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Early markers of atherosclerosis manifestation in patients with nonalcoholic fatty liver disease

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**Actuality**: Nonalcoholic fatty liver disease (NAFLD) is an important factor in the development of atherosclerosis. It’s proved that NAFLD promotes the development of atherosclerosis, even in category of people with a lack of signs of metabolic syndrome, which makes it necessary to develop effective diagnostic measures for the early detection of atherosclerosis in these patients.

**Object**: to reveal the markers for determining the pre-clinical manifestation of atherosclerosis in patients with NAFLD.

**Materials and Methods**: The research involved 70 patients with NAFLD at the age of 31-57 years. The control group consisted of 30 almost healthy individuals.Conducted a study of anthropometric parameters, carbohydrate metabolism, lipid metabolism.The thickness of the intima-media complex (IMT) of the common carotid artery was determined by duplex ultrasonography, B–mode. As standards were used IMT values of less than 0.9 mm.

**Results**: The patients ranged in BMI from 21.5 to 32.4 kg/m2, the average valuein the group of patients with NAFLD-26,1±0,9 kg/m2, in the control group - 23,7±0 8 kg/m2. Waist circumference in patients with NAFLD averaged in interval 95,0±3,1 cm and was significantly increased compared with the control group-79,3±2,2 cm. Hip girth did not differ in groups.

During the study of carbohydrate metabolism has been found the increase of HOMA-IR index in the main group(5,8±2,39), control group-2,2±0,54.Insulin concentration was (19,6±2,8) mU/ml in the study group compared to the (4,1±0,9) mU/ml in the control group (p<0,01).Fasting glucose levels were not significantly different between the groups, and was respectively (6,3±1,2) and (5,6±0,9) mmol/L.

During the study of lipid metabolism in patients with NAFLD was identified proatherogenic serum lipid profile.There was a significant increase in the levels of total cholesterol-6,3±0,8 mmol, TG-2,7±1,4 mmol/l, LDL-to 3,7±0,2 mmol/l versus the control group. The levels of the HDL-1,80±0,16 mmol/L in the study group were significantly lower than in healthy individuals. In the group of patients with NAFLD increase in IMT over 0.9 mm were detected in 33(47.1%) persons, whereas only 2 (6.6 %) in the control group.

**Conclusions**: In patients with NAFLD revealed violations of carbohydrate and lipid metabolism: insulin resistance, increased concentrations of pro-atherogenic lipid fractions;

Patients with NAFLD are at high risk of early atherosclerosis developing, which is confirmedby the increase IMT of the common carotid artery;

Changes in IMT of the carotid arteries are identified for asymptomatic patients without a history of coronary artery disease clinical manifestations;

Ultrasound measurement of IMT can be recommended for early detection of atherosclerosis in patients with NAFLD .