

DBS operation for Parkinson's disease performed inside iMRI

September 19 2011

Henry Ford Hospital became the third hospital in the United States to perform a Deep Brain Stimulation (DBS) procedure inside an Intraoperative Magnetic Resonance Imaging scanner, or iMRI.

"This is a great addition to the neurosurgical toolbox," says Jason M. Schwalb, M.D., Director of Movement Disorder and Behavioral Neurosurgery at Henry Ford Health System.

"Although awake surgery with [brain mapping](#) is still the standard of care for DBS, some patients can not tolerate awake surgery because of anxiety or the severity of their disease. The iMRI allows us to place DBS electrodes accurately for an asleep patient. We can also use it to confirm accurate electrode placement before closing the skin."

DBS is an effective surgical procedure that uses mild [electrical pulses](#) to ease or control the most debilitating effects of Parkinson's disease, including tremor, extra movements, walking difficulty, stiffness and slowness.

DBS was approved by the U.S. [Food and Drug Administration](#) in 2002 for Parkinson's disease.

The procedure is a great advancement over previous surgical treatments including "ablative" or "lesioning" surgeries, in which heat is used to damage or destroy [parts of the brain](#) known to cause tremor and other symptoms of the disease. Over 60,000 DBS procedures have been

performed worldwide.

DBS is fully approved by the FDA for essential tremor and Parkinson's disease. It is approved by the FDA under a Humanitarian Device Exemption for primary [Dystonia](#) and Obsessive-Compulsive Disorder.

Gerhard Schubert, a teacher from White Lake, Mich., who suffers from Parkinson's disease, recently underwent DBS using the iMRI at Henry Ford. He opted for DBS because his medication had lost its effectiveness for controlling his symptoms of the disease, including tremors.

Henry Ford is one of a relative handful of medical institutions worldwide – and the only one in Michigan – to acquire an iMRI, technology that takes [brain](#) surgery far beyond any previous advances. The iMRI also aids in the surgical treatment of brain tumors.

By combining the DBS procedure with the iMRI, surgeons are able to vividly see the affected area of the brain in real time as they work, with GPS-like mapping to guide them through its intricacies and perform surgical procedures with an accuracy that was previously unattainable. During surgery, the living brain moves, sometimes as much as three-fourths of an inch, adding to the difficulty of the procedure. With iMRI, this problem is also eliminated because it provides a steady stream of real-time images.

Henry Ford Hospital has performed more than 40 operations in 2011 – mostly for brain tumors – using the iMRI.

For the DBS procedure, the ClearPoint system from MRI Interventions, Inc. was utilized.

Provided by Henry Ford Health System

Citation: DBS operation for Parkinson's disease performed inside iMRI (2011, September 19)
retrieved 25 April 2024 from
<https://medicalxpress.com/news/2011-09-dbs-parkinson-disease-imri.html>

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