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Alterations of Cyclooxygenase Expression in the Spinal Cord of Carrageenan-injected rats by Electroacupuncture Stimulation

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We investigated the effects of electroacupuncture (EA) on the expression of cyclooxygenase in the spinal cord of acute inflammatory pain model. Inflammation was induced by an intraplantar injection of 1% carrageenan into the right hind paw of Sprague-Dawley. Bilateral 2 Hz EA stimulation with 0.5 ㎃, 1 ㎃ and 3 ㎃ were delivered at those acupoints corresponding to Zusanli and Sanyinjiao in man via the needles in carrageenan-injected rats. Three hours after carrageenan injection, effects of EA on cyclooxygenase (COX) expression were observed in the dorsal horn of the spinal cord using immunohistochemical method. The immunoreaction of COX-1 tended to increase in the superficial laminae and the neck of the dorsal horn as compared with normal. The COX-2 immunoreaction in the carrageenan-injected rat was also significantly increased in the all regions of the dorsal horn as compared with normal one. However, COX-1 immunoreaction in carrageenan-injected rat were decreased in the superficial laminae and neck of the dorsal horn by low intensity of EA stimulation. Except high intensity of EA stimulation in the superficial laminae, COX-2 expression was attenuated in all regions of the dorsal horn by all types of EA treatment. It is concluded that EA treatment may attenuate inflammatory pain in carrageenan-injected rat through modulating expression of COX-2 in the dorsal horn of the spinal cord.