Deep Brain Stimulation for Parkinson’s Disease

McGowan Institute for Regenerative Medicine affiliated faculty member Mark Richardson, MD, PhD, is an assistant professor, Department of Neurological Surgery, University of Pittsburgh, director, Brain Modulation Laboratory, and the director, Epilepsy and Movement Disorders Surgery Program, both in the Department of Neurological Surgery. Dr. Richardson’s clinical specialization is comprehensive epilepsy surgery and deep brain stimulation (DBS) for movement disorders.

Dr. Richardson started the interventional-MRI DBS program at the University of Pittsburgh Medical Center (UPMC). Today, UPMC is a leader in treating movement disorders such as Parkinson’s disease with DBS, and now offers both standard and MRI-guided asleep DBS, depending on a patient’s condition.

“The problem is, there is a significant population of patients with Parkinson’s who are too anxious, or too symptomatic, or both to undergo awake surgery in the frame,” according to Dr. Richardson.

Surgeons perform the procedure on patients who stay “under” the whole time using customized software and an MRI machine. Surgeons attach an aiming device to the skull and the surgeon maps the trajectory of the electrode in real time.

DBS delivers electrical stimulation to targeted areas in the brain that control movement, blocking the nerve signals that cause abnormal movement. DBS gives significant benefit to about 70 percent of people who undergo the procedure.

Parkinson’s disease is a movement disorder, meaning it affects parts of the brain that control body movement (motor function). It leads to shaking (tremors) and difficulty with: walking, talking, and coordination. Parkinson’s disease is one of the most common nervous system disorders among elderly patients and worsens with age. It is most common in people over age 50. Although there is no cure, several treatment options available can help control symptoms of Parkinson’s disease and allow patients to live independently for many years.

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