MORPHOLOGICAL FEATURES OF THE SMALL INTESTINAL INJURIES IN THE EARLY PERIOD OF MILD SPINAL BRAIN INJURY

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Abstract: *This thesis presents the results of scientific studies that allowed us to assess and study the morphological features of the small intestine of 3-month-old white crossbred rats in the early stages of mild spinal cord injury.*

Keywords: *proximal and distal parts of the small intestine, villi, atrophy, hemorrhagic hemorrhage.*

Relevance: The incidence and prevalence of spinal cord and spinal cord injuries worldwide have increased by almost thirtyfold in the past few years [1,2]. According to WHO, to date, about 500,000 people suffer from spinal cord and spinal cord injuries every year due to various car accidents and accidental events, which ultimately lead to group I and II disability of patients. Because the prognosis for the recovery of sensory and motor functions after spinal cord injury is unsatisfactory [3].

The degree of dysfunctional changes in the digestive system and other systems in patients with spinal cord and spinal cord injuries largely depends on the location and severity of the injury, among which complications in the small intestine are of particular importance. Timely and successful treatment and prevention of complications in the small intestine due to spinal cord and spinal cord injuries allows preserving the functions of these organs and improving the quality of life of patients, as well as saving the lives of victims by reducing complications from the digestive system. Data on morphological changes in the digestive system after spinal cord injury, especially changes in the small intestine, have been poorly studied, which shows that complications in this organ are not only a medical, but also an economic and social problem, and finding a solution to it is an urgent task.

Research materials and methods: The experiments were conducted on 12 3-month-old white rats of both sexes born in vivarium conditions. In order to determine the morphological parameters of the small intestine in the early stages of spinal cord injury, the following two large groups were formed:

1. Control group (n=5)

2. Research group, i.e., those with mild spinal cord injury but not treated with drugs (n=7)

In the study, mild spinal cord injury was inflicted on white rats using a specially developed model using the "fall from a height" method. Then, the animals of the experimental group were killed by decapitation under light isoflurane anesthesia and the small intestine was isolated. Histological preparations were prepared from the isolated organ and stained with hematoxylin-eosin. Then, corresponding histological images were taken from the preparations.

Research results: Studies have shown that the body weight of three-month-old white rats in group 2 (study) ranged from 120 g to 158 g, with an average of 144 g. The early period of spinal cord injury, usually 14 days after injury, is characterized by the presence of inflammation and secondary degenerative changes in the wall of the small intestine due to disruption of innervation by the nervous system.

When the small intestine of rats in group 2 is stained with hematoxylin and eosin, we can see a decrease in the height of the villi and the area they occupy, and their surface is flattened. This condition significantly reduces the surface area for absorption of nutrients from the small intestine. We can witness the appearance of signs of hypertrophy of the intestinal muscle layer. This condition, if continued for a long time, leads to chronic impairment of intestinal motility.

Conclusion: Thus, in the 3-month-old white rats of the 2nd study group, which received mild spinal cord injury but were not treated with drugs, histologically, various pathological changes were noted in the wall of the proximal and distal parts of the small intestine.

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