THE CHANGES OF FIBROSIS MARKERS IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE

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The purpose - to determine the characteristics of biochemical markers of fibrogenesis in the liver of patients with nonalcoholic fatty liver disease (NAFLD).

Materials and methods. 45 patients (17 men and 28 women) with NAFLD were examined. The average age of the patients was 52,5 ± 2,1 years. The patients were randomized into 2 groups: group 1 - with nonalcoholic steatosis (NAS) and group 2 - with nonalcoholic steatohepatitis (NASH). FibroMax test was performed, which comprises 5 biochemical indices of blood serum, including alpha 2-macroglobulin, haptoglobin, apolipoprotein A1, gamma-glutamyl transpeptidase (GGT), total bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), glucose, triglycerides (TG), and total cholesterol. Fibrosis and the level of activity of the inflammatory process in the liver were calculated based on the age and sex of the patient.

Results. Patients of group 2 had significantly increased ALT level - 2.5 times in 62.3% of patients and increased AST - 2.3 times in 48.5% of patients ($p < 0.05$), whereas these indices in patients with NAS were elevated 1.8 times in 38% of patients and 1.6 times in 27.5% of patients respectively ($p < 0.05$). GGT increased 1.2 times in 24.5% of patients and alkaline phosphatase (AP) - 1.1 times in 16,2% ($p < 0,05$) of patients with NASH. Hyperbilirubinemia (1.2 fold increase, $p < 0,05$) was determined in 12% of patients. The ratio of AST / ALT levels was higher in patients with NASH and compounded 0,88 ± 0,3 ($p < 0.05$), HOMA IR index was 4,7 ± 2,1, which is 1.2 times higher than in patients of the 1st group ($p < 0.05$). Blood lipid disorders were characterized by growth in serum total cholesterol level by 1.4 fold in 47.2% of patients with NASH ($p < 0.05$), while hypertriglyceridemia prevailed in patients with NAS - TG level increased 2.1 times in 62.1% of patients ($p < 0.05$).

The analysis of the results of the test showed that mean indices of fibrosis in group 1 were 0,19 ± 0,02, necroinflammatory activity index - 0,16 ± 0,03, which corresponds to the absence of fibrosis (F0) and histological activity (A0). In 27% of patients of group 2 fibrogenesis indices were up to 0,32 ± 0,05, corresponding to F1 (portal fibrosis without septa formation) and a minimal histological activity A1 (0,34 ± 0,04); in 18% of patients the indices of portal fibrosis with solitary septa formation were up to 0,58 ± 0,07 (F2) and corresponded to moderate activity 0,54 ± 0,04 (A2); and in 7.5% of patients - 0,69 ± 0,07 (F3) - fibrosis of multiple portocentral septa without cirrhosis, and a high histological activity A3 (0,82 ± 0,09). The correlation relationship was established between the degree of inflammation activity and severity of the liver fibrosis ($r = 0,54$; $p < 0,05$).

Conclusions. The indices of insulin resistance, syndrome of cytolytic activity and cholestasis, the ratio of AST / ALT were significantly higher in patients with NASH in comparison with NAS patients. Lipid spectrum disorders were characterized by the predominance of hyperlipidemia in NAS and hypercholesterolemia in NASH. The course of NASH was characterized by progression of inflammation, steatosis and fibrosis of the liver. The use of FibroMax test allowed refining and augmenting the diagnostic criteria of fibrogenesis in liver tissue.