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Auricular Electroacupuncture Rescued Epilepsy Seizure by Attenuating TLR-2 Inflammatory Pathway in the Kainic Acid-Induced Rats

Authors : I-Han Hsiao, Chun-Ping Huang, Ching-Liang Hsieh, Yi-Wen Lin

Abstract : Epilepsy is chronic brain disorder that results in the sporadic occurrence of spontaneous seizures in the temporal lobe, cerebral cortex, and hippocampus. Clinical antiepileptic medicines are often ineffective or little benefits in the small amount of patients and usually initiate severe side effects. This inflammation contributes to enhanced neuronal excitability and the onset of epilepsy. Auricular electric-stimulation (AES) can increase parasympathetic activity and stimulate the solitary tract nucleus to induce the cholinergic anti-inflammatory pathway. Furthermore, it may be a therapeutic strategy for the treatment of epilepsy. In the present study, we want to investigate the effects of AES on inflammatory mediators in kainic acid (KA)-induced epileptic seizure rats. Experimental KA injection increased expression of TLR-2 pathway associated inflammatory mediators, were further reduced by either 2Hz or 15 Hz AES in the prefrontal cortex, hippocampus, and somatosensory cortex. We suggest that AES can successfully control the epileptic seizure by down-regulation of inflammation signaling pathway.

Keywords : auricular electric-stimulation, epileptic seizures, anti-inflammation
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