



Thalamic Deep Brain Stimulation in Treatment of Disabling Tourette Syndrome

Konstantin V. Slavin, MD and Eduardo Goellner, MD

Department of Neurosurgery,
University of Illinois at Chicago, Chicago, Illinois

Introduction

Tourette syndrome is a peculiar neuropsychiatric disorder characterized by motor and/or vocal tics that may result in severe disability for patients and frustration with ineffective treatment for neurologists and psychiatrists. Surgical treatment for medically intractable Tourette syndrome in the past included variety of destructive procedures, but since the introduction of deep brain stimulation 8 years ago, multiple reports appeared in the literature targeting various areas of the brain. In all cases, symptomatic improvement was observed with decrease of frequency of both verbal and motor tics without any major side effects.

Description of Cases

Based on encouraging published experience, we operated on two male patients with a long history of disabling Tourette syndrome (a 48 year old and an 18 year old). Bilateral thalamic DBS electrodes were placed aiming at CM/SVP complex (5 mm lateral and 5 mm posterior to mid-commissural point in the AC-PC plane) with subsequent internalization of electrodes to a double-channel DBS generator.

Results

In both patients, DBS settings were gradually adjusted to control the tics. There was a consistent and progressive (70-90%) decrease in frequency of both verbal and motor tics observed during monthly follow up visits in first patient (duration of follow up - 28 months). The second patient so far exhibited only modest improvement in the tic severity and frequency (about 20%; follow up length - 2 months). No complications related to the surgery or stimulation itself were observed in either case.

Conclusions

Even with uniformly positive results reported so far with DBS used for treatment of Tourette syndrome, the experience is still extremely limited and uncontrolled. The optimal target location, DBS settings and exact surgical indications continue to require better definition. Our experience supports the data reported previously in showing that DBS for Tourette is feasible, safe and effective.