

Original Paper

Effect of alchohlic extract of *Achillea wilhelmsii* on density of motor neurons of spinal cord after sciatic nerve compression in male rats

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Abstract

Background and Objective: Transaction or laceration and compression of peripheral nerves in accidents and different circumstances resulting Wallerian degeneration which go back to perikaryon through retrograde reaction. This study was done to determine the effect of alchohlic extract of *Achillea wilhelmsii* on density of motor neurons of spinal cord after sciatic nerve compression in male Wistar rats.

Methods: In this experimental study, 30 male wistar rats were randomly allocated into 5 groups: group A: control, group B: compression, group C: compression and treatment with 50 mg/kg/bw of ethanolic extract, group D: compression and treatment with 75 mg/kg/bw of ethanolic extract and group E: compression and treatment with 100 mg/kg/bw of ethanolic extract of *Achillea wilhelmsii*. After anesthetizing rats, skin and sub cutaneous muscles of right thigh were cut to sciatic nerve appears. Then, compression of sciatic nerve was done by a surgical forceps for 60 seconds, followed by suturing muscle and skin. Extract injection was done intraperitoneally for three weeks after compression. Group A and B were received normal saline. 28 days after compression, samples were prepared from lumbar spinal cord under perfusion method and histological sections were provided serially. After staining, density of motor neurons was calculated by dissector method.

Results: Neuronal density in the compression group (707 ± 38.56) significantly reduced in compare to control group (1740 ± 49.81), ($P < 0.05$). Neuronal density in group C (1208 ± 57.58), group D (1370 ± 33.91), and group E (1437 ± 64.46) significantly increased in compare to compression group ($P < 0.05$), respectively.

Conclusion: Ethanolic extract of *Achillea wilhelmsii* increased neuronal density of rat's spinal cord after compression of sciatic nerve.

Keywords: Wallerian degeneration, Sciatic nerve, Motor neuron, *Achillea wilhelmsii*

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