



Retrospective Analysis of 30-day All-cause Readmission Rates for Patients Undergoing Deep Brain Stimulation (DBS) at Pennsylvania Hospital

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Introduction

Deep Brain Stimulation (DBS) has demonstrated efficacy in the treatment several neurological and psychiatric disorders. However, the 30-day all-cause readmission rate associated with deep brain stimulation at a high-volume center has not previously been documented.

Methods

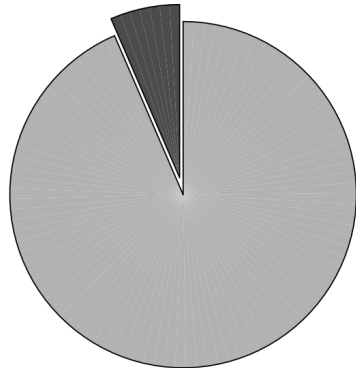
We reviewed medical records of patients over the age of 18 who underwent deep brain stimulation (DBS) surgery for any indication (Parkinson's disease, Dystonia, Essential Tremor, or Treatment Refractory Major Depression) at Pennsylvania Hospital between 1/1/2009 and 7/1/2014. We identified patients who were readmitted to an inpatient medical facility within 30 days from their initial discharge. We considered each procedure that involved implantation of new intracranial leads as an independent DBS procedure.

Learning Objectives

- 1) To appreciate the frequency of 30-day all-cause readmissions following deep brain stimulation surgery
- 2) To understand the common reasons for 30-day readmissions following deep brain stimulation surgery
- 3) To consider systemic changes in pre- and post-operative management of patients undergoing DBS surgery that may reduce the risk of readmission.

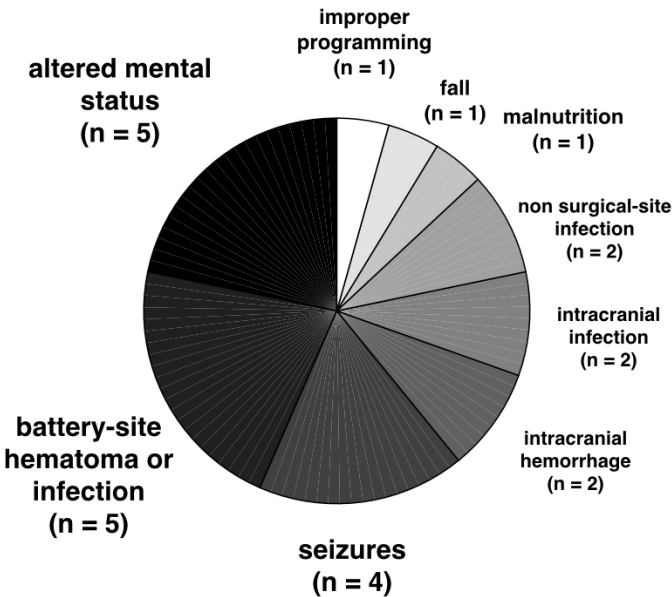
Rate of Readmission

Readmitted (n = 23; 6.47%)



Total DBS procedures (n = 355)

Diagnosis at readmission



Conclusions

DBS has 30-day all-cause readmission rates similar to those generally associated with neurosurgical procedures (6.9 %; Buchanan et al. 2014). Re-admissions related to seizures and IPG site complications may be reduced with systemic changes in post-operative management.

Results

Over the study period, 23 (6.47 %) of 355 DBS procedures resulted in a re-admission to the hospital within 30 days. The leading causes for readmission were as follows: change in mental status (5), implantable pulse generator (IPG) hematoma or infection (5), seizures (4), intracranial hemorrhage (2), intracranial infection (2), non-surgical site infection (2), malnutrition (1), fall (1) and improper IPG programming (1). 9 re-admitted patients required surgical intervention during their readmission (39.1%). Readmitted patients had a mean (+/- S.D.) age of 60.34 (+/- 11.2) years, included 9 females, and 10 patients that were discharged to an a skilled nursing or acute rehab facility after their initial admission. 19 (82 %) readmitted patients had at least one medical co-morbidity during their initial admission.

References

Buchanan, C. C., Hernandez, E. A., Anderson, J. M., Dye, J. A., Leung, M., Buxey, F., & Martin, N. A. (2014). Analysis of 30-day readmissions among neurosurgical patients: surgical complication avoidance as key to quality improvement: Clinical article. Journal of neurosurgery, 121(1), 170-175.