ABSTRACT

Cellular Compositional Comparison of Human Basal Ganglia and Subthalamic Nuclei on Male and Female Anatomic Cadaver

Background: The information about cellular composition in the adult human basal ganglia and subthalamic nucleus of male and female that obtained from the Asian region, especially in Indonesia, is still limited. Previous research has found that the basal ganglia of patient with Parkinson's have different structures compared to control.

Objective: This study aims to evaluate the compositional differences of human basal ganglia and subthalamic nucleus between male and female anatomic cadaver preparations.

Materials and Methods: This study is an observational analysis of human basal ganglia and subthalamic nucleus' cellular compositions on male (n=1) and female (n=1) anatomic cadaver preparations. The ratio of neuronal and neuroglial cells that obtained from 6 fields of view from each area (4 areas) were analysed using t-test and descriptive statistics (MaxStat Lite 3.6, German). The results differ significantly when $p < 0.05$.

Result: The neuronal and glial cell count in 6 fields of view of the putamen and subthalamic nucleus in male were significantly higher than female (putamen [neuron p<0,0001; neuroglia p<0,0001], subthalamic nucleus [neuron p=0,0024; neuroglia p=0,0327]). However, the neuronal and glial cells count in 6 fields of view of the caudate nucleus and globus pallidus in female was higher than male with caudate nucleus showing significant differences (caudate nukleus [neuron p=0,0009; neuroglia p=0,0007], globus pallidus [neuron p=0,2560; neuroglia p=0,0890]).

Conclusion: Differences of neuronal and neuroglial cell count in the basal ganglia and subthalamic nucleus areas between adult male and female human cadaveric preparations were observed.

Keyword: Composition, Human, Basal Ganglia, Subthalamic Nucleus