Is Depression a Predictor of Outcome after Bilateral Subthalamic Deep Brain Stimulation in Patients with Parkinson’s Disease?

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INTRODUCTION
Deep brain stimulation of the subthalamic nucleus has been shown to be an effective treatment for the motor symptoms of Parkinson’s disease and levodopa-related complications. Preliminary studies of the effects of DBS on psychological functioning, however, have produced inconsistent findings. At Baylor College of Medicine and The Methodist Hospital, we have been providing DBS as a treatment strategy since 1993. During the past 10 years, 89 patients received bilateral STN DBS (178 electrode implantations). We report on the depressive symptoms in our sample of DBS patients with at least 6 month outcome.

METHODS
Subjects
Retrospective: 57 patients had adequate depression and motor follow-up at 6-months following surgery.
Prospective: 10 bilateral STN DBS patients.

RESULTS
Figure 1: N-back Hits for Mild PD, Moderately Severe PD, and Elderly Control Subjects

Prospective: A review of consecutive patients with bilateral STN DBS to assess 6 month outcome of UPDRS depression and motor scores. The UPDRS was performed on and off medication prior to surgery and on stimulator and on off medication following last surgery.

Prospective: A preliminary study of depression outcome following STN DBS using the Beck Depression Inventory.

CONCLUSIONS
Our results suggest that working memory is adversely affected in Parkinson’s disease patients at later stages of disease progression during which there is likely a greater amount of disruption in the frontostriatal neural circuitry. The causes and characteristics of this deficit should be further investigated.

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