Parkinson’s disease is a neurodegenerative chronic disorder which is characterised by loss of dopamine in nigrostriatal pathway in the brain. One of the alternative therapies is transplantation of embryonic ventral mesencephalon tissue to the affected brain area but currently grafted cells do not survive the transplantation process very well. Ghrelin, which has neuroprotective properties could be a potential additional treatment after transplantation with the intention of increasing the number of live cells in the graft. The aim of this study was to elucidate a presence of ghrelin receptor in embryonic ventral mesencephalon used in transplantation and assess behavior of rats after transplantation.

Immunocytochemistry was performed for ghrelin receptor, ghrelin-O-acetyl transferase, tyrosine hydroxylase and for neural and stem cell markers in embryonic ventral mesencephalon suspension. 50 Sprague-Dawley rats with 6-hydroxydopamine lesions were split into five groups; Group A was non-transplanted group, other groups underwent transplantation of embryonic ventral mesencephalon and received diverse treatments (ghrelin agonist, low doses of ghrelin, high doses of ghrelin or saline\(^1\)). Behavior of all animals was assessed by motor tests pre-transplantation and 4 weeks, 6 week and 8 weeks after transplantation. Immunohistochemistry was performed for tyrosine hydroxylase which correlates with number of dopaminergic neurons in brain.

The presence of ghrelin receptors and other required targets was elucidated in embryonic ventral mesencephalon suspension. Behavioral tests confirmed that the transplantation had significant effects on the lesioned rat brain. A considerable

\(^1\) sterile solution of sodium chloride in water (9g per liter) when it is to be placed parenterally
improvement was observed in transplanted groups compare with non-transplanted group but any noticeable contrast within transplanted groups wasn’t noted.