Introduction: Essential phospholipids (EPL) play a universal role in the human body as a source of components of cell membranes and intracellular organelles. Numerous studies have found that except of hepatoprotective properties, EPL are able to reduce the degree of oxidation stress. The important role of free radical processes in the pathogenesis of hyperthyroidism and the relation in the functioning of liver and thyroid gland are known.

Purpose: to study the effects of essential phospholipids on the liver structure in hyperthyroid rats.

Methods and materials: The study was conducted on noninbred albino rats weighing 180 - 220 g, and divided into 3 groups: 1st control group (6 animals) - intact rats, 2nd group (6 animals) - rats with experimental thyrotoxicosis, induced by intragastric injection of L-thyroxine (200 mcg/kg a day for 28 days); the 3rd group (9 animals) – hyperthyroid rats, additionally injected with essential phospholipids (80 mg/kg a day from 14 to 28 days). Hyperthyroidism was induced on the 14th day of experiment.

Results: Morphological structure of the liver in experimental thyrotoxicosis on the 14th day was characterized by impairments violation of trabecular structure of liver lobules. Hepatocytes with hypertrophic nuclei were detected; some cells had features of lamellar degeneration. Unicellular and focal necrosis of hepatocytes, acidophilic cells like Councilman bodies were found. Hepatocytes bore signs of anisonucleosis and anisocytosis. The changes increased with hyperthyroidism duration: on the 28th day there was a significant damage to the structure of liver lobules, changes spread diffusely, necrotic hepatocytes, signs of balloon-degeneration of cytoplasm, karyopyknosis and karyolysis developed.

In case of using EFL on the 28th day of experiment moderate changes in structural components of the hepatic lobules were detected. The cells were normochromic, had round nuclei with a distinct nucleolus. No pronounced signs of eosinophilic degeneration, as in the comparison group were found. Signs of balloon-degeneration were revealed only in some cells. Cells with pyknotic heterochromatic nuclei were less common. Only isolated cells became necrotic with signs of karyolysis or without nuclei, they didn't form large areas of coagulative necrosis.

Conclusion: The results of the study showed, that essential phospholipids in rats with experimental hyperthyreosis had protective properties for hepatocytes, demonstrated by a significant reduction in their damage.

Key words: hyperthyreosis, essential phospholipids.

PARAMETERS OF THYROID HOMEOSTASIS IN PATIENTS WITH CHRONIC DIFFUSE LIVER DISEASES DEPENDING ON TYPE 1 DEIODINASE GENE POLYMORPHISM

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Introduction: Deiodinase enzymes are important in the control, of cellular thyroid activity. It was found that certain allelic variants of type I deiodinase (*DIO1*) gene may increase the impairment of thyroid gland function. Still it is not clear how polymorphism of this gene affects the development of thyroid dysfunction in patients with chronic diffuse liver diseases (HDLD).

Purpose: to study the features of thyroid homeostasis in patients with HDLD depending on A/C DIO1 gene polymorphism.

Materials and methods: The study involved 50 patients with chronic hepatitis and liver cirrhosis.

A/C DIO1 gene polymorphism and Pro197Leu - GPX1 gene were studied by means of extraction of genomic DNA from peripheral blood leukocytes with subsequent amplification of polymorphic sites by PCR with the programmable amplificator «Amply-4L» («Biocom», Moscow) with individual temperature program for each gene primer.

DNA extraction was carried out using reagent "DNA - sorbets - B" option 100 (Russia) according to instructions. Samples were prepared for PCR using a set of «АмплиСенс – 200 - 1» (Russia). For discrimination of alleles of the DIO1 gene endonuclease restriction Bcl I was used ("СибЭнзим", Russia).

Depending on the distribution of A / C DIO1 gene polymorphism patients were divided into three groups: AA-genotype carriers (17 patients), AC-genotype carriers (24 patients) and AS-genotype carriers (8 patients).

Features of thyroid homeostasis were studied by determining serum free thyroxine (T4), free triiodothyronine (T3) and thyroid - stimulating hormone (TSH) and calculating the coefficient of the peripheral conversion of free thyroid hormones (T3/T4).

Results and discussion: The level of TSH in serum of patients with HDLD was not significantly changed depending on the DIO1 gene polymorphism.

A higher level of T3 was found in carriers of the CC-genotype: in 46.6% ($P < 0.001$) comparing with AA-genotype and 31.6% ($P < 0.01$) comparing with AC-genotype.

Content of serum T4 in patients with homozygous A-allele carrier DIO1 gene significantly exceeded the corresponding parameters in patients with CC-genotype (31.3%, $P < 0.05$).

T3/T4 coefficient was also significantly changed depending on the DIO1 gene polymorphism. In the group of patients with CC-genotype it was 1.5 times higher ($P < 0.05$) than in patients with AA-genotype and 1.3 ($P < 0.05$) times than in patients with AC-genotype.

Conclusion: Carriage of the C-allele of DIO1 gene is associated with increase of DIO1 function, which shows growth of T3/T4 coefficient and T3 level, reduction of T4 level. A-allele of the DIO1 gene is associated with a decrease in T3/T4 coefficient, T3 level, an increase in T4 level in blood of patients with HDLD.

CATALYTIC PROPERTIES OF ANTIBODIES IgG IN PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction: The research of multiple sclerosis (MS) pathogenesis is one of the most serious problems of modern medicine. MS is a clinically heterogeneous chronic demyelinating disease of the nervous system of unknown etiology. In MS, increased concentrations of IgG, which are found in the specific antibody (Ab) against the various components of myelin, antibodies to DNA, antibodies to other structures and tissues are present. Studies of the last decade have led to the discovery of the ability of antibodies to catalyze many different chemical reactions. Such antibodies possessing a catalytic activity have been termed abzymes. In patients with autoimmune diseases a high DNA hydrolyzing activity of AT has been revealed.