

Abstract

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Alteration of transport proteins expression during intrahepatic cholestasis in rats

Diploma thesis

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Background:

The aim of the diploma thesis was the verification of cholestatic liver injury by biochemical analysis of plasma and analysis of the main efflux and uptake hepatic transporters (Ntcp, Oatp1a4, Bsep, Mrp2, Mrp3, Mrp4) at the mRNA level.

Methods:

Wistar rats (n = 6, in each group; 280 – 320 g) were divided into two groups: Control group (LPS-K) and LPS group (lipopolysaccharide was administered at once i.p., 4mg/kg). Blood and liver samples were collected 12 hours after LPS administration. Biochemical analysis of plasma was performed by Cobas Integra ® 800 and GC/MS. Changes of mRNA expression of the transporters were evaluated by qRT-PCR.

Results:

In comparison to control group, LPS group showed significantly elevated plasmatic levels of the bile acids and also elevated activity of ALP and GMT. Plasmatic levels of bile acids were elevated to 818%, activity of ALP was elevated to 311% and activity of GMT to 2167%. Intrahepatic cholestasis led to the significant decrease of mRNA levels – Ntcp to 4.6%, Oatp1a4 to 2.2%, Mrp2 to 1.7% and Bsep to 25%.

Conclusion:

According to the results of this study, it is apparent, that LPS-induced cholestasis is linked up with the mentioned modulations of transporter's mRNA levels and biochemical markers.