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

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

The Neuroscience Journal of Shefaye Khatam

Volume 6, No. 2, Suppl 1

Poster Presentation

Assess the Electrophysiological Activity of Olfactory Bulb in the Animal Model of PTSD and its Relationship with Neuroinflammation in the Olfactory Bulb

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Published: *17 April, 2018*

Abstract

Post-traumatic stress disorder (PTSD) is a mental health condition that's triggered by a terrifying event - either experiencing it or witnessing it. In addition to the relationship between PTSD and neuroinflammation, research indicates that olfactory bulb are effective in anxiety disorders. The aim of this study was to assess the electrophysiological activity of olfactory bulb in the animal model of PTSD and its relationship with neuroinflammation in its area. 36 rats were divided into two groups: control and experiment. The modified Zoladz method was used to establish a PTSD animal model. Then, behavioral tests (open field (OF) and elevated plus maze (EPM)), electrophysiological evaluation (field potential) of olfactory bulb, and assessment of serum cortisol (as an inflammatory marker) were done. It was followed by dissection of the rat's brains, which could be apply for analysis of neurogenesis and inflammatory factors. In oF test, the time spent in the central area and in EPM test, the time spent in the open arm by the animals of experiment group were lower than that of control group ($P<0.05$- $P<0.01$). Moreover, experiment group significantly increased slope, slope 10-90%, amplitude of fEPSP, and also cortisol level compared to control group ($P<0.001$). Based on our findings, it is concluded that can be a relationship between PTSD and olfactory bulb function. Of course, more molecular investigations have been conducted in order to determine the effect of PTSD on the activity of Mitral and Tufted cells, and its association with neurogenesis and inflammation in olfactory bulb, which helps to identify the role of olfactory bulb in PTSD disorder.

Keywords**:** Post-Traumatic Stress Disorder, Neuroinflammation, Olfactory Bulb

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