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Unilateral thalamic deep brain stimulation in essential tremor demonstrates long-term ipsilateral effects.

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Abstract

INTRODUCTION:

Deep Brain Stimulation (DBS) of thalamus in essential tremor (ET) is effective for the treatment of contralateral tremors. Bilateral DBS controls tremors on both sides but is associated with increased morbidity and risks. We evaluated if unilateral surgery had ipsilateral benefits on tremors and thus could be a potentially safer alternative to bilateral DBS.

METHODS:

Medication refractory ET patients undergoing unilateral thalamic DBS were included and longitudinally followed. Tremor rating scale was used to record total motor, arm tremor and activities of daily living (ADL) scores at baseline, six months and at last visit (three or more years after surgery). Postoperative scores were recorded with DBS turned OFF and ON.

RESULTS:

Twenty-two patients with a mean follow-up 3.4 ± 0.14 years were enrolled. When baseline scores were compared to scores with the DBS turned ON, significant improvements were noted in total tremor (40%), ADL (67%) and arm tremor scores both on the ipsilateral and the contralateral side at six months and at the last visit of follow-up (all $p < 0.05$). Ipsilateral arm tremor (∼56%) improvements were milder compared to the contralateral side (∼73%) tremors.

CONCLUSION:

Unilateral thalamic DBS in ET demonstrates significant long-term benefits for ipsilateral arm tremors and can be offered to higher risk and to select patients.