

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
КАФЕДРА НОРМАЛЬНОЇ ТА ПАТОЛОГІЧНОЇ ФІЗІОЛОГІЇ**



**V науково-практична internet-конференція
з міжнародною участю**

**«МЕХАНІЗМИ РОЗВИТКУ ПАТОЛОГІЧНИХ ПРОЦЕСІВ І
ХВОРОБ ТА ЇХ ФАРМАКОЛОГІЧНА КОРЕКЦІЯ»**

**17 ЛИСТОПАДА 2022
ХАРКІВ – Україна**

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NATIONAL UNIVERSITY OF PHARMACY
DEPARTMENT OF PHYSIOLOGY AND PATHOLOGICAL PHYSIOLOGY**



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DEVELOPMENT AND DISEASES,
THEIR PHARMACOLOGICAL CORRECTION»**

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THE EFFECT OF LONG-TERM MENTAL AND PHYSICAL STRESS ON THE EXOCRINE PART OF THE PANCREAS OF RATS

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It is a well-known fact that modern conditions of human life create the problem of long-term mental and physical stress. This is considered one of the risk factors for the development of various somatic pathologies, including diseases of the pancreas. Therefore, we considered it important to assess the impact of stressors by examining the morphofunctional state of the exocrine part of the pancreas in experimental animals.

The aim of the study was to study the morphofunctional state of the exocrine part of the pancreas in rats due to the action of the effect of long-term mental and physical (immobilization) stress.

Materials and methods. The state of the pancreas of rats under stress conditions (1 group) and in standard vivarium conditions (2 group) was studied. The animals of the main group, according to the experimental model, for 49.0 ± 5.5 days every day at different time intervals, were placed one at a time in special pen cages (size $6.0 \times 6.0 \times 23.0$ cm), which were placed in blocks for 5 animals, so that each rat was in close contact and felt the presence of neighboring animals. Morphological and biochemical studies were carried out. To assess the morphofunctional state of the exocrine part of the pancreas, the following were studied: the average area of acini; cytoplasm of acinocytes, qualitative changes of nuclei of acinocytes. The stromal component of the pancreas was also evaluated.

Результати. In 100% of rats under stress conditions (the 1st group) discovered a decrease in the area of acini of the pancreas by 8.2% ($p=0.028$) from the indicator of the 2nd group was found. Also, in the rats of the main group, have been identified dystrophic changes of exocrinocyte nuclei in the form of karyopyknosis, karyolysis, chromatin margination (in $40\% \pm 15.5$). Also found vacuolar dystrophy of the cytoplasm of acinocytes, stroma edema. Hemodynamic disturbances were identified: expansion and overflow of blood vessels with stasis phenomena. According to the results of a biochemical study in 100% of rats of the 1st group the levels of α -amylase and lipase are more than 3 times higher than the level of animals of the 2nd group. At the same time, the level of $\alpha 1$ -antitrypsin is reduced by 1.5 times in rats under the influence long-term stress.

Conclusions. The effect of chronic stress in rats causes involucional changes in their pancreas, contributes to hemodynamic disturbances. At the same time, the level of the exocrine secretory activity of the pancreas according to the content of enzymes in the blood serum is significantly increased, that is, there is a violation of the functional state of the pancreas, in the form of hyperpancreatism.

The results of the study indicate that long-term mental and physical stress in rats is a significant risk factor for the development of chronic pancreatic pathology.

Key words: exocrine part of pancreas, mental and physical stress, experiment.

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