Materials of Conferences

ULTRASTRUCTURAL CHANGES OF EXOCRINE PARENCHYMA IN EXPERIMENTAL PANCREATITIS

Andreeva S.D., Kirillovich A.S., Panfilov A.B.
FGBOU VPO «Vyatka State Agricultural Academy», Kirov, e-mail: a_s_d_16@bk.ru

Research purpose: to study in a dynamics (on the first, on the third, on the 7th are 14th days after an operation) the ultrastructural changes of pancreas of rats at experimental acute destructive pancreatitis and in number to estimate character of changes of exocrine parenchyma of pancreas of rats.

For research 40 not thoroughbred males of white rats served material by weight 180-200 g Experimental acute destructive pancreatitis reproduced by cooling of spleeny segment of pancreas of chlorethylium. For ultramicroscopic research the pieces of pancreas processed in obedience to the generally accepted methods and probed by the electronic microscope of JEM-100C (Japan). For the micrometric estimation of the functional state of acinocytes utilized analysis of images of Image Scope Color M (Leisa, Gmbx).

There was an edema of acinocytes at development of sharp destructive pancreatitis, kernels are dropsically and wrong form, have fine-grained chromatin which is localized on periphery. A nuclear-cytoplasm relation is increased on 6% as compared by intact animals. The granules of zymogene are diffusely dissipated in a protoplasm, have a high electronic closeness, their sizes was different. The mature granules of zymogene have the appearance of the dense rounded little bodies, along with them there are prezymogene and «light» immature granules. It testifies to the dystrophic processes, what be going on in acinocytes. The relative area of zymogene grains for certain is increased to 20,3% to the general area of cage. There is plenty of immature zymogene granules with a small diameter (19,3 ± 0,84 nm) and small area (393,0 ± 26,6 nm²).

It is set that at development sharp destructive pancreatitis takes a place a synchronization of secretary cycle with appearance of heterogenic acinocytes and diminishing of stake of zymogene granules, having insignificant sizes, their diameter makes 28,5 ± 1,56 nm, for intact rats – 42,6 ± 4,38 nm. Lytical destruction elements of parenchyma, accompanied an edema and necrosis of acini's cages that testifies to the decline of outside secretary function of organ and development of destructive defeats of pancreas.

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ACID PHOSPHATASE OF LEUKOCYTES – CYTOCHEMICAL TEST IN THE STUDY OF ACUTE DESTRUCTIVE PANCREATITIS

Andreeva S.D., Muhamatshina D.G., Mamarova M.A.
FGBOU VPO «Vyatka State Agricultural Academy», Kirov, e-mail: a_s_d_16@bk.ru

Inflammatory processes in the pancreas increase the permeability of cell membranes of acinar structures body, which causes an increase in enzyme levels in blood and urine, including acid phosphatase (AF). It formed in the endoplasmic reticulum of metabolically active cells, and includes a number of isoenzymes, with a common property – the ability to release phosphate from many alcoholic or phenolic phosphomonoaethyrof in acidic medium. We have performed cytochemical study using semi-quantitative method, which made it possible to identify changes in the content of AF in blood cells of rats with acute destructive pancreatitis (ADP).

In the experiment was used cryogenic model of acute pancreatitis. Experiments were set at 25 mongrel white male rats weighing 190-270 g (group 1). The second group ($n = 15$) consisted of animals that were subjected to median laparotomy and 1,5 – min exposure of splenical segment of the pancreas without influencing it chloraethilum. Control (intact) group consisted of 5 rats. AF was detected in the form of pellets red in the cytoplasm of neuthrophils and lymphocytes.

During the experiment the animals of experimental group with the development of acute destructive pancreatitis index content in neuthrophils of average cytochemical factor ranged from 0,99 ± 0,06 to 1,41 ± 0,09 ($p \leq 0,05$) and increased 2,1 times since the beginning of the experiment when compared with intact animals (0,66 ± 0,01). At laparotomy average cytochemical factor (CBFV) in granular white blood cells remained unchanged (0,42 ± 0,06), as well as at the beginning of the experiment (0,43 ± 0,12).

In the lymphocytes stained grain that signals the presence of acid phosphatase, located diffusely in the cytoplasm. In intact rats cytochemical factor was in average 0,18 ± 0,01. Since the beginning of the ADP (CBFV during the first day – 0,79 ± 0,1) increased 4,3 fold higher compared with intact animals, indicating an increase in phagocytes function and lysosomal activity agranulocytes. In animals with severe forms of development pancreatitis significantly risen in the cells of the blood content of acid phosphatase (a marker of lysosomal enzymes), reflecting a more pronounced and profound degree of destructive changes in the parenchyma of the pancreas prostate. Elevated AF in leukocytes indicates the metabolic activity and the ability of these cells for phagocytosis. The proposed technique

complements the classical cytochemical laboratory and immunological studies to identify cell surface markers and functional state of the organelles of blood cells in acute destructive pancreatitis.

