

The 1st International Neuroinflammation Congress and 1st Student Festival of Neuroscience



Shefa Neuroscience Research Center, Tehran, Iran, 11-13 April, 2017

The Neuroscience Journal of Shefaye Khatam

Volume 5, No. 2, Suppl 2

Poster Presentation

The Role of Neuroinflammation in Dysfunction of Adult Hippocampal Neurogenesis

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Published: 11 April, 2017

Abstract

Neuroinflammation as a protective mechanism for repairing tissue damage in the central nervous system (CNS), has been classified into two types: acute and chronic. It is characterized by the activation of microglia and astrocytes and the increase levels of different chemokines and cytokines. Neuroinflammation can be harmful, and it is a common pathological feature in neurodegenerative and psychiatric conditions. On the other word, neuroinflammation effects on important processes in the brain such as adult neurogenesis. Neurogenesis is the process by which new neurons are generated during the embryonic development of CNS and in the adult brain, and it has an important role in the repairing adult brain. Therefore, we review the effect of neuroinflammation on neurogenesis. Chronic neuroinflammation can impair to hippocampal neurogenesis in the adult brain. It has been proven that chronic neuroinflammation due to increased microglial activation and increased production of pro-inflammatory cytokines (e.g. interleukin-1 β , interleukin-6, and tumor necrosis factor- α .) has deleterious effects on neurogenesis. It has been also demonstrated that microglial activation by reducing cell proliferation and newborn cell survival leads to hippocampal neurogenesis dysfunction in the adult brain. It can be concluded that neurogenesis as a physiologic phenomenon in hippocampus affected by neuroinflammation. New studies in this field can be helped to treat related neurodegeneration disease.

Keywords: Neuroinflammation, Central nervous system, Acute, Chronic, Neurogenesis

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