**Chemokines as the biomarkers of chronic hepatitis with different etiology**

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**Background and aims:** Cytokines and chemokines are key participants in the immunopathogenesis of inflammatory diseases. Cytokines can be used for diagnostic purposes, to control the course of the disease and to monitor the effectiveness of therapy. Earlier, we carried out a multiplex analysis of cytokines/chemokines in the blood plasma in patients with chronic hepatitis C virus (HCV). It has been shown that combination of certain cytokines to be important in the immunopathogenesis of HCV. The aim of this study is to identify the specific biomarkers (cytokines and chemokines) in patients with chronic hepatitis of various etiologies: hepatitis B and C viruses, autoimmune hepatitis and primary biliary cirrhosis (PBC).

**Methods:** Plasma samples were taken from patients with chronic hepatitis. Patients were grouped into 4 categories depending on the diagnosis: hepatitis C virus (n=73), hepatitis B virus (n=64), autoimmune hepatitis (n=20), primary biliary cirrhosis (n=32). The control group was healthy donors (n=37). Concentrations of cytokines/chemokines: TNF-α, CCL20/MIP3α, CXCL9/Mig, CXCL10/IP-10, CXCL11/ITAC measured by Luminex MAGPIX (Luminex, USA) using «MilliplexMAP» kits according to the manufacturer's instructions (Millipore, USA). Statistical analysis was done using nonparametric methods: Kruskal-Wallis test and post hoc Dunn's comparison (GraphPad Prizm 6).

**Results:** The TNFα levels in patients with HCV (1.5 times) and PBC (3 times) were significantly higher than the control group ​​(p≤0.0001). It was shown significant differences in the concentration of TNFα between patients with HCV and PBS (p≤0.05), TNF-α involves in cytotoxic reactions and fibrogenesis. Concentrations of CXCL9/MIG and CXCL10/IP-10, attracting activated T-and B-cells into inflammation site, in all patients with chronic hepatitis were significantly enhanced. The concentration of CXCL9/MIG in HCV was more than 2 times higher, and in the groups of HBV, autoimmune hepatitis and PBC was more than 5 times higher than in healthy donors (p≤0.0001). The CXCL11/ITAC levels in patients with HCV (2 times) and PBC (5 times) were higher compared with the control (p≤0.0001), there were no differences in the other groups of patients. CCL20/MIP-3α - macrophage inflammatory protein-3 or liver activation regulated chemokine is expressed mostly in the liver and recruitment to the inflammation site immature dendritic cells and memory T cells, the level of CCL20/MIP-3α in HCV patients was higher than control and HBV group (p≤0.05).

**Conclusions:** We had identified the combination of plasma biomarkers that can be measured by multiplex analysis: TNF-α, CCL20/MIP-3α and CXCL11/ITAC, which specific for chronic hepatitis C. It confirms our previous research demonstrated the role of these cytokines in the pathogenesis of chronic hepatitis C and significance in the progression of liver fibrosis.