

Khmelevskaya P. V.

PHARMACOGENOMICS AS THE FUTURE OF ANTICOAGULATION THERAPY

Scientific Supervisor Senior Teacher Zolotova O. V.

*Department of Foreign Languages
Belarusian State Medical University, Minsk*

Pharmacogenomics is a branch of pharmaceutics and pharmacology, which explores the impact of genetic variation of every person in his response to the drug.

In the second half of the 50-ies of the XX century, it was found that individual variation in the body's reaction to the action of drugs may be due to genetic factors.

The relevance of pharmacogenomics is exacerbated by the fact that in recent years, side effects to medication take 4-6th leading cause of death in the United States. Most of them are due to genetic polymorphism.

Effectiveness and safety of anticoagulation therapy is one of the most acute problems of modern medicine. Hemorrhagic complications, developing in patients receiving anticoagulants, are one of the most important reasons why representatives of this drug group, particularly warfarin, are not widely used in Russia, especially at the outpatient department.

Depending on the genotype, deceleration of warfarin elimination from the body is observed in some individuals, resulting in possible bleeding of varying severity up to fatal.

To reduce the risk of complications of anticoagulant therapy it is necessary to individualize approaches to drug dosage and length of their use. Studied pharmacokinetic and pharmacodynamic parameters of warfarin in different people were compared with the data from genetic analysis. Based on these results several tables of correspondence between the dosage of the drug and the variant of genotype were compiled, thanks to these findings it became possible to use genotyping data in everyday practice of doctors of different specialties.

Pharmacogenomics can give humanity new highly efficient drugs, safer treatment, more reliable methods for determining doses. However, a number of problems, such as difficulties in identifying genetic variations, lack of alternative drugs, economic benefit from pharmaceutical companies restrain its development.

Thus, the study of genes, responsible for drug metabolism, allows to reduce the risk of bleeding, to individualize the warfarin dose selection and to optimize the process of treatment significantly.