
Role of Stem Cell Therapies in Alzheimer's Disease

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Description

Stem cell therapy is an exclusive method for treating Alzheimer's disease. It involves the systemic manner of Mesenchyme stem cells into the body. When it was taken in large quantities, these brain stem cells can cause inflammation inside the body and heal it. Stem cells can grow into brain cells, which cure and restore the brain damage diseases caused by neurological conditions, such as dementia. Alzheimer's disease, is an advanced neurodegenerative disease, it is the most common form of dementia. So far, there is no permanent and effective cure for Alzheimer's diseases. In recent studies, stem cell therapy is one of the major treatments using for Alzheimer's disease patients. There are many numbers of stem cell therapies used for the treatment of Alzheimer's disease, brain-derived Neural Stem Cells (NSCs), Induced Pluripotent Stem Cells (IPSCs) and Embryonic Stem Cells (ESCs). Stem cell therapy is also known as recovering medicine, it helps in the repair of diseased, injured or dysfunctional tissue using stem cells and their derivatives. It is the next stage in organ transplantation and using cells instead of donor organs. Stem cells produce new cells for the body as it generates, and replace damaged or lost cells. They have two exclusive properties that help them to generate new cells. They can continuously divide and proliferate to create new cells. As they divide, they transform into other specialized cells, and replacing damaged cells.

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There are different types of stem cells that can be used for various purposes Induced Pluripotent Stem Cells (IPSCs). Non-embryonic stem cells which are also known as adult stem cells, embryonic stem cells. Embryonic stem cells come from human embryos that are three to five days old, Cord blood stem cells and amniotic fluid stem cells. There are mainly two kinds of stem cells which mainly transplants allogeneic and autologous. In the process of allogeneic transplant, the stem cells are taken from a different person. In the process of autologous transplant stem cells are collected from the patient's blood and then again reintroduced after treatment to get free of the tumorous cells. Stem cells are mainly used for blood disease treatments, cell deficiency therapy, brain disease treatment, cardiovascular disease treatment, tissue regeneration. Tissue rejuvenation is probably the most significant use of stem cells. The classifications of stem cells based on cell type are neural stem cells which are responsible for the production of all nerve cell types during development. They are self- renovating pluripotent cells that produce astrocytes, oligodendrocytes, or neurons. Mesenchymal stem cells which have three main roles in Alzheimer's Disease treatment there are reduction of A β plaque burden through internalization and A β degradation of endosomal-lysosomal pathway oligomers, immune regulation, neurotrophic or regenerative potential. Embryonic stem cells there can differentiate into NPCs in vitro, hence serving as therapeutics when transplanted into animal models of Alzheimer's disease. Induced pluripotent stem cells which helps to regulate endogenous neurogenesis, replace lost neurons, or reverse pathological changes through Induced Pluripotent Stem Cells (IPSCs) have demonstrated early effectiveness. Hence now a days Stem cells is mainly using for the treatment of Alzheimer's disease.