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Poster Presentation

Perspective of Nanotechnology and Stem Cells for Treatment of Spinal Cord Injury

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Abstract

It was estimated that 3 million people suffered from spinal cord injury. Unfortunately up to date, there are not any reliable clinical treatments for spinal cord injury and researches for treatments of SCI have focused on medication, surgery, stem cell transplantation, molecular therapy and tissue engineering. Also Scientists are trying to use a combination of stem cells and nanotechnology sciences for approaching effective treatments of spinal cord injury. It is well established that stem cell fate is regulated by interactions that occur between microenvironmental signals and intrinsic cellular programs. On the other hand synthesis of multifunctional nanoparticles and their surface amendment with specific signal molecules can improve the capabilities of stem cells. So nanotechnology and nanomaterials were offered for valuable treatments of spinal cord injury. A lot of studies are conducted using nanomaterials such as nanowires, nanofibers, nanoparticles, and carbon-based nanomaterials along with stem cells .Nanofibers scaffolds especially electro active nanofibers, can serve as excellent guidance in combination of stem cells for treatment of spinal cord injury. Although the use of new techniques based on nanotechnology is still very young, incorporating the use of nanotechnology and stem cells offers promising future perspective for treatment of incurable diseases such as SCI.

Keywords: Spinal cord injury, Treatment, Nanotechnology.

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