LIF PROMOTES THE EXPRESSION OF GP130mRNA ON ENDOGENOUS NEURAL STEM CELLS IN THE MOUSE MODEL OF PD

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Introduction: The pathogenesis of Parkinson Disease (PD) is based on the loss of dopaminergic neurons. No study to date has examined the expression of GP130mRNA and endogenous neural stem cells (ENSCs) within the context of PD condition after Leukemia Inhibitory Factor (LIF) administration.

Aims: To detect the response of ENSCs in the areas of substantia nigra, striatum, hypothalamus in the brain of 6-hydroxydopamine (6-OHDA) mouse model of PD, and to disclose the expression of GP130mRNA of ENSCs following LIF administration.

Methods: Mice in all groups accepted motor functional tests which include Bar Grab test, Rotarod Test and Tremor Analysis, the data was statistically analyzed. The proliferation and differentiation of ENSCs in the mouse brain were measured using confocal counting system before and after LIF administration. The GP130mRNA expression was analyzed using semi-quantitative RT-PCR method.

Results: The motor function of mice showed a significantly increase in LIF group compared with PD and CON groups. LIF group showed a statistically improvement in the number and density of ENSCs compared with PD group. ENSCs are rarely seen in CON and Sham groups. A statistical difference was detected in the expression of GP130mRNA in LIF group compared with PD group.

Conclusion: LIF may play a key role in promoting the expression of GP130mRNA and increasing the proliferation of ENSCs, and may becoming a promising way to effectively re-build the degenerated neural cells.