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Morphofunctional Changes in the Spinal Cord of Rats after Contusion Injury with Local Delivery of Methylprednisolone in Combination with a Copolymer

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We studied the neuroprotective effect of local application of methylprednisolone in combination with a block copolymer after contusion spinal cord injury in rats. Histological analysis of the spinal cord showed that delivery of a complex of methylprednisolone with a block copolymer reduced the volume of white and gray matter lesions. An increase in the amplitude of the evoked response of the gastrocnemius muscle was observed during epidural stimulation of the spinal cord 6 h after the injury. The maximum amplitude of the muscle response was greater in the group with local delivery of the methylprednisolone complex with the polymer 72 h after the injury. The obtained results demonstrate the neuroprotective effect of the local administration of the complex and allow to make positive prognosis for the recovery of the sensorimotor functions in rats.