

Category : **Brain: cerebro-vascular accidents**

A92 - Effect of lithium chloride on the volume of ischemic stroke in rats

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Introduction:

The aim of the study was to evaluate the effect of lithium chloride in various dosages on the volume of brain damage in ischemic stroke in rats.

Methods:

The study used male rats weighing $315 \pm 13,5$ g. The Long focal ischemia model was used. The animals were split into 5 groups: false-operated (median incision in the projection of the carotid artery without ischemia), control (model of ischemic stroke with the introduction of 0,9% NaCl) and three groups with the introduction of lithium chloride at concentrations of 4,2 mg/kg, 21 mg/kg and 63 mg/kg, respectively. Lithium chloride was administered immediately after the termination of the occlusion of the middle cerebral artery and then every 24 hours until euthanasia. To assess the degree of brain damage, the animals underwent magnetic resonance imaging (MRI) on day 2, and brain sections stained with 2,3,5-triphenyltetrazolium chloride were evaluated on day 7 after euthanasia.

Results:

According to MRI data, lithium chloride at a dose of 4,2 mg/kg did not significantly affect the volume of ischemic stroke and perifocal edema in relation to the control group on day 2 ($p=0,9$). When using a dose of 21 mg/kg, the volume of stroke ($p=0,04$) and perifocal edema was significantly lower ($p=0,03$) than in the control group (by 25% and 18%, respectively). Lithium chloride at a dose of 63 mg/kg significantly reduced the volume of stroke (45%, $p=0,004$) and perifocal edema (35%, $p=0,007$). When determining the volume of the lesion on day 7, the data were comparable with the results obtained on day 2. When using a dose of 21 mg/kg, the stroke volume was 20% lower ($p=0,04$) than in the control group. Lithium chloride at a dose of 63 mg/kg reduced stroke volume by 40% ($p=0,0037$)

Conclusion:

Lithium chloride at dosages of 21 mg/kg and 63 mg/kg significantly reduced the volume of ischemic stroke and perifocal edema of the brain, but when using a concentration of 63 mg/kg, the effect was more pronounced