Abstract Template

Abstract Title: Hepatocytes status during the treatment of the CYP2E1 genotype tuberculosis: biochemical analysis

Liudmyla Haiova[1], Slepets Alina[2]

[1] M.D., Prof. (Kyiv Medical University, Kyiv, Ukraine)

[2]*PHD (*Bogomolets National Medical University, Kyiv, Ukraine*)*

Abstract

Nowadays, the most acute problem in Ukraine – is resistant and multi-resistant tuberculosis. The main causes of inefficient treatment of tuberculosis is the impact of long course polychemotherapy (6-20 months). Drug-induced hepatotoxicity develops mainly as a result of metabolites, instead of the drug. The gene CYP2E1 (rs2070676) encodes an enzyme involved in the metabolism of several important drugs including considered - isoniazid, rifampicin.

Method. Analysis of rs2070676 polymorphism of the CYP2E1 gene was performed by polymerase chain reaction using standard PureLink® Genomic DNA Kit for Purification of Genomic DNA; Manufacturer of INVITROGEN (USA). For statistical processing, IBM SPSS Statistics 23 was used.

Results. Study of the serum activity of the enzyme aminotransferase (ALT)in the groups showed, that in TB patients, the ALT BL was reduced by 2,7-fold. Anti tuberculosis therapy increased ALT activity. After 6 months of admission, ALT level was 2-fold higher than basic.However,this kind of situation was characteristic only for carriers of the major genotype CC.Healthy polymorphism carriers were characterized by higher level of enzyme activity. In patients with polymorphism CG carriers, ALT enzyme activity was also higher on BL. IT caused a 2-fold decrease in ALT, and during supportive therapy the level was restored to basic. Study of Aspartate transaminase (AST) activity similarly showed its significant decrease 2-fold in TB patients already on BL.Therapy significantly increases enzyme activity 2-fold in 2 months and remained unchanged. Patients with major genotype CC revealed AST increase 4-fold after 2 months of IT, and during MT, the value remains 2,5-fold higher. In healthy polymorphism carriers, the AST activity was higher.However, in patients with polymorphism CG carriers, basic level of AST activity was the lowest. Therapy doubles the enzyme activity within 2 months and then remains unchanged.

Keywords— *gene CYP2E1, isoniazid, multi-resistant tuberculosis, rifampicin*.

Professional Biography

Liudmyla Haiova has completed her at Institute of Pharmacology and Toxicology of the Academy of Medical Sciences of Ukraine. 1984 – 1989 junior researcher Institute of Pharmacology and Toxicology of the Academy of Medical Sciences of Ukraine. She was Associate Professor Bogomolets National Medical University in 1996 – 2014. From 2014 till

2021 she was Head of the Department of Bioorganic and Biological Chemistry Bogomolets National Medical University. Nowadays Liudmyla Haiova is a Dean of the Pharmaceutical Faculty, MD, professor.



Email Id: ludmilagaevaya@gmail.con