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A general look at pharmacogenetic and its future

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Background: Pharmacogenetic examines the contribution of genetic factors in the formation of the differences observed among individuals or different societies in the responsiveness to drug or development of toxicity. Genetic factors demonstrate their effect with the changes in the genes encoding enzymes or proteins which play a part in the pharmacokinetic or pharmacodynamic of the drug.

Method: Today, pharmacogenetic science classifies a group of enzymes belonging to "Cytochrome P450 (CYP) enzyme system working in the metabolism of most of the drugs and materials taken from the outside and their elimination from the body are classified according to the structural differences in the genes which form them.

Defining the changes in genetic structures is very important for the application of required strategies and development of treatment providing methods. In the studies made, presence of genetic areas providing the regulation of enzymes effective in eliminating the drugs used for treatment from the body was presented.

Patients can be protected from the undesired side effects by making dose adjustments for drugs determined to cause toxicity or preferring alternative drugs.

Assessing the clinical and economic value of pharmacogenetic testing for reimbursement has been described as challenging because research methods applied to traditional medicines have to adapt in order to evaluate the scope and complexity of personalized medicine. Yet the requirement of clinical evidence and value is beginning to favor reimbursement for testing

Results/Conclusion: Collaborating with the pharmacogenomic laboratories working on individual medicine, the doctors may present a more effective treatment to their patients and prevent poisoning and deaths occurring due to drug dosage mistakes.