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Oral Presentation

The Role of Hydrogels and Cell Based Therapies in Regeneration of Spinal Cord Injury

Hadi Aligholi^{1,2*}, Mohammad Torabi-Nami¹, Bijan Zare³

¹Department of Neuroscience, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

²Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran

³Department of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

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Abstract

Spinal cord injury (SCI) is one of the devastating conditions leading to functional and neurological deficits following road traffic accidents. To date, there is no definite treatment for repairing damaged spinal cord tissue. In this regard, cell therapy opens a new window in front of scientists by using different cells such as mesenchymal stem cells, olfactory ensheathing cells, Schwann cells, neural stem cells and induced pluripotent stem cells. But, cell therapy faces some problems related to cell survival, migration and differentiation. Based on the results of recent studies, supporting the transplanted cells with a proper scaffold can be helpful. Among several scaffolds, hydrogels are outstanding one with several beneficial properties for neural tissue engineering. The future of SCI regeneration is probably linked to combinatorial approaches in which both cells and scaffolds play its significant roles.

Keywords: Spinal Cord Injury, Road Traffic Accident, Cell Therapy, Tissue Engineering.

***Corresponding Author:** Hadi Aligholi

E-mail: aligholihadi@gmail.com