Original Paper

Effect of *Hyssopus officinalis* leaves alcoholic extract on motor neuron density in anterior horn after sciatic nerve compression in rats

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Abstract

Background and Objective: The degeneration of motor neuron in anterior horn of spinal cord can be caused by compression. *Hyssopus officinalis* of Laminacea family demonstrate antioxidant and anti-inflammation effects. This study was done to evaluate the effect of alcoholic extract of *Hyssopus officinalis* leaves, on motor neuron in spinal cord after sciatic nerve compression in male rats.

Methods: In this experimental research, 60 male wistar rats were randomly allocated into six groups including; control, compression, and compression + treatment (25, 50, 75, 100 mg/kg/bw). In order to induce compression, sciatic nerve of right leg was exposed to compression for 60 second using locker pincers. Extract injected intraperitoneally in the first and second week after compression. 28 days after compression under profusion method, the lumber spinal cord was sampled. The density of motor neurons (9-20 micron) was measured using dissector and stereological method.

Results: Density of neurons in compression group (611±34) significantly reduced compared to the control group (1658±30) ($P<0.05$). Moreover, neuronal density was significantly increased in 25 (1179±22), 50 (1260±20), 75 (1350±15) and 100 (1120±10) mg/kg/bw doses in treatment groups in compared to the compression group ($P<0.05$).

Conclusion: Alcoholic extract of *Hyssopus officinalis* leaves exhibite neuroprotective effect on neurons in anterior horn of the spinal cord after injury. This effect probably is related to the antioxidant and anti inflammation properties in alcoholic extract of *Hyssopus officinalis*, dose dependly.

Keywords: *Hyssopus officinalis*, Neuron, Sciatic nerve, Stereolog, Rat

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