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Poster Presentation

Effects of Adipose Derived Stem Cells Transplantation on Locomotor Activity and Imbalance in Parkinson Model of Rats

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Abstract

Parkinson disease is a neurological disorder accompanied by degeneration of dopaminergic system and neuronal loss. Recently studies have focused on stem cells therapy, therefore the goal of this study was to investigate the effect of adipose derived stem cells grafting, on locomotion and imbalance in Parkinson model of rats. Twenty-four male Wistar rats weighing 200-250 g were divided into three groups including: sham, MPTP, MPTP-stem-cell. Rats were cannulated by stereotaxic apparatus in medial forebrain bundle (MFB) under anesthesia. Then MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) (1µm/2µl) were injected bilaterally into the MFB to induce Parkinson model. Rotation (following apomorphine injection) and Ladder Rung Walking Task were conducted to confirm model of Parkinson, then stem cells from passage 3 (5 ×103 cells/mm3) were infused into the MFB. After 6 weeks Ladder test was repeated. The results showed that administration of MPTP significantly caused motor disability (p=0.025) and treatment of stem-cells significantly improved motor activity and imbalance (p=0.05). Our findings indicate that grafting of stem cells derived from adipose tissue improves behavioural dysfunctions probably by regeneration of dopaminergic neurons.

Keywords: Parkinson Disease/ MPTP/ Ladder Test/ Stem Cell Grafting

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