

HISTOMORPHOLOGICAL CHANGES OF LUNG TISSUE OF ADULT RATS AFTER EXPOSURE TO DIFFERENT TYPES OF ALIMENTARY DEPRIVATION

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Abstract

The aim of the study was to investigate and compare histomorphological changes in the lung tissue of adult rats after exposure to various types of alimentary deprivation (AD).

Materials and methods. The study was conducted on 36 rats of Wistar lines at the age of 15 months. One group of experimental rats was under the influence of interval (1 day full fasting / 2 days standard diet) and the other – partial (reduced calorie diet by 30 % compared to control) AD. The total duration of the experiment was 28 days. Water access was free. Histological lung preparations were made according to the standard technique. Histo-morphometry of digital images was performed using the computer program "Image J".

Results. At the end of the experiment, exposed to partial AD rats demonstrated an increase in the relative area of the air spaces, the increase in the size of the lumen of the alveoli, their depth and width of the entrance to them, the decrease in the area of the parenchyma and stroma and the number of connective tissue elements. The data of histomorphometric parameters of the lungs of animals after exposure to the interval AD remained close to the control values. Reducing the thickness of the interalveolar septum may indicate the improvement of alveolar-capillary gas exchange.

Conclusions. The severity of changes in the lungs of animals after the exposure of a partial AD was manifested to a much greater extent than after interval fasting. Changes in the main histomorphometric indicators of lung tissue, after the action of the AD, indicate the presence of signs of increased pulmonary airiness and improvement of gas exchange processes.

Key words: alimentary deprivation, lung respiratory part.

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