

USAGE OF MEXIDOL AS A NEPHROPROTECTOR IN ACUTE STRESS REACTION

Kyslyi V.F., Torubara O.O.

*Research advisor: Pyroh-Zakaznikova A.V., PhD; Sovhyrya S.M., PhD.
Ukrainian medical stomatological academy*

Introduction: Prevention and treatment of renal pathology in our time is one of the main problems of nephrology duaring stress. One of the most urgent tasks of modern medicine is to find opportunities that reduce the impact of stress reactions on the kidneys.

Aim: The aim of the research is to determine the effectiveness of the using of Mexidol as a nephroprotector on the kidneys of white rats exposed to acute immobilization stress.

Materials and methods: The research subjects were 15 adult white male rats. First control group consists of 5 intact animals, group II consists of 5 rats exposed to acute immobilization stress without correction, group III consists of 5 rats exposed to acute immobilization stress with correction of Mexidol. Immobilizing rats lying on their backs for 6 hours was chosen as a method of modeling of acute stress. For the correction of acute stress Mexidol was administered once intraperitoneally 20 minutes before the fixation period at the rate of 100 mg/kg animal weight. Material sampling was performed after animal euthanasia for further macroscopic and microscopic examination. Kidney micropreparations were stained by hematoxylin and eosin using standard techniques.

Results: As a result of studies, we have found that, due to stress macroscopic changes were not detected. At the histological level the lumen of the convoluted tubules of the kidneys is enlarged and some of them are filled by homogeneous eosinophilic masses. On micropreparation is revealed the presence of vacuoles in the cytoplasm of epitheliocyte filled with a translucent fluid, necrosis of some epithelial cells was observed. In the peritubular vascular system focal hemorrhages are exist. The glomerular apparatus is characterized by the expansion of the Bowman capsule, the capillaries are full-blooded, there are swelling of the mesangial matrix. Some nephrons are excluded from filtration due to the sticking together of the inner layer cells of the kidney glomerular capsule.

Mexidol exposed rats have less pronounced morphological changes due to stress. The convoluted tubules of rats of group III are characterized by swelling of epitheliocytes, the lumen of some tubules is filled with a small amount of homogeneous masses. Part of the glomerulus is characterized by a full-blooded capillary, the mesangium is slightly swollen.

Conclusions: Research shows that the usage of Mexidol as a nephroprotector during the influence of acute stress occurs.

E-mail for correspondence: kisliyvf@gmail.com