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The neurotrophic factor-3 modified bone marrow mesenchymal stem cells transplanted into spinal cord injury

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NT-3 is a potent neurotrophic factor for the survival of nerve axia regenerative milieu and exerts variety of physiological effects on nervous system development. Adult animals BMSCs with considerable differentiation potential can be induced into almost all cell types, which is the most important ingredient of micro-environmental of central nervous system (CNS) regeneration, and autologous transplantation. This study observes the express of bone marrow mesenchymal stem cells (BMSCs) modified by neurotrophin 3 and explores the mechanisms that repair acute spinal cord injury. BMSCs cultured were transferred NT-3 gene by cationic liposomes. 48 rat models of acute spinal cord injury were transplanted and randomly divided into three groups of NS control, BMSCs and NT-3+BMSCs. The number of BMSCs expressed of NT-3, neurons cell apoptosis were observed on acute spinal cord injury at different times. The express of NT-3 and neural cells number of NT-3+BMSCs group were superior to groups NS control and BMSCs. There was statistically significant ($P < 0.05$). The NT-3+BMSCs transplantation group dyeing the smallest number of the positive neurons apoptosis, intensity is weaker. BMSCs transferred NT-3 could increase expression of BMSCs and NT-3, though transplanted into SCI, spinal cord central can be repaired by promoting neural cells and alleviating apoptosis.

Biography

Yuzhen Dong has completed her PhD from Tongji Medical College, Huazhong University of Science and Technology. Her main research areas are spine, spinal cord injury and repair regeneration. She is the Director of Orthopedic Department, The First Affiliated Hospital of Xinxiang Medical University. She has published more than 30 papers in reputed journals and has been serving as an Orthopaedic society youth committee of Henan province.

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