

# Emerging Diseases, Outbreaks & Case Studies &

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## Application of endometrial stem cells for Parkinson's treatment

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Stem cell therapy has been suggested as a novel treatment for the management of Parkinson's diseases. The previous studies demonstrated that the pluripotent embryonic stem cells and adult stem cells are capable of differentiating into dopaminergic neurons types'. Recently, stem cells were isolated from human endometrium, using dopaminergic neurons differentiation medium. Herein, we postulate that because of the outcome and complication of the other sources of stem cells, stem cell therapy through application of endometrial stem cells can open a new horizon for the treatment of neurodegenerative disorders such as Parkinson with lesser degree of complications and better efficacy and outcome. Endometrial stem cells evaluated by using flow-cytometry for detection of stem cell markers such as CD146, CD90 in the isolated endometrial stem cells. Also, isolated stromal cells will be examined to be free from hematopoietic cells using CD34 staining. The next step was to investigate the ability of human endometrial adult stem cells to differentiate into the dopaminergic neurons showing characteristics of dopaminergic neurons. For this purpose, the endometrial stem cells induced by dopaminergic neurons differentiation

medium. Subsequently, immunocytochemistry used for the confirmation of dopaminergic neurons markers expression such as FOXA2 and GIRK2. Multipotent adult stem/progenitor cells in the endometrium were characterized by a remarkable regenerative capacity of undergoing repetitive cycles of growth and differentiation. Endometrial regenerative cells possess the potential to differentiate into adipocytes, endothelial cells, pancreatic cells and neurons. In the past few years, for neurodegenerative diseases therapy, research has focused on the stem cells therapy. Due to promising results in stem cell therapy, there are different sources of stem cells for transplantation in human. Recently, a highly promising source of accessible, abundant and multipotent adult stem cells is human endometrial stem cells. Consequently, we could that endometrial adult stem cells differentiated into dopaminergic neurons when they are exposed to specific differentiated conditions. The stem cells have potential advantages over other stem cells and are attractive candidate for treatment of Parkinson.

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