

Insulinresistane and fibroblast growth factor-21 in nonalcoholic fatty liver disease patients with hypertension

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Objective: To determine plasma fibroblast growth factor-21 (FGF-21) levels and HOMA-IR in nonalcoholic fatty liver disease (NAFLD) patients with non-alcoholic steatohepatitis (NASH).

Materials and methods: 60 non-alcoholic fatty liver disease patients with hypertension were examined, diagnosed by clinical, biochemical, and liver image with NASH and 20 healthy individuals, without any liver disease. These groups did not differ in age and gender. All were submitted to oral glucose tolerance test and blood samples were collected for glucose and insulin measurements by immunofluorometric method. FGF-21 levels were measured by ELISA assay. HOMA-IR was calculated according to the formula: fasting insulin (microU/L) x fasting glucose (nmol/L)/22.5.

Results: The serum levels of FGF-21 were significantly higher in NAFLD patients than controls. The median FGF-21 level was 342,8 (279,4; 425,6) pg/ml in NAFLD patients with hypertension and 102,17(92,95; 115,5) pg/ml in controls ($p < 0,001$). HOMA-IR in NAFLD patients with hypertension was 6,06(5,5; 3,3) and 2,53 (2,13; 2,75) in healthy individuals($p < 0,04$). Direct significant correlation $r = 0,42$ has been identified ($p < 0,01$) between the studied parameters.

Conclusions: FGF-21 levels in NAFLD patients with hypertension were on average increased by 3 times as compared to the controls. HOMA-IR was twice higher in main group and associated with adipokine's level. This connection indicates insulin resistance, which associates with inflammatory activity of the liver adipose tissue.