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Pharmacogenetic Testing - Innovative Technology in Psychiatry

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The role of heredity in the formation of pharmacological response has long been known. Pharmacogenetic tests can predict the speed and features of the metabolism of antipsychotics.

The main objective was to evaluate the clinical value of pharmacogenetic studies of biotransformation and transporters to optimize pharmacotherapy with antipsychotics.

Methods.

The study included Belarusians 18-35 years with acute psychotic disorder, resistant to pharmacotherapy, with the presence of side effects, lack of secondary resistance. Patients signed an informed consent form.

We determined the genetic polymorphism of cytochrome P-450 (CYP2D6*4, CYP2C19*2, CYP2C19*3, CYP1A2*F) and P glycoprotein (MDR-1 C3435T).

Results. The study included 26 patients with acute psychotic disorder.

Mutation C3435T of MDR-1 gene, leading to severe impairment of P-glycoprotein, was detected in 17 patients (65%).

Among allelic variants of CYP2C19, associated with a phenotype of slow drug metabolism, CYP2C19*2 was detected in 5 patients (19%); CYP2C19*3 variant was not found in anybody.

Depending on the outcome of genotyping we changed neuroleptic dosage or replaced the drug to another, which is metabolized by other cytochrome P-450. In 22 patients (85%) we had a good therapeutic effect in the form of complete reduction of psychotic symptoms, improving the quality of social functioning. Among 18 patients with severe side effects, they disappeared completely in 17.

Conclusions. Preliminary results show the effectiveness of using pharmacogenetic technologies in psychiatric practice. Further research is needed to study the polygenic determination and prevalence of genetic polymorphisms in the Belarusian population.

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