of the frequencies of CYP2C9 gene alleles in healthy donors from Tbilisi and Samegrelo is not different - wild-type homozygotes - 77%; heterozygotes - 23%; mutant homozygotes in both regions were not met. VKORC1 and / or CYP2C9 genes polymorphisms are presented in a number of clinical dosing algorithms and in prospective clinical trials.

It is revealed the significant variation of genotypes in patients with thrombosis (in both studied regions), which indicates the importance of genotype testing as in treatment process, as well as for the prevention of thrombosis.