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Deep Brain Stimulation in Patients with Parkinson Disease and Coexisting Dementia: A Cohort Analysis

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Introduction

Deep Brain Stimulation (DBS) is a neurosurgical procedure effective for treating the debilitating symptoms of several movement disorders, including Parkinson Disease (PD). Patient selection is paramount to the success of the procedure. PD with coexisting dementia (PDD) is generally regarded as an absolute contraindication to DBS. Despite this, many DBS procedures are performed in the U.S. in this population, providing an opportunity to understand outcomes compared to PD patients without dementia.

Methods

We constructed a cohort study of 5,130 Medicare beneficiaries with PD who underwent DBS implantation. We used multivariable logistic regression models to examine whether presence of dementia among PD patients was associated with post-DBS outcomes after accounting for demographic, socioeconomic, and clinical factors.

Results

A total of 384 (7.5%) PD DBS recipients had dementia at the time of DBS placement. The dementia and non-dementia groups were similar in terms of sex, race, and median income. The dementia group was slightly older (mean age 69 versus 67 years), and had a slightly higher Charlson Comorbidity Index, even when dementia itself was excluded from the Charlson calculation. There were no differences between the two groups in perioperative intracranial hemorrhage, seizure, or infection associated with DBS placement, although there was a possible positive association with perioperative delirium in the dementia group. Preoperative dementia was positively associated with speech impairment and falls after DBS placement. There was no association between dementia and other longer term adverse events, specifically hip fracture, head trauma, or overall trauma after DBS placement.

Conclusions

The overall morbidity associated with DBS in patients with and without PDD was similar. Only perioperative delirium and postoperative speech impairment and falls were more common in the PDD patients compared to PD patients without dementia. Overall, the morbidity was low, suggesting that PDD may not be an absolute contraindication for DBS.

Learning Objectives

By the conclusion of this session, participants should be able to 1) describe the prevalence of dementia in the population undergoing DBS for Parkinson Disease, and 2) identify differences in outcome between those undergoing DBS for PD with and without coexistent dementia.

References

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