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Oral Presentation

Application of Neural Stem Cells Derived from Human Meningioma in Traumatic Brain Injury

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Abstract

Traumatic brain injury is considered as one of the main causes of morbidity and mortality worldwide. Apart from primary mechanical injury, Secondary injuries due to inflammation and apoptosis result in great neuronal damage. Current treatments are not able to regenerate the damaged part and prevent future sequels. Using human stem cells with self-assembling scaffolds may be promising in treatment of traumatic brain injury. Human meningioma stem cells were isolated, cultured and expanded into in vitro condition. The rat models of TBI were divided into 5 groups: sham, PBS, stem cells, scaffold and stem cell+scaffold. mNSS and EEG were performed to evaluate movement and physical activity. IHC were done to assess cell differentiation. Inflammation and apoptosis markers like toll like receptors, caspase 3,8 and TNF-a were analyzed using western blotting and PCR methods. Results showed that inflammation was significantly reduced in cell group. Tissue engineering as a new therapeutic method can be promising in treating brain damage.

Keywords: Neural Tissue Enginnering, Trauamtic Brain Injury, Human Neural Stem Cells

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