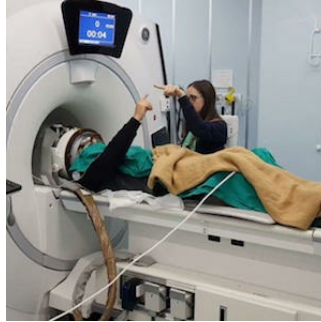


## RSNA 2019: Minimally Invasive Procedure Relieves Tremors in Parkinson's Patients



Magnetic resonance-guided focused ultrasound (MRgFUS) thalamotomy, a minimally invasive procedure, can help reduce tremors in patients with Parkinson's disease or essential tremor, says a new study presented at the annual meeting of the Radiological Society of North America (RSNA).

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According to researchers, this novel treatment led to a substantial and immediate reduction of tremors in 37 of 39 study patients, with improved quality of life as a result.

People with essential tremor (ET) or Parkinson's disease (PD) tremor experience involuntary muscle movements that cause shaking in one or more parts of the body, usually in the hands. ET and PD are progressive conditions affecting millions of people worldwide.

Previous treatment options for reducing tremors in patients who have not responded to medical therapy include deep brain stimulation, a surgical procedure that involves implanting a small electrode in the brain connected to a pulse generator that is implanted in the chest like a pacemaker.

By comparison, MRgFUS is an incisionless interventional radiology procedure in which pulses of focused ultrasound are used to heat and destroy a small part of a structure in the brain called the thalamus. The procedure gives relief to the opposite side of the body, meaning that treatment to the right side of the brain would relieve tremors on the left side of the body, and vice versa.

This minimally invasive approach, the study notes, reduces risk of complications from bleeding and infections. Also, this treatment provides immediate effects as compared to deep brain stimulation which requires a break-in period for the electrostimulation, according to lead author Federico Bruno, MD, a radiologist in the Department of Biotechnological and Applied Clinical Sciences at the University of L'Aquila in Italy.

"Additionally, treatment with MRgFUS requires shorter hospitalisation and is a fairly well-tolerated procedure even by more fragile patients," he points out.

Participants in the new study included 18 with ET and 21 with PD, average age 64.5 years, who had experienced symptoms for an average of more than 10 years. The researchers evaluated the patients for tremor severity and quality of life before MRgFUS thalamotomy, immediately after treatment and over the course of the ensuing year.

Results show that 37 of 39 patients, or 95%, had substantial and immediate reduction of tremor. These reductions in tremor were sustained in follow-up evaluations. Quality of life evaluation showed substantial improvement in both the ET and PD groups.

Use of MRgFUS for neurological diseases is an absolute novelty, says Dr Bruno, noting that the clinical application was approved by the FDA less than three years ago. "Few patients know of this treatment option so far, and there are not many specialised centres equipped with the required technology," he adds.

Future research in this area includes the possibility of treating both sides of the thalamus. MRgFUS is also being explored in areas beyond movement disorders, according to the doctor.

Source: Radiological Society of North America  
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