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THE APPLICATION OF URSODEOXYCHOLIC ACID IN PATIENTS WITH METABOLIC SYNDROME

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Metabolic syndrome (MS) is defined as a complex metabolic and hormonal disorders, which are based on insulin resistance and compensatory hyperinsulinemia are also associated with the pathology of lipid metabolism and nonalcoholic fatty liver disease .

The aim of the study was to determine the efficacy of ursodeoxycholic acid (UDCA) in patients with MS.

Materials and methods. Were examined the 42 patients with MS (27 men and 15 women) in endocrinologycal department of Regional Clinical Hospital of Kharkiv. with a body mass index (BMI) 35,51 ± 2,11 kg/m2. Determined biochemical blood indices (alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transpeptidase (GGT), alkaline phosphatase (ALP)), lipid profile (total cholesterol (TC), triglycerides (TG), high density lipoprotein (HDL), low-density lipoprotein (LDL)), carbohydrate metabolism (fasting glucose (FG), postprandial glucose (PPG), immunoreactive insulin (IRI)) using enzyme immunoassay and glucose oxidase methods. Also performed ultrasonographic examination of the liver and gall bladder. For the diagnosis of hepatic steatosis we used ultrasound criteria under which we determined the echogenicity of the liver parenchyma, the visibility of the gallbladder wall, diaphragm and liver capsule, which was assessed by threepoint scale (1 point - good visibility, 2 points - visibility difficult, 3 points - the structure is not visible) corresponding to the degree of hepatic steatosis. Studies were assessed twice: before the first treatment, repeated after 6 months of treatment. The subjects were divided into two groups: group 1 patients (n = 21) received combined therapy applied in the MS, group 2 (n = 21) additionally received UDCA in a dose of 15 mg/kg/day for 6 months. The control group consisted of 10 men of military age, were examined .

Results and discussion. In the biochemical studies we have examined MS patients before treatment were diagnosed syndromes cytolysis and cholestasis. The therapy in the 1^{st} group of patients ALT level was 36,20 ± 15,93 U/L , AST - 37,96 ± 12,73 U/L , ALP - 96,30 ± 31,15 U/L and GGT - 36,30 ± 32,86 U/L, in the 2^{nd}- ALT - 20,55 ± 10,02 U/L, AST - 19,14 ± 9,00 U/L , ALP - 85,21 ± 24 0 U/L GGT - 25,70 ± 13,42 U/L ($p < 0.05$). For all patients studied dyslipidemia was found. The therapy in the 1^{st} group of patients TC level was 5,30 ± 1,12 mmol/L , TG - 1,25 ± 0,52 mmol/L, LDL-3,03 ± 0,96 mmol/L, HDL - 1,24 ± 0,05 mmol/L, $p <0.05$, in the 2^{nd} group - TC - 3,98 ± 0,55 mmol/L , TG - 1,01 ± 0,05 mmol/L, LDL - 2,65 ± 0,99 mmol/L, HDL - 1,28 ± 0,06 mmol/L ($p < 0.05$). In the study of carbohydrate metabolism in all patients was determined by elevated levels of IRI, FG and PPG. After the prescribed therapy IRI level in group 1^{st} was reduced to 19,51 ± 1,07 IU/ml, in the 2^{nd} to 10,61 ± 0,98 IU/ml, FG in group 1^{st} to 6,35 ± 0.28 mmol/L, in the 2^{nd} to 6,20 ± 0,23 mmol/L, PPG group 1^{st} to 7,48 ± 0,32 mmol/L, in the 2^{nd} to 6,95±0.27 mmol/L ($p < 0.05$). During ultrasound in all patients was diagnosed nonalcoholic fatty liver disease with varying degrees of severity of hepatic steatosis - steatosis grade 2 (43% of patients in 1^{st} group and 49 % in the 2^{nd} group of patients). Upon therapy in patients of 1^{st} group steatosis grade 1 was seen in 39 % of patients , grade 2 - 44% of patients , grade 3 - 17% of patients , patients in 2^{nd} group - 1 steatosis degree - in 71 % of patients and grade 2 - 29% of patients.

Conclusions. UDCA in adjuvant therapy in patients with MS reduces the severity of cytolysis and cholestasis syndromes due to its hepatoprotective properties due to incorporation into the membrane of hepatocytes; normalize dyslipidemia and inhibits manifestations of hepatic steatosis due to lower cholesterol formation in hepatocytes and excretion into the bile them; reduces insulin resistance and glycemia by hypocholesterolemic , antioxidant action.