

Original Paper

Effect of Coenzyme Q10 on neuropathic pain in adult CCI Rat model

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Abstract

Background and Objective: Oxidative stress is known as the one of the causes of neuropathic pain, reactive oxygen species (ROS) has been reported to be involved in this process. Coenzyme Q10 acts as an antioxidant and is able to reduce resulting oxidative damage. This study was done to determine the effect of Coenzyme Q10 on neuropathic pain in CCI (Chronic Crash Injury) rat model.

Materials and Methods: In this experimental study 30 male rats (200-250g) randomly allocated into 3 groups each 10 rat including CCI, CCI + CoQ10 and CCI + vehicle. Neuropathic pain, was induced by Chronic Crash Injury (CCI) model for sciatic nerve. IP injection of CoQ10 (200 mg/kg) or vehicle was done daily for 10 days. Behavioral tests were done before and after surgery on day 5 and 10 respectively. Paw withdrawal threshold was assessed by Randall Selitto test, Analgesy Metter and Von Frey filaments. Data was analyzed by SPSS-14, Independent T and Mean-whatney tests.

Results: Induction of nerve injury decreased pain threshold ($P < 0.05$) and treatment with CoQ10 increased mechanical and thermal threshold in neuropathic rats compared to CCI animals ($P < 0.05$). There was a significant difference in pain threshold between animals treated CoQ10 and vehicle injected animals ($P < 0.05$).

Conclusion: This study indicated that coenzyme Q10 prevents deleterious effects following nerve injury in animal model.

Keywords: Coenzyme Q10, Oxidative Stress, Neuropathic pain, CCI, Rat

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