Age of Onset and Deep Brain Stimulation in a Cohort of Essential Tremor

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Objective

This study was designed to determine prevalence of deep brain stimulation (DBS) in relation to the age of onset in a cohort of essential tremor (ET) patients.

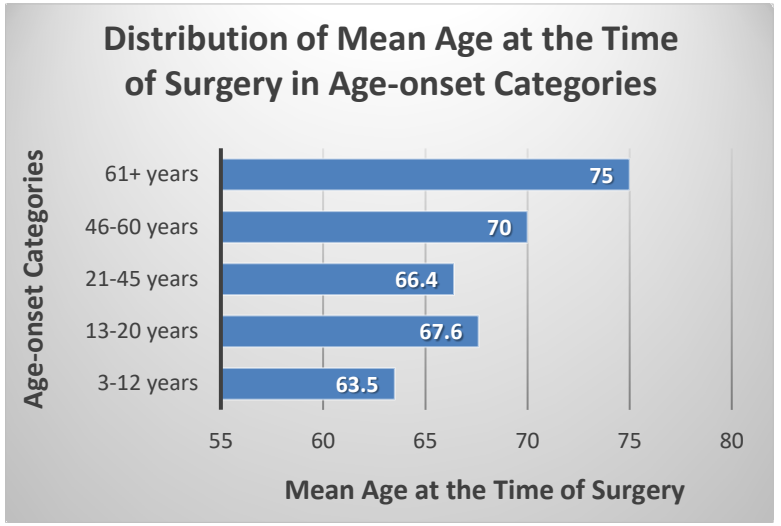
Background

The International Parkinson and Movement Disorder Society Tremor Task Force issued a consensus statement on tremor classification in 2018. The determination of accurate age of onset and rough categorization was proposed based on age groups. Different clinical features, mode of progression, co-morbidities and mortality have been reported for early and late onset ET. DBS is an established treatment for refractory ET. We studied the trend of use of DBS surgery in different age categories.

Methods

- The Movement Disorders Clinical Case Registry, an application within US Veterans Health Administration's electronic medical record, was queried for all patients with ICD-9/10 codes of 333.1 and/or G25.0, seen at Parkinson's Disease Research, Education and Clinical Center, Houston during the time period Sept. 1, 2001 – March 31, 2018.
- Charts were reviewed to verify the diagnosis of ET, surgery for DBS, and the age at onset of symptoms and DBS surgery.
- Records meeting the inclusion criteria were divided into age groups based on the MDS tremor task force suggestion.

Age Groups	Age Range	N	Age at the Time of Surgery
All Subjects		41	68.42 ± 7.80
Childhood	3 – 12	2	63.50 ± 3.50
Adolescence	13 – 20	8	67.62 ±13.42
Early Adulthood	21 – 45	15	66.46 ± 5.60
Middle Adulthood	46 – 60	12	70.08 ± 4.51
Late Adulthood	61 +	4	75.00 ± 3.67



Results

- 41 ET patients who underwent DBS surgery, were included in the study.
- 4 patients had unilateral VIM electrode placement while 37 received bilateral.
- Mean age at the onset of symptoms was **38.71 ± 17.91 years**.
- Mean age at the time of DBS surgery was **68.42 ± 7.8 years**.

Conclusions

Early adulthood constituted the largest group in this ET cohort who underwent VIM DBS. The mean age at the time of DBS surgery in early adulthood group was less than the adolescent group.