The Effect Of Atorvastatin On Post-Traumatic Acute Spinal Cord Injury

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Abstract

Introduction: Spinal cord injury causes sensory, motor, urinary tract impairment or a combination of these and in our country are consist a large proportion of patients that referred to trauma centers. Recently Neuroprotective therapies have attracted a lot of staff to approach the patient. Many pharmacological agents, in this field are used to reduce secondary damage after the primary disorder and try to preserve nerve tissue. Atorvastatin is a drug that decreasing the serum level of cholesterol by inhibiting the HMG-CoA enzyme. Some articles refer to the proinflammatory cytokines inhibition effects of atorvastatin (such as IL-2, IL-12, MCP-1 and IFN-gamma) in the recovery and reduce secondary damage after spinal cord injury. The aim of this study was to investigate the effect of atorvastatin on sensory and motor status and pain level of patients with acute spinal cord injury.
Method: In this clinical trial, 50 patients with acute spinal cord injury with A to C Frankel classification selected and randomly divided into two groups (each group included 25 patients). The two groups carefully matched in terms of age, sex and Frankel class. Group A in addition to conventional treatment, received atorvastatin and were evaluated after 3-months interval in terms of sensorimotor status and compared with group B.
Results: In our study, we had 24 patients with complete and 26 patients with incomplete spinal cord injury. In the **3-months follow up interval**, in case group 9 of the 11 patients (81.81%) and in controls 11 of the 13 patients (84.61%) with complete SCI showed improvement symptoms. Also in patients with incomplete

spinal cord injury in case group 2 of 12 patients (14.28%) and in controls 2 patients of the 10 patients (16.66%) showed improvement symptoms. But there was no significant difference between the two groups in each type of spinal injury (P = 0.63 and P = 0.64). The initial pain levels in the case and control groups based on the VAS system were 9.3 ± 1.17 and 9.13 ± 1.32 respectively (P = 0.9). Evaluation of pain level in patients in the 3-months follow up interval had a score of 2.01 ± 1.12 and 3.9 ± 1.4 in case and controls respectively. In this period, the reduction in pain was observed in both groups, but the decline was more common in cases than controls. But the difference between the two groups was not statistically significant (P = 0.064).

Conclusion: Based on the results despite the more improvement in patients receiving atorvastatin in 3-month follow up interval, the difference between groups was not statistically significant. Also in terms of the pain levels in patients based on the VAS scale, there was no significant difference between the two groups of patients. So it seems that administration of atorvastatin have no significant effects on pain relief or improvement in sensory and motor status in patients with acute spinal cord injury.

Keywords: Acute Spinal Cord Injury, Frankel Classification, Atorvastatin, Sensory and Motor, Pain