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ENDOTHELIAL DYSFUNCTIONS IN PATIENTS WITH DIABETIC ENCEPHALOPATHY

Parakhonsky A.P., Tertychnaja G.V.

Kuban medical institute, Regional hospital of veterans, Krasnodar, e-mail: para.path@mail.ru

Vascular endothelium damage is known as one of the major mechanisms in pathogenesis of chronic complications diabetes mellitus (DM). Encephalopathies of various genesis tend to be the most important problem of present medicine. Diabetic encephalopathy (DE) is commonly considered to be a variant of dyscirculatory encephalopathy. The indices of circulating desquamated endotheliocytes and endothelium-dependent vasodilatation (EDVD) of brachial artery were studied to detect the degree of endothelial dysfunction in patients with DE in comparison with patients that suffer from discirculatory encephalopathy of non-diabetic genesis. The aim of our study was to study differential peculiarities of EDVD in patients with diabetic and non-diabetic encephalopathy. EDVD was evaluated according to Celermayer-Sorensen's test. The study demonstrated, that dyscirculatory encephalopathy was followed by reliably significant ($P < 0,001$) decrease of EDVD rate (5,6 ± 0,21 %) as compared with controls (10,8 ± 0,51 %). In case of DE the rate of EDVD was more than two times decreased (4,9 ± 0,23 %) as compared with control rate ($P < 0,001$). EDVD was more affected in type 2 DM (4,5 ± 0,29 %, $P < 0,05$), than in type 1 (5,5 ± 0,31 %), that indicated more severe damage of vascular endothelium in case of non-insulin-dependent DM. It is necessary to mention, that changes of EDVD in DE were reliably more evident as compared with patients suffering from non-diabetic dyscirculatory encephalopathy (6,4 ± 0,29 %). This is explained, as we concluded, by the direct toxic influence of increased glucose concentration on vascular endothelial cells. This toxicity may lower the endothelium-dependent vasodilatation, elevate the vasoconstriction, and stimulate the hyperplasia of smooth muscles cells, lead to vascular remodeling and development of atherosclerosis. Endothelial cells line the entire circulatory system, from the heart to the smallest capillary. These cells reduce friction of the flow of blood allowing the fluid to be pumped further. Circulating endothelial cells might be used as a surrogate non-invasive marker for the study of vascular alterations. findings demonstrated, that endothelial desquamation was observed in the group of healthy individuals as well as in the group of patients, suffering from DE. In healthy individuals blood level of desquamated endotheliocytes accounted $3,2 \pm 0,36 \cdot 10^4$/l. In patients with stage I DE this index reached $12,8 \pm 0,64 \cdot 10^4$/l, stage II DE – $16,5 \pm 0,58 \cdot 10^4$/l, stage III DE – $19,2 \pm 0,71 \cdot 10^4$/l. Statistically significant changes were found between groups of patients with stage I and stage I DE ($P < 0,001$), and with stage II and stage III DE ($p < 0,01$). Consequently, the progression of DE was followed by proportional augmentation of the blood concentration of desquamated endothelioin cytes. The index of endotheliocytemia was reliably higher in type 2 DM as compared with type 1 diabetics ($P < 0,05$), that indicated more significant implication of vascular endothelium damages in the pathogenesis of non-insulin-dependent DM. The role of endothelial dysfunction in type 2 diabetes is more complicated than that for type 1. The effects of aging, hyperlipidemia, hypertension, and other factors add to the complexity of the problem.

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APPLICATION OF ENZYMES IN COMPLEX TREATMENT ODONTOGENIC INFECTIONS

Parakhonsky A.P., Sveshnikov G.G.

Kuban medical institute, Regional stomatologic polyclinic, Krasnodar, e-mail: para.path@mail.ru

Despite improvements in treatment of inflammatory diseases of the maxillofacial region, the problem of purulent infection continues to actual. Reduced effectiveness of antibiotics, delayed clearance of necrotic purulent cavities of the masses, which are a kind of barrier to the penetration of drugs into the inflammatory focus, dictate the necessity of finding new treatments for odontogenic inflammatory diseases. Of surgeons for a long time drew attention of idea of ability to influence a course of rebellious processes with biologically active pharmaceutical enzymes. The aim of the work was to study the histomorphological changes of the skin from underlying dermis using the drug «Wobenzym» and its influence on the healing of the wound. The material of our observations was the 35 patients with acute odontogenic purulent processes of the soft tissues of the maxillofacial area in age from 20 to 60 years (12 women, 23 men). Admission and in the dynamics of the disease were carried out clinical and laboratory research. Morphological study of skin exposed to the underlying dermis. In the initial period, sides and bottom of the wounds were presented purulent-necrotic masses, the thickness of which depended on the extent of tissue damage. Detritus was closely associated with develop-