Evaluation of usefulness of deep brain stimulation in treatment of idiopathic Parkinson's disease

Martyna Ostry[1], Bartosz Kapustka[1], Weronika Bulska[1], Ada Prokop[1], Magdalena Bonk[1], Magdalena Boczarska-Jedynak[2,3], Adam Rudnik[2], Piotr Bażowski[2], Stanisław J. Kwiek[2]

[1]Students' Scientific Organization of Neurosurgery, Medical University of Silesia, Katowice
[2]Department of Neurosurgery, Medical University of Silesia, Katowice
[3]Department of Neurology, Medical University of Silesia, Katowice,

Introduction: Deep brain stimulation (DBS) is a surgical treatment involving the implantation of a medical device called a brain pacemaker which sends electrical impulses to specific parts of the brain. The aim of the study was to evaluate the usefulness of DBS in the treatment of idiopathic Parkinson's disease.

Materials and methods: 55 patients with idiopathic Parkinson's disease from 33 to 71 years of age who had undergone an operation in MUS Department of Neurosurgery in Katowice were retrospectively included in our study. The study group consisted of 41 men and 14 women . 37 patients had unilateral stimulation and rest of them (n = 15) had bilateral stimulation. Statistical analyses were performed using the statistical software package Statistica 10 (StatSoft Poland).

Results: The average age of onset was 45.94 ± 8.23 (min. 23, max. 60). The duration of levodopa treatment was 10.17 ± 3.75 years. There was statistical significance in terms of the dose of levodopa before and after DBS surgery (p = 0.018). The dose of levodopa before DBS was 1370 ± 732 mg, and after treatment 1142 ± 682 mg. The total daily doses of levodopa were reduced after DBS treatment (p = 0.03). The study showed a statistically significant reduction of hours with dyskinesia (p = 0.003) and deterioration in mental state in Beck's Depression Inventory (p = 0.04) after deep brain stimulation. Important statistical differences concerning the result of UPDRS IVa (p = 0.02) and IVb (0.007) were demonstrated before and after DBS treatment.

Conclusions: DBS treatment reduces the average dose of levodopa, number of levodopa doses and number of hours with dyskinesia. DBS also significantly improves daily functioning and allows greater self-reliance of patients. A disadvantage of the treatment is depressed mood.

Key words: Parkinson's Disease; balance disorders; Deep Brain Stimulation

Ann. Acad. Med. Siles. 2014; 68, 5 (supl. 1): S14

eISSN 1734-025X
www.annales.sum.edu.pl
Published online 25.11.2014