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Poster Presentation

Mesenchymal Stem Cells as a Therapeutic Target in Multiple Sclerosis

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Abstract

Neuroinflammation has a significant role in induce of Multiple sclerosis (MS) many approaches have been used to treat MS, but none of these methods have not been able to fully improve. One of the methods can suppress inflammation and regenerate the nervous system is the use of cell therapy. Using cell therapy in pre-clinic phase can be realized, it's mechanism and potency to suppress neuroinflammation. The best way that plenty of researchers use it to simulate the MS condition is experimental autoimmune encephalomyelitis (EAE) which is method can be induced neuroinflammation in laboratory animals. In this context, a lot of researches have been done on EAE model. Many of these studies have been done on mesenchymal stem cells (MSC). MSC is a heterogeneous subset of, mesoderm stromal progenitor cells that are almost derived from connective tissue. MSCs can be obtained from adipose tissue, bone marrow, and umbilical cord that regulatory and inhibitory effect on the immune system. Transplantation of adipose-derived stem cell (ASCs) has demonstrated striking therapeutic effects and unique immunomodulatory capacities when delivered at the peak or later in the course of the disease in EAE rats. Recent studies have shown that umbilical cord-derived mesenchymal stem cells (UC-MSCs) exert a regulatory effect on the functions of immune cells. UC-MSCs could improve the impaired function of T-regulator cells (Treg) from MS patients and also enhanced the capacity of Tregs to release IL-10. There is still controversy about the use of UC-MSCs and ASCs, and more research is needed to determine the advantages and the disadvantages of them also in vitro method such as EAE cannot simulate all condition of disease therefor more research in clinical phase should be done.

Keywords: Multiple sclerosis, Cell therapy, Neuroinflammation

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