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Poster Presentation

Neural Stem/Progenitor Cells Treatment for Spinal Cord Injury

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Abstract

Spinal cord injury (SCI) is a devastating condition, with sudden loss of sensory, motor, and autonomic function distal to the level of trauma. The primary mechanical trauma causes necrosis, edema, hemorrhage, and vasospasm. A cascade of secondary pathophysiological mechanisms is induced, including ischemia, apoptosis, fluid and electrolyte disturbances, excitotoxicity, lipid peroxidation, production of free radicals, and an inflammatory response, resulting in further damage due to swelling and blood flow reduction. Cell therapy is a promising strategy for SCI, and preclinical models show that cell transplantation can improve some secondary events through neuroprotection and also restore lost tissue through regeneration. Neural stem/progenitor cells (NSPCs) are multipotent cells entrusted to the neural lineage that can self-renew and expanded In vitro. NSPCs are usually grown as free-floating neurospheres in serum-free medium supplemented with growth factors. It has been reported that neuronal differentiation of human fetal NSPC grafts after transplantation into the adult rat spinal cord. In addition, human fetal brain NSPCs transplanted into the contused cervical spinal cord produced significantly repair than controls.

Keywords: NSPCs, SCI, Cell Therapy.

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