

FOCUSED ULTRASOUND OFFERS HOPE FOR PATIENTS WITH TREMOR BEYOND THE GUIDELINES

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Background: Deep brain stimulation (DBS) and focused ultrasound (FUS) ventral-intermediate nucleus (VIM) thalamotomy have established efficacy in tremor relief. However, there are restrictions on DBS use.

Objective: To report on the efficacy and safety of FUS VIM-thalamotomy in patients with medication resistant tremor not eligible for DBS.

Methods: FUS VIM-thalamotomy was assessed in 33 tremor dominant Parkinson`s disease (TDPD) and 12 essential tremor (ET) patients. Tremor was assessed using the Clinical Rating Scale for Tremor in the treated hemibody (hemi-CRST), Quality of life (QoL) in TDPD using the PDQ-39, and QoL in ET using the QUEST questionnaire.

Results: Among TDPD patients there was significant improvement in hemi-CRST scores (median baseline score 15, range 5-28; 1 month 0, 0-15, p0.0001; 6 months 0, 0-16, p0.0001; 1 year 0, 0-15; p0.0001) and PDQ39 (1 month, p0.0001; 6 months p0.0048; 1 year p0.001).

Among ET patients there was significant improvement in hemi-CRST scores (median baseline score 15.5, range 9-29; 1 month 0, 0-10, p=0.0005; 6 months 0, 0-10, p=0.0039; 1 year 6, 0-16; p=0.002) and QUEST (1 month p=0.0005, 6 months, p=0.0039 1 year, p=0.0078). Adverse effects included abnormal tandem gait (17), subjective unsteadiness (8), hand ataxia (5), asthenia (5), dysgeusia (3) and scalp numbness (1), all of which resolved within 3 months.

Conclusions: Unilateral FUS VIM-thalamotomy was safe and effective in relieving tremor and improving QoL in TDPD and ET patients with medication resistant tremor who were also not eligible for DBS with excellent improvement being maintained for 1 year.

