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Poster Presentation

The Repair Effects of Histone Deacetylases Inhibitors on Improves Locomotion: In Vivo Evaluation with Electromyography (EMG) after Spinal Cord Injury

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Abstract

Spinal cord injury (SCI), a common result of car accidents, high-altitude falls and crashes, and other violent injuries is increasing yearly. Histone deacetylases (HDAC) inhibitors including Depakine the main characteristics of the use of anti-inflammatory. The purpose of this investigation is to evaluate the effect of Depakine intervention on the acute SCI at the chronic phase using functional parameters to access the outcome. Locomotors function was assessed by the H-reflex and Basso-Beattie-Bresnahan (BBB) test for 12 weeks. The ratio of the maximum H to M reflexes (H/M ratio) was used the plantar muscle of rats. The stimulator electrodes were inserted around the sciatic nerve. To elicit the H-reflex, the sciatic nerve was stimulated with increasing stimulus intensity for 0.2 ms at 0.1 to 10 Hz, so that the first H-wave appears. Recordings were made before and at first week, 6th week, 12th week intervals after drug administration. H-reflex and BBB scores in rats receiving Depakine were significantly higher than in the saline group ($P<0.05$). BBB test showed the highest score was achieved by 300 mg/kg at 12 hr and the results of the electromyography (H/M ratio) were consistent with behavioral test. The quantitative assessment of the cavitation in the Depakine group was significantly reduced compared to the control (saline-injected) group ($P<0.05$). The percentage of decrease in the H/M ratio was 25.8 % (relative to the corresponding delivery time at the same dose in the first week post-injury), accordingly, 26.8, 29.1 and 27.3% at 200, 300 and 400 mg/kg. The data demonstrated that there was an improvement of the contusion rat model treated at the acute phase of injury with optimal dose of Valproic acid which is characterized by an increase BBB score.

Keywords: Depakine, Histone Deacetylases, Valproic Acid.

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