

## Guest Editorial



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### **MRI guided - FUS : A Game Changer**

Movement disorders have been the most fascinating of all CNS diseases. The discovery of levodopa and dopamine agonists changed the way Parkinson's disease was treated. The next paradigm shift in the treatment of movement disorder was the introduction of deep brain stimulations. Lesioning surgeries have been in vogue for a long time. A game changer was introduced about 8-10 years back.

MRI guided Focused Ultrasound is this new technology which has the potential to change the way movement disorders are being treated at present. Tremors have for long been treated with various medications without significant benefit. Radio frequency ablation of VIM nucleus of the thalamus has worked wonders with various tremors especially ET, however the technique is fraught with complications and hence not widely practiced.

Collimated Ultrasound targeting the VIM nucleus with submillimetre precision is a Boon to patients with ET. Since the first appearance of a randomized control trial in the NEJM in 2015 scores of patients have been treated all over the world with this technology.

#### ***The advantages are***

1. Submillimeter precision
2. No major complications
3. Real time monitoring during procedure
4. No anaesthesia
5. No incision/blood loss
6. Almost 100% effective
7. Totally non invasive

To add to these advantages the tremor vanishes immediately after the procedure and one can get rid of all the drugs. Due to its non-invasive nature the procedure itself is complete in about 2- 3 days. At present it has been approved for Essential Tremor and Tremor dominant Parkinson's disease.

Indications are expanding (exploding) with new targets being identified for various problems. The GPi (Globus Pallidus interna) has been identified for rigidity and hypokinesia of PD.



## *The Medical **Bulletin***

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The pallido thalamic tract (PPT) is also being worked upon for the same purpose. Various dystonias can also be treated by targeting the ventralis oralis (VO) nucleus. The indication is also being expanded for treatment of resistant epilepsy-mesial temporal lobe sclerosis. Targeting tumors and opening the blood brain barrier is also in the pipeline. This treatment modality is now being introduced for the first time in India.