Essential tremor (ET)

- A Case of Vertical Diplopia after Thalamic Deep Brain Stimulation for Essential Tremor
- Tremor Asymmetry and the Development of Bilateral Phase-Specific Deep Brain Stimulation for Postural Tremor
- Quantum-classical deep learning hybrid architecture with graphene-printed low-cost capacitive sensor for essential tremor detection
- Efficacy and safety of multiple-target deep brain stimulation in non-parkinsonian movement disorders: a systematic review
- "Cognitive functioning and intra-individual variability in essential tremor and Parkinson's disease: A comparative study"
- The Relationship between Rest Tremor and Underlying Lewy Pathology in Essential Tremor: A Clinical-Pathological Study of 201 Cases
- MRI-guided Focused Ultrasound VIM Thalamotomy with Indwelling GPi DBS Electrodes: A Case Report
- Auditory-Motor Control of Fundamental Frequency in Essential Vocal Tremor

Epidemiology

Tremor is the most common movement disorder (intention>postural>resting), with essential tremor affecting 5–10 million persons in the U.S.

Genetics

Propranolol was found to affect the expression of genes previously associated with ET and other movement disorders such as TRAPPC11. Pathway enrichment analysis of these convergent drug-targeted genes identified multiple terms related to calcium signaling, endosomal sorting, axon guidance, and neuronal morphology. Furthermore, genes targeted by ET drugs were enriched within cell types having high expression of ET-related genes in both cortical and cerebellar tissues. Altogether, the results highlight potential cellular and molecular mechanisms associated with tremor reduction and identify relevant genetic biomarkers for drug responsiveness in ET [1)].

Clinical features

Essential tremor is a nervous system (neurological) disorder that causes involuntary and rhythmic shaking. It can affect almost any part of your body, but the trembling occurs most often in your hands — especially when you do simple tasks, such as drinking from a glass or tying shoelaces.

see Essential vocal tremor

Treatment

Essential tremor treatment.

Case series

Essential tremor case series.

De Vloo et al. reported on an ET patient who underwent an Magnetic resonance guided focused ultrasound thalamotomy but experienced tremor recurrence. They expanded the MRgFUS-induced thalamic cavity using radiofrequency (RF), with good effect on the tremor but transient sensorimotor deficits and permanent ataxia. This is the first report of a patient undergoing RF thalamotomy after an unsuccessful MRgFUS thalamotomy. As we used microelectrode recording to guide the RF thalamotomy, they could also study for the first time the electrophysiological properties of previously sonicated thalamic neurons bordering the MRgFUS-induced cavity. These neurons displayed electrophysiological characteristics identical to those recorded from nonsonicated thalamic cells in ET patients. Hence, this findings support the widespread assumption that sonication below the necrotic threshold does not permanently alter neuronal function [2].

References

1)
Castonguay CE, Liao C, Khayachi A, Liu Y, Medeiros M, Houle G, Ross JP, Dion PA, Rouleau GA. Transcriptomic effects of propranolol and primidone converge on molecular pathways relevant to essential tremor. NPJ Genom Med. 2022 Aug 4;7(1):46. doi: 10.1038/s41525-022-00318-9. PMID: 35927430.
2)
De Vloo P, Milosevic L, Gramer RM, et al. Microelectrode Recording and Radiofrequency Thalamotomy following Focused Ultrasound Thalamotomy [published online ahead of print, 2020 Sep 16]. Stereotact Funct Neurosurg. 2020;1-4. doi:10.1159/000510109