SECTION OF MORPHOLOGY
СЕКЦІЯ МОРФОЛОГІЇ

EFFECT OF ACUTE IMMOBILIZATION STRESS ON THE MUCOUS MEMBRANE OF THE MAIN AND SEGMENTAL BRONCHI OF RATS

Kyslyi V.F., Yfimchuk D.V., Torubara O.O., Grinko R.M.
Scientific adviser: assoc. prof. Koptev M.M., PhD., MD., assoc. prof. Vynnyk N.I., PhD., MD.
Ukrainian Medical Stomatological Academy
Poltava, Ukraine
Department of Clinical Anatomy and Surgery
Department of pathological anatomy with section course

Relevance: The problem of stress continues to be a topical issue for modern medical science, despite its long study. Numerous models of stress reproduction and various laboratory animals are widely used to study the effects of stress reactions on a living organism.

Aim of the results: Study of the effect of acute immobilization stress on the mucous membrane of the partial and segmental bronchi of rats caused by fixation of the cervical fold of rats.

Methods and Materials: Based on bioethical standards, the study was performed on 10 adult male white rats. I (control) group consisted of 5 intact animals, II (experimental) group consisted of 5 rats that underwent acute immobilization stress. The acute stress model was reproduced by fixation of rats with an atraumatic clamp for six hours on the neck fold. Euthanasia of animals was performed under intraperitoneal thiopental-sodium anesthesia. For histological examination bronchial micropreparations were stained with hematoxylin and eosin.

Results: The mucous membrane of the main and segmental bronchi of rats is lined with a simple ciliated pseudostratified epithelium, which consists of polymorphic epitheliocytes with different functional purposes. The nuclei of these cells form several rows. Among the epitheliocytes are ciliated, goblet, endocrine and basal cells. The surfaces of the ciliated epitheliocytes, facing the lumen of the bronchus, have flashing cilia. Goblet cells are located between the ciliated cells and perform a secretory function. Neuroendocrine cells are rare and alone, with small optically dense granules in their cytoplasm. Basal cells that have retained the ability to mitosis are located in the basal layer. Under the influence of acute immobilization stress in the mucous membrane of the partial and segmental bronchi of rats there are significant destructive changes, which are manifested by loss of integrity of the epithelial layer, destruction of intercellular contacts of epitheliocytes, vacuolization of their cytoplasm. Erythrocytes and cellular detritus were determined in the lumens of the bronchi. In the connective tissue of its lamina propria showed signs of hyperhydration - optically light amorphous substance prevailed over the fibrous and cellular components.

Conclusions: Thus, acute immobilization stress caused by fixation of rats by the cervical fold causes significant destructive changes in the mucous membrane of the partial and segmental bronchi of experimental animals.

Keywords: Stress, rats, morphology, bronchial mucosa.

COMPARATIVE ANATOMY OF RAT AND HUMAN STOMACH IN THE EXPERIMENT

Lavrenko K.D.
Scientific adviser: assoc. prof. Hryn V.H., PhD., MD., assoc. prof. Tarasenko Ya.A., PhD., MD.
Ukrainian Medical Stomatological Academy
Poltava, Ukraine
Department of Human Anatomy

Background. In experimental medicine, albino rats are most often used as models for the research studies, since the anatomy and physiology of their body is similar to the human one. At the same time, the study of the specific features of the structure of the internal organs of rats is necessary to update current morphological information about the possibility of studying the course and modeling some pathological conditions.

Purpose. The paper was aimed at the study of some anatomical features of the stomach structure of albino rats.

Methods and Material. The study was carried out on 30 albino rats, half of which were on a daily fast before vivisection, and the others were sacrificed after morning feeding. After euthanasia, the stomachs with the distal esophagus were removed and fixed in 10% neutral formalin solution. Subsequently, the organs of the gastrointestinal tract were filled with air, saline and self-hardening plastic (Latacryl-S) through the esophagus, and then subjected to acid corrosion to obtain casts of the stomach.