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Poster Presentation

The Role of Blood Brain Barrier Restoration in the Multiple Sclerosis

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Abstract

Blood Brain Barrier (BBB) is a specialized non fenestrate barrier that formation by the endothelial cells and controls the transportation of the cells and molecules in to the brain. Reducing in function of BBB is one of disruptions in neurological diseases like multiple sclerosis. Endothelial progenitor cell (EPC) help to the BBB to control the diapedesis of inflammatory cells & molecules in to the Brain with decrease ICAM-1 in blood. However they increase angiogenesis around the BBB. Multipotent Adult Progenitor Cells (MAPCs) increase the proliferation of the M2 macrophage-like cells and apoptosis of the M1 macrophage-like cells at 3-7 days after transplantation. However this mechanism of MAPCs decrease the inflammation of the Central nervous system (CNS) and BBB but because of the short acting time, it's not very useful. Mesenchymal stem cells (MSC) are of the mainly hope to repair BBB. They can balancing surface of the B-catenin and cadherin. This balance can create some tight junctions in to the BBB to help controlling the transportation. In addition they can increase secretion of the metalloproteinase -3 which can improve the function of the BBB. Hematopoietic stem cells are the one the best candid for MS treatment. They can restart immune system to control proinflammatory mediators. They also can decrees the expression of the CD8 & CD4 to prevent of developing of inflammation. However there are many studies to investigated cell therapy and its effect on CNS, there is no powerful study to peruse cell therapy for restoration of the BBB in multiple sclerosis. We suggest to study on it as an Individual treatment.

Keywords: Blood brain barrier, Multiple sclerosis, Stem cell

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