

ABSTRACTS

MEDICAL FUNDAMENTAL SCIENCES SECTION

MORPHOLOGICAL CHANGES IN KIDNEYS IN EXPERIMENTAL HYPERTHYREOSIS

Bohonyuk B.

Academic adviser: Pasyechko N., M.D., Ph.D., Professor, State Medical University "I. Ya. Horbachevsky", Ternopol, Ukraine

Introduction: The great interest of investigators to further study of the structure and functional changes of the thyroid gland in the conditions of different pathologies is based on significant increase of the diseases of thyroid gland. Effect of thyroid hormones on metabolic processes in kidney cells with lesions of the thyroid gland leads to changes in their functional state.

Purpose: Investigation of histological changes in kidneys at different duration of experimental thyreotoxicosis.

Methods and materials: The study was performed on 24 noninbred albino rats with average weight 150-220g. Animals were divided into 2 groups of 12 animals each. Simulation of hyperthyroidism was conducted by intragastric administration of L-thyroxine in dose of 200 mcg / kg daily for 14 (1st group) and 28 (2nd group) days. Morphological studies were carried out on the 14th and 28th days after the start of the experiment for which the pieces from the middle of the kidney were cut out and treated by conventional methods.

Results: Histologic examination of the kidney tissue on the 14th experiment day showed structural changes of the kidneys. Some glomeruli in the cortical layer were expanded, their capsule partially thinned. The space of the capillaries wasn't visualised due to the narrowing of the capillaries and degenerative changes in endothelial cells. Individual glomeruli were wrinkled, others - somewhat expanded by the accumulation of serous fluid in the space of the capsule and proliferative changes in the structure of the glomerulus were observed. In some areas of the cortex glomeruli were collapsed along with severe degenerative changes in the tubular apparatus. Lymphocytes and hystiocytes infiltration of stroma was weakened expressed.

The spaces of proximal and distal tubules were enlarged in most cases, containing a moderate amount of serous fluid and isolated red blood cells. Spaces of proximal direct tubules in some areas were narrowed due to moderate degenerative changes of the epithelium cells. Besides, epithelial cells were in the stage of vacuolar dystrophy, which led to an increase of their size, especially of the cytoplasm. Nuclei of epithelial cells were visualised in all cells, but they were placed atypically. Medium-caliber vessels were expanded and full-blooded, but extravasations were not present.

Histological examination of kidney tissue on the 28th day of experiment revealed that expanded glomerular capsule was mainly due to the swelling and partial hyperplasia of structural elements. Its spaces were filled with serous fluid, which partly led to the distortion of vascular structures. Vacuolisation of the cytoplasm was caused by the swollen capsule epithelium, foamy cytoplasm and hyperchromatic nuclei.

The changes in renal medulla were clearly detected. Spaces of the distal and proximal tubules were markedly dilated, partially filled with serous fluid, among which necrotic desquamated epitheliocytes

were found. There were markedly pronounced dystrophic changes of epithelial tubules. In the proximal tubules the phenomena of hyaline-drop dystrophy was observed, vacuolar dystrophy rarely. There was perivascular infiltration by lymphocytes and plasmocytes. The lympho-histiocytes infiltration was observed around the glomerulus. The vacuolar degeneration of epithelial cells from the side of the direct distal tubules was observed.

The stroma of the renal cortex and medulla was swollen; the phenomena of lymphocyte infiltration were present. Vessels were moderately dilated, full of erythrocytes, some areas with small extravasation were present. Most of the arterioles were normal, but sometimes plasma impregnation was detected.

Conclusion: In experimental hyperthyreosis microcirculation lesions and development of degenerative changes of the structural components of epithelial cells of proximal and distal tubules in the kidney were revealed.

CHANGE OF C-REACTIVE PROTEIN AND TUMOR NECROSIS FACTOR- α LEVELS IN DIABETES MELLITUS TYPE 2 AND L-ARGININE-L-GLUTAMATE

Shved M., Chernukhina O., Mazur L.

Academic adviser: Shved M., M.D., Ph.D., Professor, State University of Medicine „I.Ya. Horbachevsky”, Ternopol, Ukraine

The **Purpose** of our study was to determine C-reactive protein (CRP) and tumor necrosis factor- α (TNF- α) levels in patients with nonalcoholic fatty liver disease (NAFLD) in type 2 diabetes mellitus and their correction with NO synthesis precursor L-arginine-L-glutamate.

Materials and methods: We examined 30 patients with type 2 diabetes aged 35 to 65, who had symptoms of NAFLD. The functional state of liver, changes in plasma levels of pro-inflammatory cytokine TNF- α and CRP were evaluated in patients treated with L-arginine-L-glutamate.

Results: It was determined that in patients with type 2 diabetes and NAFLD the levels of TNF- α and CRP were significantly higher than in patients with type 2 diabetes and healthy subjects. A statistically significant decrease of TNF- α and CRP levels was established 8-10 days after the beginning of administration of L-arginine-L-glutamate in patients with type 2 diabetes and NAFLD as compared to the control group (patients with type 2 diabetes who did not take L-arginine-L-glutamate). The treatment was followed by improvement of functional liver tests (bilirubin, general cholesterol, triglycerides, β -lipoproteins, alaninaminotransferase, and general protein) and liver ultrasound picture.

Conclusions: Thus, administration of the NO-synthesis precursor L-arginine-L-glutamate in patients with diabetes mellitus type 2 and NAFLD contributes to the decrease of systemic inflammation, in particular - C-reactive protein and tumor necrosis factor- α and improvement of functional liver tests.

Key words: C-reactive protein, tumor necrosis factor- α , Diabetes Mellitus, L-arginine-L-glutamate.

INFLUENCE OF ESSENTIAL PHOSPHOLIPIDS ON THE LIVER STRUCTURE OF WHITE RATS IN EXPERIMENTAL HYPERTHYREOSIS

Svystun I.

Academic adviser: Pasyechko N., M.D., Ph.D., Professor, State University of Medicine “I. Ya. Horbachevsky”, Ternopol, Ukraine