

## عنوان مقاله:

Evaluation of Antiapoptotic Effect of Valproic Acid on Rat Model of Spinal Cord Injury

## محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان، دوره 25، شماره 113 (سال: 1396)

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## خلاصه مقاله:

**Background and Objective:** Spinal cord injury (SCI) leads to the loss of axons and cell death via necrosis and apoptosis, eventually resulting in sensory and motor dysfunction. The aim of this study was to evaluate the effects of valproic acid on the inhibition of apoptosis and the improvement of motor function in the rat model of spinal cord injury. **Materials and Methods:** Contusion model was used to induce SCI. Twenty contused rats were equally divided into two groups, the negative control group did not receive any injections but the treatment group received valproic acid (400 mg/kg intraperitoneally) daily for one week. The laminectomy group was considered as a positive control. Rats were killed 28 days post injury and their damaged spinal cord was removed and examined for apoptotic positive cells using TUNEL-assay. Also, the cavity volume (mm<sup>3</sup>) percentage at 4200 μm length of the spinal cord (including rostral and caudal regions from the injury epicenter) was assessed for each sample. Subsequently, behavioral testing (BBB test) was performed for 4 weeks (the third and final day per week). **Results:** The results of BBB-open-field locomotor score showed a significant improvement in the group that was treated with valproic acid relative to the untreated group. The results acquired from TUNEL-assay showed that the apoptosis rate in the valproic acid treated rats was significantly decreased compared to the control group. Also, the percentage of cavity volume in the valproic acid treated group compared to the control (untreated) group showed a significant decrease. **Conclusion:** Our findings showed that Valproic acid protects neural cells and effectively ameliorates locomotor function in SCI rats.

## کلمات کلیدی:

Keywords: Valproic acid, Spinal cord injury, Apoptosis

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