Relationship between body mass index and efforts for optimal conditioning of STN-DBS

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Abstract:
Anti-Parkinson Drugs can be decreased after subthalamic nucleus-deep brain stimulation (STN-DBS) in many cases, however, drastic decrease should be avoided. Parkinson disease (PD) often causes body weight loss, thus slight dose changes of anti-Parkinson drug can influence their symptoms prominantly. We studied an impact of low body weights for conditioning of DBS and medication after surgery, analyzing a relationship between body weight or body mass index (BMI) and frequency of outpatient follow-up for conditioning of STN-DBS after discharge.
Materials and Methods: Clinical data were obtained from 12 patients with Parkinson disease (average age 62.3, 8 females) who underwent STN-DBS from 2010 to 2013. Body weight, BMI, age, dose of anti-Parkinson drug before and after DBS surgery, UPDRS and disease duration were estimated. We studied relationship between these parameters and frequency of outpatient visits for conditioning DBS parameters and medication within 3 months after surgery.
Results: After STN-DBS, L-DOPA dose was reduced to 60-80% (300-350mg/day) of preoperative administration in each patient. There was no significant correlation between numbers of their outpatient visits in 3 months after surgery and preoperative L-DOPA dose while there was a significant negative correlation between the outpatient visit and both body weight and BMI, and also a strong correlation with L-DOPA dose per body weight or

BMI were observed. The mean number of the outpatient visits within 3 months was 3.6 times in the patients with BMI > 20, and 7.0 times in those with BMI <20. A multiple regression analysis revealed that BMI was an only significant factor that affects outpatient visit frequency. There was no patient with depression before STN-DBS.

Discussion: Conditioning of medication and stimulation after STN-DBS could be difficult especially for patients with low body weight or BMI, and thus should be carefully managed, considering possible psychiatric symptoms of PD.