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Kallistatin, IL-10, IL-1β and hsCRP in the diagnosis of non-alcoholic fatty disease on the background of hypertension

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Background: Non-alcoholic fatty liver disease (NAFLD) affects 25% of the adult population and often develops in comorbidity with hypertension (HT). ROC-analysis allow to assess the diagnostic potential of biomarkers for liver fibrosis detection in NAFLD patients.

Objective: To evaluate the kallistatin, IL-10, IL-1β and hsCRP role in determining of development and progression of liver fibrosis in NAFLD and HT patients.

Methods: 63 patients with NAFLD on steatohepatitis stage and HT and 52 patients with isolated NAFLD were observed. Kallistatin, IL-10, IL-1β and hsCRP levels were determined by enzyme-linked immunosorbent assay.

Results: The kallistatin showed significant potential in diagnosing the occurrence and progression of liver fibrosis in patients with NAFLD and HT (AUC=0.975, p=0.003, Sensitivity (Se)=95%, Specificity (Sp)=100%; AUC=0.881, p<0.001; Se=95%, Sp=76.9%), and with isolated NAFLD (AUC=0.867, p<0.001); Se=76.5%, Sp=81.0%; AUC=0.889, p<0.001, Se=92.3%, Sp=81.3%).

IL-10 (AUC=0.769, p=0.012, Se=70%, Sp=64.1%; AUC=0.710, p=0.009, Se=94.4%, Sp=69.2%), IL-1β (AUC=0.752, p=0.02, Se=71.8%, Sp=75.0%; AUC=0.788, p=0.007, Se=84.6%, Sp=66.7%) showed good prognostic characteristics for liver fibrosis progression detection in both groups of patients, and the hsCRP revealed prognostic abilities only in NAFLD and HT patients (AUC=0.849, p<0.001, Se=71,8%; Sp=75.0%).

Simultaneous determination of all biomarkers allowed to predict the occurrence and progression of liver fibrosis in NAFLD and HT patients (AUC=1.000, p=0.002, Se=100%, Sp=100%; AUC=0.874, p<0.001, Se=82.1%, Sp=85.0%), and isolated NAFLD patients (AUC=0.874, p<0.001, Se=94.1%, Sp=71.4%, AUC=0.889, p <0.001, Se=84.6%, Sp=94.4%).

Conclusions. Kallistatin, IL-10, IL-1β, and hsCRP levels determination can detect liver fibrotic changes in NAFLD and HT patients may be an alternative to invasive diagnostic methods.

Key words:

Non-alcoholic fatty liver disease, hypertension, kallistatin, IL-10, IL-1β

Abbreviations:

NAFLD – Non-alcoholic fatty liver disease

HT – Hypertension

IL-10 – interleukin-10

IL-1β – interleukin-1β

hsCRP – high sensitivity C-reactive protein