THE EFFECT OF PYRIDOXINE AND MAGNESIUM ON THE INDICATORS OF CARBOHYDRATE MATEBOLISM UNDER EXPERIMENTAL ALCOHOLIC STEATOHEPATITIS

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Introduction. Nowdays the abuse of alcohol is still a very actual problem. More than 200 diseases proceed on under chronic consumption of alcoholic drinks. An alcoholic liver disease – is one of the most common pathology, which leads to the serious consequences, such as liver cirrhosis and hepatocellular carcinoma. It is important that cirrhosis is a condition which has slow progression. The preceding stage of liver cirrhosis is alcoholic steatohepatitis. Alcoholic steatogepatitis (ASG) is one of forms of an alcoholic liver disease. Stay to conditions of rational medical treatment the recovery prognosis at this stage is favorable. While there are no treatment and correction of a lifestyle the risk of transition from ASG to liver cirrhosis reaches to 20%. The progression of ASG is followed by different pathological changes in proteins (S-containing aminoacids metabolism disturbance), lipids (liver lipids accumulation and resynthesis, serum cholesterol and triglycerides level increase) and carbohydrates metabolism.

Aim. Study the effect of pyridoxine and magnesium administration on the indicators of carbohydrate metabolism under experimental alcoholic steatohepatitis in rats.

Materials and methods. We used 30 outbred male rats (age of 6 months), which were given a high-calorie ethanol-containing diet (Lieber-DeCarli modification). The animals were divided into 5 groups: the group of intact control (IK), animals with ASG – control pathology (CP) and animals administrated medical treatment under CP («CP+B6», «CP+adm», «CP+B6+adm»). The dose of «Magne B6» was 4,1 mg/kg, a reference medicine «Heptral» (ademetionine) dose was 82,7 mg/kg, or medicines combination. All drugs were administrated intragastrically for 30 days. Blood level of glucose, insulin, fructosamine and glycosylated hemoglobin were determinated. The insulin resistance index was calculated (HOMA-IR). Statistical processing of data was made by the ANOVA algorithm with program MS Excel 2007.

Results and discussion. The level of glucose authentically but not critical increased in 26% in CP group. The insulin level was increased in 26.5% comparatively with IK. It was caused by disturbance of glucose tolerance. It is well known, that alcohol abuse inhibits glycogenolysis and gluconeogenesis with the synchronous progression of insulin resistance, especially in hepatocytes. Significant increase in fructosamine and glycosylated hemoglobin levels in untreated animals (in 17.59% and 17.46% respectively) testified about activation of pathological glycosylation. Administration of medicines normalized these indicators. The greatest changes were observed under combination therapy. It was caused by the normalization of lipid metabolism under adenosylmethionine impact and increase peripheral tissues insulin sensitivity. So glucose utilization was effectively. It's well known, that methionine is a lipotropic factor and it's involved to the synthesis a number of compounds (choline, cysteine), which also have a positive effect on lipid metabolism and indirectly on carbohydrates metabolism. Cysteine is required for the glutathione biosynthesis, which reduces the oxidative stress manifestation (part of experimental pathology). The fructosamine and glycosylated hemoglobin levels was also normalized the most effectively under using combination treatment. In our opinion, it was caused by the inhibitory impact of pyridoxal on pathological glycosylation process and the magnesium normalizing impact on carbohydrate metabolism. On the other side, it was caused by the impact of ademetionine on insulin sensitivity.

Conclusions. The modeling of experimental alcoholic steatohepatitis in rats led to formation of carbohydrates metabolism disorders, particularly – progression of insulin resistance and activation of pathological glycosylation. The combination therapy with pyridoxine, magnesium and adenosylmethionine was effective in treatment that we associate with the synergistic effect of medicines.