

THE ULTRASTRUCTURE OF SELECTED NEPHRON SECTIONS OF RATS UNDER THE INFLUENCE OF ROFECOXIB

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Non-steroidal anti-inflammatory drugs are a broad, diverse group of medications which have anti-inflammatory, analgesic and antipyretic effects [1]. One of the representatives of this group is the drug Vioxx®, cyclooxygenase-2 inhibitor, launched onto the market in 1999, however, 5 years later withdrawn from health care due to possible side effects.

Female rats of Wistar strain received rofecoxib (Vioxx®, MSD, N.Y. the USA) through a tube, intragastrically, in the form of suspension in physiological saline (1 ml) in the period of 12 weeks. The drug was administered in the maximal 24-hour dose (0,150 mg/rat). Sections of the renal cortex were prepared for observation in a transmission electron microscope.

In electron microscope preparations obtained from the experimental group of rats the renal corpuscles had a changed structure compared to the images observed in the kidneys of the control group. There were observed podocytes with changed morphology. Thinning of secondary cellular processes accompanied by changes in their cytoplasm was noticeable. In comparison with the control image an increase in the number of lysosomes was observed in the epithelium cells of the renal tubules near which there were found frequently occurring cytoplasm dilutions.

An increased number of lysosomes in the epithelial cells of the tubules indicates intensification of lytic processes. Cytoplasm dilutions can be caused by the intensification of the activity of lysosome hydrolytic enzymes as well as by disturbances in water-electrolyte balance and accumulation of water in the cell.

The described observations are in accordance with the specialized literature data [2, 3, 4] and with the results of our earlier studies on the influence of high and low doses of coxibs on the kidney of female and male rats in experimental conditions.

References

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