

Predictors to Quality of life improvements after subthalamic stimulation in Parkinson's Disease.

Citation: Liu, F. T., Lang, L. Q., Yang, Y. J., Zhao, J., Feng, R., Hu, J., ... & Wu, J. J. (2018). Predictors to quality-of-life improvements after subthalamic stimulation in Parkinson's disease. *Acta Neurologica Scandinavica*.

Introduction:

Subthalamic deep brain stimulation (STN-DBS) has been reported to be effective in controlling motor symptoms of Parkinson's Disease (PD) and associated with improved quality of life (QoL) in some but not all patients with PD.

Prior studies have found inconsistent results on possible predictors of QoL, as it relates to both motor and nonmotor symptoms.

This study aimed to identify presurgical factors that can help predict postsurgical quality of life improvements in Chinese PD patients one year after receiving bilateral STN DBS.

Methods:

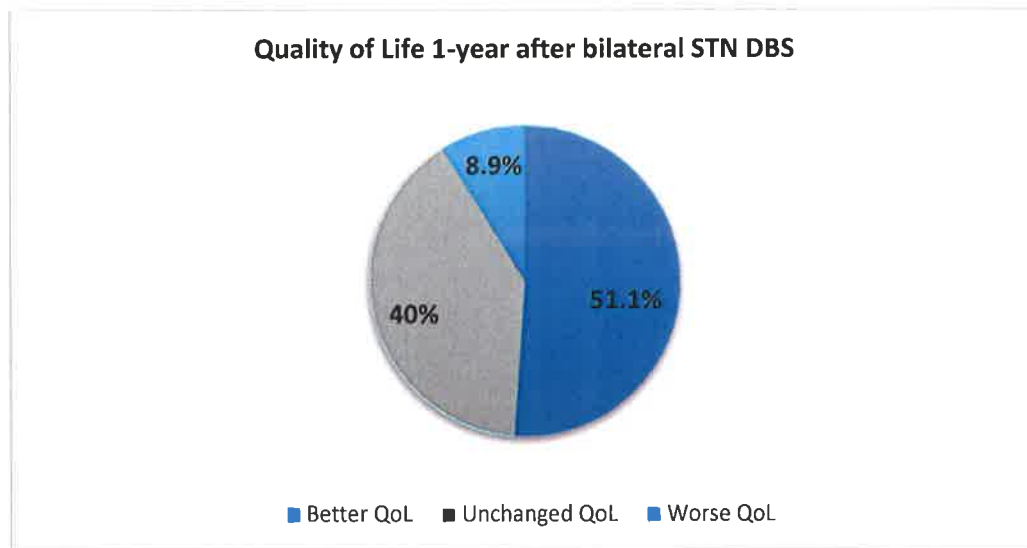
45 PD patients (average age 61.8; range 39-75) with bilateral STN-DBS were followed for one year.

Clinical assessments performed at baseline and one year after surgery:

- The Unified Parkinson's Disease Rating Scale (UPDRS-III; motor symptoms only)
- The Hoehn and Yahr Scale (H&Y) – Measure of symptom progression
- The Parkinson's Disease Questionnaire – 39 (PDQ-39) – Measure of QoL
- Non-Motor Symptoms Questionnaire (NMSQ)
- Beck Depression Inventory-2 (BDI-2)
- Mini-Mental State Exam (MMSE)

Results:

Overall, QoL significantly improved 1 year after DBS surgery, with the following breakdown:



Domains that improved after surgery included: mobility, activities of daily living, cognition and bodily discomfort.

Factors that relate to improved quality of life following surgery:

- Presurgical factors (QoL, the amount of dopaminergic medication, disease stages, depression scores)
- Postsurgical reductions in depression and non-motor symptoms score (NMSQ)

Predictors of QoL improvements: greater presurgical difficulties negatively impacting QoL, lesser dopaminergic medication exposure, and earlier disease stages.

Conclusions:

The participants in this study were similar to previous studies that found significant improvements in QoL following DBS surgery. Findings can help identify factors associated with improved QoL (i.e., related to disease stages, medications, perceived improvement in some non-motor symptoms), and detect possible predictors for better selection of DBS candidates.

Interestingly, reduction in medications following surgery was not associated with QoL improvement, but higher use of medications prior to surgery predicted worse postsurgical QoL. Presurgical motor scores did not predict changes in QoL as well, which might be explained by the measures used in this study or the nature of the sample selection.

Non-motor symptoms and life quality should be carefully evaluated for DBS candidate selection, especially in patients with earlier disease stages and lower medication dosage.