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Poster Presentation

Effects of Human Neural Stem Cells in Cure Neuroinflammation of Traumatic Brain Injury

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Abstract

Traumatic brain injury (TBI) is defined as an external mechanical injury to the brain. Neuroinflammation plays a vital role in the pathophysiology of TBI. Microglia and astrocytes play a central role in the initiation and regulation of inflammation. Numerous pro-inflammatory mediators including cytokines, chemokines, reactive oxygen species (ROS) and nitric oxide (NO) released by microglia. In response to TBI, astrocytes also endure phenotypic changes, swelling in size, up regulating production of glial fibrillary acidic protein (GFAP) and Vimentin, and releasing inflammatory mediators. To date, there is no effective clinical treatment to repair neural structure and functional recovery. Cell therapy is a new strategy to repair and regenerate injured brain tissue. Adult neural stem cells (NSCs) primarily are confined to the subventricularzone and the dentate gyrus of hippocampus. Human neural stem cells are ideal candidate that can ameliorate inflammation and ongoing neurodegeneration. Transplantation of Human neural stem cells, including fetal- and iPS-derived hNSCs, should also be assessed in order to verify if an optimal cell population exists to support in the recovery of brain function after TBI.

Keywords: Neural stem cells, Traumatic brain injury, Neuroinflammation

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