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Extended Abstract
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# Evaluation of blood-flow of portal vein for early pre-diagnosing of fibrosis and its staging for patients with chronic hepatitis

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**Abstract:**

Chronic hepatitides (hepatitises), especially of viral etiology, are a significant problem of public health care owning to widespread occurrence, long clinical course and adverse consequences. In connection with poor clinical presentation of the disease, a question of early and timely diagnostics of fibrosis of liver before its clinical stage remains actual.

Aim of the study was evaluation of efficiency of ultrasonic Dopplerography of liver in evaluation and early diagnosing of fibrosis for patients with verified diagnosis of chronic hepatitis B.

**Materials and methods:**

Two groups of 125 people formed for research work. The first group consisted of 100 patients aged 18-50 with verified diagnosis of chronic hepatitis, without having clinic-laboratory data for cirrhosis.

The second group included 25 professional sportsmen aged 18-25.

Patients of all the two groups had been fully examined. Complex laboratory analysis applied for all patients; liver ultrasound examination and elastography.

Dopplerographycaly examined blood-flow in portal vein by standard technique.

**Results:**

Based on our research by gray scale ultrasonic examination 45 % of patients with a chronic hepatitis had its echographic signs. Echographic signs mentioned in the literature as typical for chronic hepatitis were observed even among young healthy people in three cases (12 %). The prevailing sign was echogenicity of liver parenchyma. All patients (30) of the group with a chronic hepatitis with low fibrosis of hepatic tissue of 6.4-7.5 kPa, based on data of flexography, diameter of portal veins positively did not change.

Considerable increases of velocity up to 25.4 m/s of blood-flow in portal vein were defined.

All patients (32) with moderate fibrosis of hepatic tissue 7.9-8.7 kPa diameter of portal vein increased, but changes were not authentic. Average velocity of blood-flow was up to 17.1 m/second and not differed from average velocity of healthy group. In process of increase of severity of fibrosis liver parenchyma, by METAVIR scale up to 11.2-17 kPa (38 patients), various change of velocity of blood-flow in portal vein was observed. Among 25 patients with severe fibrosis, decrease of average velocity of blood-flow in portal vein down to 9.8+2.4/second was observed. Among 13 patients, increase of average velocity of blood-flow up to 19.3+2.5/second was observed. Among all of 38 patients with heavy fibrosis reduction of wave of spectrum of Doppler curve was observed. Permanent increase of the diameter of portal vein was also observed.

**Consideration:**

Carried out analysis enables to make the following conclusions. As the obtained data shows that only 45 % of patients with confirmed chronic hepatitis, its echographic signs presented, that is high level of false-negative results that causes low sensitivity index (43,6 %) and negative predicting value of 40,0 %.

Presence and stage of fibrosis authentically do not influence frequency of reveal of each of studied signs, however frequency of absence of echographic liver changes is positively lower among healthy people than and with hepatitis with severe fibrosis. Dopplerography Data have more accurately displayed distinction between groups. Changes characterized:

-in the stage of early fibrosis with increase of linear velocity of the blood-flow of portal vein

-in the stage of moderated fibrosis by absence of considerable changes of relatively healthy

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-in the stage of expressed fibrosis with various changes of velocity of blood-flow, decreasing of waviness of Doppler curve and positive increase of the diameter of portal vein

**Conclusions:**

1. Ultrasound examination of liver is not sufficient for diagnostics of chronic hepatitis, evaluation of its stage and activity

2. Measurement of velocity of portal vein is informative for diagnosis of early stage of fibrosis and differential diagnostics of stages fibrosising of liver.