SECTION OF MORPHOLOGY
СЕКЦІЯ МОРФОЛОГІЇ

MORPHOLOGICAL CHANGES IN THE TOTAL ARTERIOLES DIAMETER OF THE ADRENAL GLANDS MEDULLA UNDER THE ACTION OF A FOOD ADDITIVE COMPLEX

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Relevance: in our time, food additives are extremely popular. The consumer often does not know and does not think about what dangerous substances enter the body with food and how food additives (sodium nitrite, monosodium glutamate, and Ponceau 4R) affect the work of the adrenal glands.

Aim: is to find out the morphological and metric changes in the arterioles total diameter of the adrenal glands medulla of rats under the conditions of long-term action of food additive complex.

Materials and methods: the experimental study was conducted on white outbred rats. The control group of rats used oral drinking water and saline solution. Rats from the experimental group were orally administered a 10% solution of sodium nitrite (E 250), monosodium glutamate (E621) was administered at a dose of 20 mg/kg in 0.5 ml of distilled water, Ponceau 4R was administered at a dose of 5 mg/kg in 0.5 ml of distilled water once a day. Dosages of a complex of food additives were two times lower than the acceptable norm in food products. After 1, 4, 8, 12, and 16 weeks, rats were removed from the experiment using ether anesthesia, followed by euthanasia. Subsequently, fragments of adrenal glands fixed in a neutral formalin solution were sealed in paraffin. Histological sections made from paraffin blocks, stained with hematoxylin and eosin, were studied using a Biorex light microscope with a DSM 900 digital photomicroscope. To obtain semi-thin sections, the studied material was fixed in glutaraldehyde and sealed in EPON-812. Ready sections were stained with toluidine blue. Using the morphometric method, the total diameter of the arterioles of the rats' adrenal glands' medulla was determined. Data processing was carried out using the Excel program.

Results: as a result of the morphometric study of the control group of rats, it was established that the average values of the total diameter of arterioles of the medulla were (28,86±0,11) μm. After 1 week of taking a complex of nutritional supplements, the indicator of the total diameter of arterioles was (28,38±0,13) μm, which decreased by 1,69%. On the 4th week of observation, the indicator was (29,62±0,14) μm, which increased by 2,63%. After the 8th week, the indicator was (28,52±0,15) μm, which decreased by 1,19%. At week 12, the indicator was (31,48±0,21) μm, 9.07% more than the control value. On the 16th week, the indicator of the total diameter of arterioles was (32,26±0,23) μm, which is 11,78% more than the control indicators.

Conclusions: it was established that the effect of the complex of food additives on the arterioles of the medulla of the adrenal glands of rats in the early stages of the study was expressed by the spasm of blood vessels of the hemomicrocirculatory bed due to the effect of the altering effect of the complex of food additives as a result of hemodynamic conditions. At the later stages of the experiment, hypoxia was observed, which led to the development of compensatory and restorative reactions, but complete recovery did not occur.

Keywords: nutritional supplements, adrenal glands, monosodium glutamate, sodium nitrite, Ponceau 4R.

MORPHOFUNCTIONAL CHANGES IN THE STRUCTURAL COMPONENTS OF THE FUNDAL PART OF THE RAT STOMACH DURING ACUTE EXPERIMENTAL INFLAMMATION

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Relevance: pathology of the organs of the gastrointestinal tract occupies one of the first positions in the structure of the morbidity of the population of Ukraine. Undoubtedly, the main pathogenetic factors for the occurrence of these lesions include the influence of various exogenous factors that lead to the appearance of morphological changes in the wall of the organs of the gastrointestinal tract, particularly the stomach. Therefore, studying these changes interests scientists and physicians.

Aim: to assess the morphofunctional changes in the structural components of the mucous membrane of the fundal part of rats' stomachs in the simulation of acute experimental inflammation.

Materials and methods: intraperitoneally administered λ-carrageenan was used to model this inflammation. The collection of material followed by morphological examination was carried out on the