



Optimization of the Treatment Algorithm of Patients with Low Resistance to Antiepileptic Drugs Using Pharmacogenetic Tests

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ABSTRACT

The study of pharmacogenetic aspects of pharmacoresident epileptic patients is very little studied in medicine. To study the pharmacokinetics of convulex using therapeutic drug monitoring and pharmacogenetic testing to optimize the treatment of patients with epilepsy.

Keywords:

Pharmacogenetics, Pharmaco-resistant, Epilepsy, cytochrome R-450.

Relevance of the topic: Epilepsy is one of the widespread diseases of the nervous system that requires long-term treatment. According to the statistics of the European Commission on Epilepsy, about 50 million people have epilepsy in the world.

According to many authors, in 70% of these patients, treatment with drugs gives a good result, that is, such patients are completely cured or their number of seizures is drastically reduced. In the remaining 30%, this disease is less resistant to the effects of drugs, and anti-epileptic drugs are of little benefit. Such patients require special attention in diagnosis and treatment. Apart from this, there are also psychosocial complications of such diseases, and there are also aspects such as social isolation from the aspect of behavior and sense of continuity. For many years, the study of epilepsy and its genesis was focused on neuronal dysfunction. However, in the last

decades, the results of scientific research investigating the importance of genetic factors in the course of this disease have begun to be published.

Especially since 1998, when the "Human Genome" special program was launched, the number of such researches began to increase rapidly. In the framework of such research, data proving cases of adverse reactions to drugs due to genetic characteristics of some patients have also begun to be provided.

According to the statistics of the World Health Organization, the Food and Drug Administration (FDA) reports more than 2 million adverse reactions annually. 100-200 thousand of them died. 10-16% of hospitalizations are due to side effects of these drugs. 10-12% of the funds spent on the health care system are spent on the treatment of such side effects.

Studying the genetic characteristics of people, predicting the sensitivity of such patients to drugs before treatment, and ensuring the quality and safety of treatment formed the basis for the development of pharmacogenetics. Studying the pharmacogenetic aspects of pharmacoresidential epileptic states is a very little researched field of medicine. We found it necessary to study these aspects in our scientific research.

The purpose of the research: to study the pharmacokinetics of the drug convulex using therapeutic drug monitoring and pharmacogenetic testing to optimize the treatment of patients with epilepsy.

Tasks of research:

1. Study of changes resulting from therapeutic drug monitoring of convulex drug in patients with epilepsy and molecular genetic testing of CYP2C9 polymorphisms.
2. Study of pharmacogenetic factors and allelic composition of patients with epilepsy with low stability (resistance) to anti-epileptic drugs.
3. Studying the genes and their allelic composition of patients with low stability (resistance) to anti-epileptic drugs and applying them in practice.
4. Studying the genetics of drug-resistant epileptic patients and their allelic composition, developing suggestions and recommendations for optimizing (individualizing) the treatment algorithm.

Study object and methods: It is planned to use the universal study methods proposed by the International League Against Epilepsy (JLAE) for the diagnosis of patients with epilepsy. This method allows not only to diagnose patients, but also to study the causes of the disease, the form and characteristics of epilepsy, as well as the level of susceptibility to treatment methods. In order to identify the causes of resistance (resistance) of these patients to anti-epileptic drugs, it was planned to study their gene polymorphism, allele genes, cytochrome R-450. Cytochrome R-450 enters the allelic composition of genes and

participates in the metabolism of antiepileptic drugs.

Observations are carried out in patients with high resistance to antiepileptic drugs (children and adults).

The importance of pharmacogenetic tests in the prediction, prediction and individualization of antiepileptic drug resistance is very important.

- the pharmacogenetic test allows to determine the resistance of patients before accepting anti-epileptic drugs.

- for conducting a pharmacogenetic test, a mine or other biological material (for example, a swab of the mucous membrane of the oral cavity) can be taken.

- pharmacogenetic tests based on polymorphic chain reaction (PCR).

- it is enough to take the test once, their result will not change for life. This allows patients to create a pharmacogenetic treatment plan and use it continuously.

- tests evaluate the pharmacogenetic composition and allow prediction and selection (individualization) of antiepileptic drugs.

- pharmacogenetic tests do not require technical equipment.

- with the help of pharmacogenetic tests, it is possible to carry out scientific research in various directions, etc.

The most important aspects of conducting pharmacogenetic tests are to determine the sensitivity of patients to anti-epileptic drugs, the possibility of pre-determining its specificity and whether the results are conic or non-conic and to enable the selection (individualization) of anti-epileptic drugs.

Scientific innovations and practical significance expected from the research:

1. Applying pharmacogenetic tests to clinical practice, optimizing methods of identification of patients with low resistance to antiepileptic drugs.

2. Using pharmacogenetic tests to predict the degree of susceptibility of epileptic patients to treatment and to apply the treatment algorithm, regimen, dose, and prescribing plan to clinical practice.

3. To diagnose and treat epileptic patients with the help of this technology, to benefit our society from the economic and social point of view.

4. It can use the results of scientific research not only in practical medicine, but also in theoretical medicine, that is, in the study of relevant topics of neurology, psychiatry, pharmacology, and also provide necessary information for scientific researchers.

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