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Poster Presentation

The Effect of Post-Surgery Social Isolation on the Traumatic Brain Injury in Rat

Fariba Karimzadeh*

[1]Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.
[2]Cellular & Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran.

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Abstract

Traumatic brain injury (TBI) is one the most common cause of disability between young adults. These people have been socially isolated during post-surgery traumatic brain injury. In this study we investigated the effect of social isolation on the structural deficits after TBI in the young rats. Young rats were divided into control group with social interaction, sham group with social isolation and TBI group with social interaction, and TBI with social isolation. During four weeks after brain injury in young rats, we evaluated structural changes by histological procedures in the hippocampal areas. Our findings showed an increase of the mean number of dark neurons, apoptotic cells, and caspase-3 positive cells in the hippocampal areas in TBI rats with and without social isolation compared to sham rats. Furthermore, social isolation significantly increased the number of dark cells, apoptotic neurons, and caspase-3 positive cells in the hippocampal CA3 region in rats with TBI. This study indicates social isolation exacerbates the pathological effects of TBI in the hippocampal tissue in the young rats. Prevention of social isolation may improve the outcome of TBI.

Keywords: Brain, Traumatic Brain Injury, Social Isolation.

Corresponding Author: Fariba Karimzadeh

E-mail: *fariba_karimzade@yahoo.com*

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