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

Among all types of trauma, spinal cord injury (SCI) is of particular importance, characterized by a violation of the physiological function and anatomical integrity of the spinal cord. In recent decades, rapid urbanization, the growth of industry, technology, and the number of vehicles, as well as the increase in the number of various car accidents, have led to a steady increase in the incidence of spinal cord injuries (SCIs) [3]. In patients with spinal cord and spinal cord injuries, rheological and CSF changes resulting from injuries to the spinal cord, its vessels, and roots lead to partial or complete disruption of the conduction pathways. These disorders affect not only the central nervous system, but also negatively affect the functioning of all internal organs and systems (stomach, small intestine, large intestine, liver, kidneys, adrenal glands, etc.) [1,2]. Data on morphofunctional changes in the adrenal glands after spinal cord and spinal cord injuries have been studied very little, and complications in the urinary bladder after spinal cord injuries and measures aimed at treating these complications have shown that they are not only a medical, but also an economic and social problem, and finding a solution to them is an urgent task.

Taking into account the above, at present, morphofunctional changes in the urinary bladder as a result of spinal cord injuries of various degrees, determining the degree of damage to these organs, remain insufficiently studied. All of the above determined the goals and objectives of the study.

Materials and methods: The experiments were conducted on 10 white outbred rats of both sexes born in vivarium conditions. Three-month-old white outbred 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 obtained urinary bladder, stained with hematoxylin-eosin, 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, located in the pelvic cavity. During the macroscopic analysis of the urinary bladder, no pathological changes were observed that were visible from the outside.

The results of histological examination showed that in the intermediate periods of spinal cord injury, we can see an increase in the amount of connective tissue in the submucosal layer of the bladder wall. In this case, microscopic examination of the bladder of rats 1 hour, 8 hours and 24 hours after spinal cord injury revealed thickening of the mucous layer of the bladder wall. The intensity of changes is highest in the early period.

Conclusion: Thus, histologically, changes such as edema of the mucous and submucosal interstitial tissue of the bladder wall of 3-month-old white rats of the experimental group with spinal cord injury were especially pronounced in the acute period, and we can witness the formation of connective tissue in the early period.

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