

MORPHOLOGICAL CHANGES IN THE URINARY BLADDER IN THE INTERMEDIATE PERIOD OF MILD SPINAL BRAIN INJURY

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Abstract: *This thesis presents the results of the analysis of morphological changes in the urinary bladder in the intermediate period of mild spinal cord injury.*

Keywords: *spinal cord injury, hematoxylin-eosin staining, interstitial edema.*

Relevance: *According to the World Health Organization, in 2019, approximately 27 million people worldwide were disabled due to spinal cord injury [3]. This situation will significantly reduce the quality of life of patients in the future, causing serious damage not only medically, but also economically in the country.*

In the period of rapid development of modern civilization, spinal cord and spinal cord injuries account for 0.7-6-8% of total injuries, and 6.3-20.3% of bone injuries, and cause disability of middle-aged able-bodied persons [Akshulakov S.K., Kerimbaev T.T. 2002; Shpachenko N.N., Klimovitsky V.G., Stegnyy S.A. 2007]. Data on morphofunctional changes in the urinary organs, especially the urinary bladder, after spinal cord and spinal cord injuries have been studied very little, and the occurrence of complications in the urinary bladder after spinal cord injury and measures aimed at treating these complications have shown that finding a solution to them is not only a medical, but also an economic and social problem.

Materials and methods of research: The experiments were conducted on 15 white male and female inbred rats born in vivarium conditions. 3-month-old white male rats were recruited for the study, and spinal cord injury was inflicted using a specially developed model using the "fall from a height" method. All animals with spinal cord injury were anesthetized under light isoflurane general anesthesia and the urinary bladder was removed. Histological preparations were prepared from the removed organ, stained with hematoxylin-eosin, methylene blue, and corresponding pictures were taken. Also, relevant changes in these histological preparations were determined. Statistical (methodological) data were used to process the results obtained during the study.

Results and Discussion: The following data were obtained at different periods of spinal cord injury in 3-month-old white rats: Macroscopically, it can be seen that the urinary bladder of the 3-month-old white rats of the study group is an odd organ and is located in the pelvic cavity. During the macroscopic analysis of the urinary bladder, no pathological changes visible from the outside were observed.

The results of the histological examination showed that in the intermediate periods of the spinal cord injury, swelling between tissues in the submucosal layer of the bladder wall, expansion of veins and blood vessels, and accumulation of acidic mucopolysaccharides in the focus are morphofunctional signs of the hypoxia process. In this case, when microscopic examination of the urinary bladder of rats within 1 hour, 8 hours and 24 hours of spinal cord injury, these changes increased, and on the 14th day, we can see that these changes decreased due to the body's defense mechanisms.

Thus, histologically, changes such as interstitial edema of the mucous and submucosal layers of the bladder wall, dilatation of venous blood vessels, and the like were observed in the acute period of the 3-month-old white rats of the experimental group with spinal cord injury, and we can witness their decrease from the intermediate period.

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