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MORPHOFUNCTIONAL CHARACTERISTICS OF PANCREATIC MICROVASCULATURE IN RESPONSE TO CENTRAL DEPRIVATION OF TESTOSTERONE SYNTHESIS (EXPERIMENT)

МОРФОФУНКЦІОНАЛЬНА ХАРАКТЕРИСТИКА ГЕМОМІКРОЦИРКУЛЯТОРНОГО РУСЛА ПІДШЛУНКОВОЇ ЗАЛОЗИ У ВІДПОВІДЬ НА ЦЕНТРАЛЬНУ ДЕПРИВАЦІЮ СИНТЕЗУ ТЕСТОСТЕРОНУ (ЕКСПЕРИМЕНТ)

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Objectives. The pancreas is the second largest gland of the digestive tract. In modern biological and medical science, a detailed study of the peculiarities of the pancreatic blood supply is relevant, which will help to solve a number of issues in the search for modern methods of correcting gastroenterological diseases [1]. Structurally altered vessels of the pancreas lead to impaired blood supply, development of dystrophic and degenerative processes in the pancreas, which will lead to a violation of the body's homeostasis as a whole [2, 3].

The drug "Diferelin" is used in the treatment of prostate cancer by chemical castration, has an indirect effect on the structural components of the pancreas. It has a fairly quick and effective effect on the hypothalamic-

pituitary-gonadal axis at the highest level of its regulation. In addition, the biphasic mechanism of action allows the use of two opposite therapeutic effects on the reproductive system: stimulating during short-term administration and inhibitory during long-term use [4, 5]. Therefore, we decided to investigate the mediated effect of the drug on the vessels of the microvasculature of the pancreas. The purpose of the work is to determine the changes in the microvasculature of the exocrine part of the pancreas in intact rats under the conditions of experimental simulation of chemical castration.

Materials and methods. The experiment was conducted on 40 male white rats, they were divided into 2 groups: control and experimental. Animals from the first group were injected subcutaneously with the drug at a dose of 0.3 mg of the active substance/kg of body weight, while the second group received a physiological solution. The experiment lasted for 30 days. The study of the pancreas was carried out in accordance with the established terms, the material for microscopic examination was taken immediately after euthanasia of animals, sealed in paraffin, according to the generally accepted method and sections were made on a sled microtome MS-2 4-5 μm thick, which were stained with hematoxylin and eosin [6]. Average values of diameters and cell height were determined using a Biorex-3 microscope with a DCM 900 digital photomicroscope [7]. Quantitative analysis of the results of the morphometric study and statistical processing of morphometric data were performed using generally accepted statistical methods using the Exel program [8]. The experiment was conducted in accordance with the "Common Ethical Principles for Experiments on Animals" adopted by the First National Congress on Bioethics (Kyiv, 2001), and was also guided by the recommendations of the "European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes" [9].

Research results and discussion. The study of histological specimens showed that the pancreas is a parenchymal organ. It consists of lobules between which there are layers of connective tissue, in which blood vessels, nerves and interlobular excretory ducts are identified. Branches of the abdominal and superior mesenteric arteries participate in the blood supply to the pancreas. The branches of these arteries in the interlobular connective tissue and inside the lobules form dense capillary networks that braid the acini and penetrate the islets [3].

Histologically, it was found that the lumens of the arterioles were dilated and filled with blood cells, their wall was formed by endothelial cells, and the inner elastic membrane was visualized as a basophilic strip that formed numerous high folds and gave the lumen of the arterioles a star-shaped shape. Analysis of morphological changes in the microvasculature of the

exocrine part of the pancreas showed certain changes. Arterioles reacted with dilation, which was manifested by an increase in the average diameter of the vessel lumen by 4.12%, compared to the control group of animals, and their average diameters reached 28.01±0.63 μm. The average capillary diameters were enlarged, with an average value of 9.31±0.21 μm, increasing by 1.93%. Vascular expansion was observed within the capacitive link of the pancreas, where the average diameter was 38.14±1.62 μm, indicating a 2.46% increase when compared to the control group of animals.

Conclusions. An increased sensitivity of the microvasculature of the pancreas to the action of the triptorelin embonate was established, which was manifested by dilation of arterioles, an increase in the average diameter of capillaries and expansion of the vessels of the capacitive link. Restoration of morphometric parameters of vessels was not observed.

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