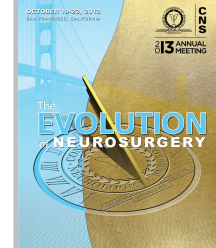


Rate and Indications of Reoperation after Deep Brain Stimulation Surgery

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Introduction

Deep brain stimulation surgery is becoming increasingly popular amongst patients and surgeons as a treatment option for conditions such as Parkinson's disease (PD), dystonia, tremor, and chronic pain. When making the decision to proceed with surgery, patients must be aware of the risk of needing future surgeries. We retrospectively analyzed the institutional case series to define the rate and indications of reoperation on DBS electrode(s).

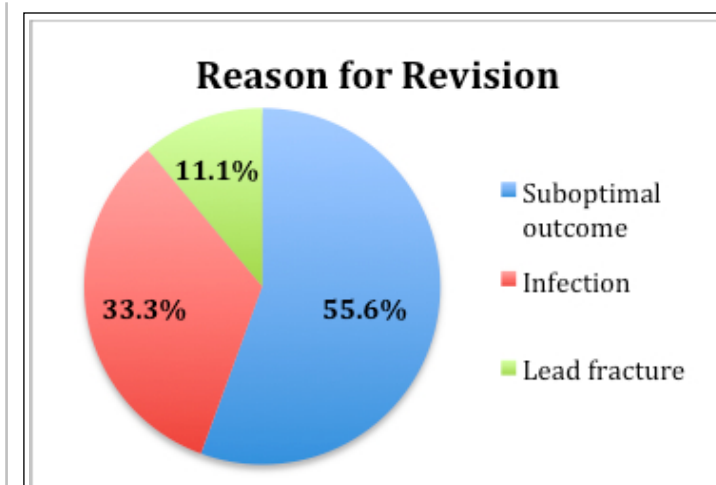
Methods

Patients who presented to UCLA for revision of their DBS systems from 1998 to 2013 were assessed by a clinical retrospective chart review. Patients who underwent revision surgery, defined as removal and replacement of one or both of their intracranial DBS electrodes were included, and those with generator or extension lead replacements were excluded. Revisions were assessed for indication, which included infection, suboptimal clinical outcome, or lead fracture.

Results

A total of 651 DBS surgeries were performed over 15 years. 45 surgeries (6.9%) were revisions of intracranial leads. Patient diagnoses included PD 44%, tremor 34%, dystonia 19%, and chronic pain 3%. Their average age was 53.3 years. The most common indication for DBS revision was suboptimal clinical outcome, leading to 25/45 (55.6%) revision surgeries in our series. Infection occurred in a total of 15/45 (33.3%) cases. The average times to removal and subsequent reimplantation were 17.8 and 5.3 months, respectively. Lead fracture resulted in 5/45 (11.1%) cases of reoperation. The original DBS targets were reused in 39/45 (86.7%) of revision surgeries.

Total	45
Average age	53.3
Diagnosis	
Parkinson's Disease	44%
Essential tremor	34%
Dystonia	19%
Chronic pain	3%
Indication for revision	
Suboptimal outcome	25/45
Infection	15/45
Lead fracture	5/45
Time to removal	17.8 months
Time to reimplantation	5.3 months



Conclusions

DBS has improved the quality of life in many patients with irreversible, chronic conditions. Patients are informed of the risk of initial surgery and generator maintenance, but the risk for intracranial lead revision has not been clearly defined. DBS surgery is associated with a 6.9% rate of reoperation.

Learning Objectives

By the conclusion of this session, participants should be able to 1) describe the most common indications for reoperation on intracranial DBS leads, 2) discuss common complications of DBS, 3) discuss the impact of undergoing multiple lead revisions in patients