



The 2nd International Neuroinflammation Congress and 2nd Student Festival of Neuroscience

Shefa Neuroscience Research Center, Tehran, Iran, 17-19 April, 2018

The Neuroscience Journal of Shefaye Khatam

Volume 6, No. 2, Suppl 1

Poster Presentation

Anti-Inflammatory Curcumin Effect on Neuronal Number in the CA1 Area Following Global Cerebral Ischemia

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Published: 17 April, 2018

Abstract

Global cerebral ischemia (GCI) leads to inflammation and neuronal death in CA1. Curcumin with neuroprotective and anti-inflammatory properties is a potential candidate for suppressing cell death. The aim of this study was to determine the effects of curcumin on neuronal number in the CA1 area following GCI. 28 Sprague-Dawley male rats were randomly assigned into four groups including sham, control, and curcumin 50 and 100 mg/kg (n= 7/group). Two treatment groups were orally received curcumin for 28 days. Control group was received PBS, Sham group did not receive anything. Cresyl violet staining following GCI was performed in 40µm paraformaldehyde perfused sections. Then the volume “v (CA1)” was estimated using the Cavalieri method and the total number of neurons in the CA1 area was determined using the optical disector method. There were no significant differences in the volume of CA1 between studied groups. Total number of neurons significantly reduced in control group compare with sham group (p<0.01). Also there was no significant difference between curcumin 50 mg/kg and control group in total number of neurons. But, curcumin 100 mg/kg significantly increased number of neurons in comparison with curcumin 50 mg/kg (p<0.05) and control group (p<0.01). We found two effects' curcumin dose dependently: the first, curcumin cause to prevent neuronal death, the second, curcumin increased neuronal number of CA1.

Keyword: Global Cerebral Ischemia, Curcumin, CA1, Number of Neuron

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