

REACTION-RESPONSE OF THE STRUCTURAL COMPONENTS OF THE LAMINA PROPRIA OF SMALL INTESTINAL MUCOUS MEMBRANE TO THE VIOLATION OF BIOCENOSE

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Symbiosis of the host with intestinal microflora is the most important link in understanding of inflammatory intestinal diseases' pathogenesis. According to the results of clinical and experimental studies the basis for the disease development is: a disorder of gastrointestinal homeostasis due to a deficiency of endogenous synthesis of antibacterial peptides, the reduction of bacterial recognition and violation of interaction between epithelial cells [1]. Morphofunctional peculiarities of connective tissue elements determine structural-metabolic state of organs and tissues [2, 3, 4].

The aim of the study – is to explore the structural changes of components of the lamina propria mucosa of the rats' small intestine under conditions of experimental dysbiosis induced by antibiotics. In 30 mature rats disbacteriosis was caused by method of enteral administration of pefloxacin in a dose of 800 mg/kg during 8 days. Material was taken on the 14th and 21st days after discontinuation of the drug.

The task was to identify the pattern of changes of the structural elements of the small intestine mucous membrane.

Complex of histological, histochemical methods of study and ultrastructural analysis was performed. Evolved cultures for microbiological studies were identified on the basis of a complex of cultural and morphological characteristics.

On the 14th-21st days hairs locally lose homogeneous size, sometimes they are slightly deformed. In stroma subepithelial edema is visualized, moderate accumulations of lymphocytes are found between crypts. The vessels are dilated, full-blooded, perycapillary swelling is around them, indicating a violation of the vascular wall permeability.

In the study of the arterial wall histostructure on the 14th day

flatness of the internal elastic membrane is observed, on which there are endotheliocytes with lumened cytoplasm and weakly basophilic nucleus. In the middle shell smooth myocytes are disoriented and thinned. Adventitial shell has no clearness. Veins' wall is thinned, that makes difficulty of its shells' identification.

As a result of ultrastructural study, endothelial cells contain dystrophically altered organelles in the vacuolized cytoplasm. Nuclear membrane forms numerous intussusceptions. Contacts are expanded. On the luminal surface of endotheliocytes a large number of microgrowths are seen, in lumen – the sludge phenomena. Modified erythrocytes are often met. In many areas basal membrane is disorganized.

Macrophage-cell infiltration is expressed. Submicroscopically actively phagocytic macrophages are clearly visible, plasmolemma of which being many times invaginated, contributed to the formation of many polymorphic outgrowths. Membranous organelles, including many lysosomes, are visualized in their cytoplasm.

We can observe eosinophils with nuclei consisting of two interconnected segments. Heterochromatin is localized marginally. Organelles are inconspicuous. Cytoplasm is filled with specific granularity – elongated granules, in the equatorial plane of which there are osmiophilic dense lamellar structures surrounded by amorphous fine-grained matrix.

Fibroblasts are activated, as evidenced by state of synthetic apparatus organelles and thin delicate stromal elements on the background of disorganized collagen and elastic fibers.

Multiple bundles of connective tissue fibers are directed and distributed variably, and are identified by pronounced deposits of glycosaminoglycans.

The population of mast cells is represented by light and dark cells. Paravasally degranulated cells are mostly found, and saturated with metachromatic grains, but small, are noted more distantly. In ultrastructural study mast cells are detected with intracellular granulolysis in plasmolemma preserved in the integrity, as well as with a good development of membranous organelles.

It was determined that on the 21st day of the experiment the expansion of the arterial bloodstream takes place in comparison with the

previous terms. Dilated convoluted arteries, which are accompanied by the same dilated veins, are found together with this.

In Hart's stained preparations, in the thinned arterial walls their shells are heavily differentiated. Swollen endothelial cells are on the smoothed internal elastic membrane, sometimes there are areas of detachment of endothelial cells with baring of the internal elastic membrane, which somewhere is of fragmented form. Smooth myocytes of middle membrane are disoriented and thinned. Adventitial shell is not clearly visualized. In thin-walled venules and veins with deformed lumen structural elements of the wall are weakly contoured.

In ultrastructural study homogenization and vacuolization of the endothelial cells' cytoplasm were revealed. Their nuclei are deformed, nucleolemma is somewhere destroyed, chromatin granules are placed marginally. Mitochondria are swollen, their matrix is lumened and cristae are uncompleted. Fragmentation of membranous structures of granular endoplasmic reticulum and Golgi apparatus is noted. Lumenal surface of plasmolemma forms numerous vacuolized protrusions into the lumen of blood vessels, sometimes their integrity is disrupted and phenomena of microclasmatisis are observed. Basal membrane becomes thicker and stratified. Processes of pericytes are swollen, their cytoplasm acquires low electronic density.

Connective tissue is infiltrated by macrophages, plasmocytes, in cytoplasm of which there is well-observable enlargement of tubules and cisterns of granular endoplasmic reticulum filled with an optically bright homogeneous content, are often met. Rounded sacs and vesicles of the Golgi apparatus are located perinuclearly. The nuclei of these cells have classic appearance, which is characteristic for them in the electron-microscopic study.

A lot of fibers and also activated fibroblasts are found. Glycosaminoglycans in staining with Alcian blue testify about metabolic transformations occurring in connective tissue cells of the small intestine.

Mast cells have also responded well. Mast cells with activated synthetic apparatus are revealed electron-microscopically – elongated tubules of endoplasmic reticulum with fixed ribosomes, polysomal rosettes are visible in intergranular intervals; complex of sacs forms the Golgi apparatus, mitochondria are with clear

organization, and there are also with degenerative changes, in which mitochondria are deformed and with destroyed cristae, elements of the Golgi apparatus and endoplasmic reticulum are disorganized.

So, on the 14th day of the experiment the development of degenerative and inflammatory events of connective tissue elements, disorganization of the vascular link, that causes the disorder of blood flow and functional failure of mucous membrane in general, are observed. On the 21st day saturation of mucous membrane with mast cells begins to increase and population of degranulated ones decreases, degenerative changes develop.

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**ИСПОЛЬЗОВАНИЕ АНГЛОЯЗЫЧНОЙ СПЕЦИАЛЬНОЙ
ЛИТЕРАТУРЫ ДЛЯ ПРЕПОДАВАНИЯ АНАТОМИИ
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