

DEEP BRAIN STIMULATION FOR PARKINSON'S DISEASE

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EDITOR'S CHOICE

Congress of Neurological Surgeons Systematic Review and Evidence-Based Guideline on Subthalamic Nucleus and Globus Pallidus Internus Deep Brain Stimulation for the Treatment of Patients With Parkinson's Disease: Executive Summary

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QUESTION 1: Is bilateral subthalamic nucleus deep brain stimulation (STN DBS) more, less, or as effective as bilateral globus pallidus internus deep brain stimulation (GPi DBS) in treating motor symptoms of Parkinson's disease, as measured by improvements in Unified Parkinson's Disease Rating Scale, part III (UPDRS-III) scores?

RECOMMENDATION: Given that bilateral STN DBS is at least as effective as bilateral GPi DBS in treating motor symptoms of Parkinson's disease (as measured by improvements in UPDRS-III scores), consideration can be given to the selection of either target in patients undergoing surgery to treat motor symptoms. (Level I)

QUESTION 2: Is bilateral STN DBS more, less, or as effective as bilateral GPi DBS in allowing reduction of dopaminergic medication in Parkinson's disease?

RECOMMENDATION: When the main goal of surgery is reduction of dopaminergic medications in a patient with Parkinson's disease, then bilateral STN DBS should be performed instead of GPi DBS. (Level I)

QUESTION 3: Is bilateral STN DBS more, less, or as effective as bilateral GPi DBS in treating dyskinesias associated with Parkinson's disease?

RECOMMENDATION: There is insufficient evidence to make a generalizable recommendation regarding the target selection for reduction of dyskinesias. However, when the reduction of medication is not anticipated and there is a goal to reduce the severity of "on" medication dyskinesias, the GPi should be targeted. (Level I)

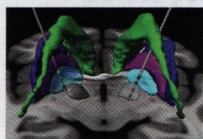
QUESTION 4: Is bilateral STN DBS more, less, or as effective as bilateral GPi DBS in improving quality of life measures in Parkinson's disease?

RECOMMENDATION: When considering improvements in quality of life in a patient undergoing DBS for Parkinson's disease, there is no basis to recommend bilateral DBS in 1 target over the other. (Level I)

QUESTION 5: Is bilateral STN DBS associated with greater, lesser, or a similar impact on neurocognitive function than bilateral GPi DBS in Parkinson disease?

RECOMMENDATION: If there is significant concern about cognitive decline, particularly in regards to processing speed and working memory in a patient undergoing DBS, then the clinician should consider using GPi DBS rather than STN DBS, while taking into consideration other goals of surgery. (Level I)

QUESTION 6: Is bilateral STN DBS associated with a higher, lower, or similar risk of mood disturbance than GPi DBS in Parkinson's disease?



On the Cover

On this month's cover we highlight "Congress of Neurological Surgeons Systematic Review and Evidence Based Guideline on Subthalamic Nucleus and Globus Pallidus Internus Deep Brain Stimulation for the Treatment of Patients with

Parkinson's Disease: Executive Summary." The image shows a 3-dimensional reconstruction of basal ganglia structures and deep brain stimulation electrodes implanted in the subthalamic nucleus (right; grey) and globus pallidus internus (left; light blue). Image provided by Dr. Eduardo Joaquim Lopes Alho. Read more on p. 753.



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RECOMMENDATION: If there is significant concern about the risk of depression in a patient undergoing DBS, then the clinician should consider using pallidal rather than STN stimulation, while taking into consideration other goals of surgery. (Level I)

QUESTION 7: Is bilateral STN DBS associated with a higher, lower, or similar risk of adverse events compared to GPi DBS in Parkinson's disease?

RECOMMENDATION: There is insufficient evidence to recommend bilateral DBS in 1 target over the other in order to minimize the risk of surgical adverse events.

The full guideline can be found at: <https://www.cns.org/guidelines/deep-brain-stimulation-parkinsons-disease>.

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