

STATE OF THE RESPIRATORY PART OF THE LUNG OF HYPERTENSIVE AND NORMOTENSIVE RATS AFTER MELATONIN EXPOSURE

**R. V. Yanko, V. A. Berezovskiy, O. G. Chaka, L. M. Plotnikova,
M. I. Levashov, I. G. Litovka**

Abstract

Aim: to investigate and compare the effects of exogenous melatonin on morphological and biochemical indicators of the structure and function of the respiratory part of the lung (RPL) in two different lines of rats.

Methods. The study was conducted on 48 young Wistar and spontaneously hypertensive (SHR) male rats. Melatonin was administered daily at 10 am orally at a dose 5 mg/kg of body mass. Duration of the experiment was 28 days. Evaluation of the structural changes in RPL was performed using morphological, morphometric and biochemical methods.

Results. After 28-day treatment with melatonin in Wistar line rats we observed a significant increase in cross-sectional area, mean diameter, depth and width of the entrance to the alveoli compared to the control group. In SHR we found the significant decrease of alveolar wall thickness, the tendency to reduction of hydroxyproline concentration in lungs, which may indicate a decrease in the number of connective tissue elements and improvement of alveolar-capillary gas exchange.

Conclusion. 28-day administration of exogenous melatonin to Wistar and SHR rats causes an increase of total alveolar surface area. We observed the decrease in the number of connective tissue elements in RPL in SHR line rats, which can increase the effectiveness of gas exchange.

Key words: melatonin, respiratory part of the lung, lung connective tissue.

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Roman V. Yanko

Bogomolets Institute of Physiology of NAS of Ukraine

Senior research assistant, PhD

4, Bogomolets St., Kiev 01024, Ukraine.

Tel.: 38 (044) 256-24-77, e-mail: biolag@ukr.net