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Direct implantation of adipose derived neuron progenitor stem cell to treat Parkinson

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Brain is the control center of the body, this organ has a wide range of responsibilities from coordinating our movement to manage our emotions, and the brain does it all. For almost hundred years, it has been a mantra of biology that brain cell do not regenerate. So need to add new neuron when the brain injury, but stem cell niche will induce endogenous stem cell in SVZ to regenerate it. Stem cell niche with content of GABA, FGFs, EGF, VEGF, and PEDF.

Parkinson's involves the malfunction and death of vital nerve cells in the brain, called neurons. Parkinson's primarily affects neurons in an area of the brain called the substantia nigra. Some of these dying neurons produce dopamine, a chemical that sends messages to the part of the brain that controls movement and coordination. As PD progresses, the amount of dopamine produced in the brain decreases, leaving a person unable to control movement normally.

Objective of this research is to drive neuron progenitor stem cell from adipose to treat Parkinson. Adipose was isolated from patient and culture become neuron progenitor stem cell, after second passage the neuron progenitor stem cell was harvested. Neuron progenitor stem cell was characterized by Noch1 flow cytometry and L-Dopa Icc. Neuron progenitor stem cell was produces dopamine ready implant for Parkinson patient by direct implantation.

Result: Ten patients with Parkinson diseases with inclusion and exclusion criteria, received neuron progenitor cell implantation, 2 patients showed no improvement and 8 patients showed significant improvement, outcome evaluating using mRS (Modified Ranking Scale) and BI (Barthel index).

Conclusion: Neuron progenitor stem cell has significant improvement for Parkinson disease.

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