
THE EFFECTS OF BILATERAL SUBTHALAMIC NUCLEUS STIMULATION ON COGNITIVE AND NEUROPSYCHIATRIC FUNCTIONS IN PARKINSON'S DISEASE: A CASE-CONTROL STUDY

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Introduction: Parkinson's disease is one of the most disabling neurological diseases; however much progress has been made in the treatment of drug resistant patients through electrode implantation and stimulation of the subthalamic nucleus (STN). This new neurosurgical method may lead to some neuropsychological side effects in patients. The main aim of this study was to evaluate the neuropsychiatric effects of this treatment.

Method: This case-control study was designed to compare two groups of patients with Parkinson's disease. Thirty patients who underwent electrode implantation and deep brain stimulation were compared with 60 patients treated with antiparkinson drugs. These two groups were matched for age, sex, duration and severity of Parkinson's disease.

Measurements: The UPDRS was used to assess the severity of Parkinson's disease. The Beck Depression Inventory questionnaire and the Hamilton Anxiety Rating Scale were used to evaluate depression and anxiety as a consequence of DBS. The Mini Mental Status Examination and Clock Drawing Test (CDT) were used to evaluate the cognitive and executive function.

Results: Thirty months after STN stimulation, a lower level of anxiety and depression were seen in the DBS patients compared with drug treated subjects, but the differences were not significant. However, cognitive status deteriorated to a greater extent in study subjects compared to the control group. The MMSE results were not significantly different, but the differences in CDT scores were significant.

Conclusion: Patients who have undergone DBS surgery must be followed up for neuropsychiatric symptoms, particularly for subcortical cognitive deterioration in the long term.