

Researchers studying 'deep brain stimulation' for Parkinson's disease

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At Scott & White Memorial Hospital, a multi-disciplinary team of neurosurgeons, neurologists, neurophysiologist, neuropsychologists and a movement disorders specialist are offering hope to some Parkinson's patients with a treatment called Deep Brain Stimulation (DBS). DBS involves placing a thin wire that carries electrical currents deep within the brain on Parkinson's patients who are no longer benefitting from medications, and have significant uncontrollable body movements called dyskinesia. Scott & White is also performing research into the effects of DBS on the non-motor symptoms of Parkinson's disease including "drenching sweats," bladder dysfunction, depression, hallucination, anxiety, and dementia as well as intestinal disorders, loss of sense of smell, and sleep disturbances.

"We've found that some Parkinson's patients experienced non-motor symptoms up to 20 to 30 years before their Parkinson's diagnosis, which leads us to believe the presence of these symptoms could be used as predictors of the onset of Parkinson's," said Manjit K Sanghera Ph.D. neurophysiologist at Scott & White and associate professor and director of the Human Electrophysiology Lab, Texas A&M Health Science Center College of Medicine. "If we're better able to identify individuals who are at high risk for Parkinson's, we can engage these patients in neuro-protective therapies, including exercise and medication." Dr. Sanghera's research is funded by the Plummer Foundation.

Parkinson's disease (PD) is a brain disorder that occurs when certain nerve cells or neurons in the brain die. When this happens, these cells no

longer produce a chemical called dopamine, which facilitates the smooth, coordinated function of our muscles. When about 80% of these neurons die, that's when Parkinson's makes an appearance. The tell-tale signs include tremors, slowness of movement, rigidity, difficulty with balance, small, cramped handwriting, stiff facial expressions, a shuffling walk, and muffled speech.

"First-line medication works quite well for some time after diagnosis, sometimes a patient's lifetime, but typically a patient will need more and more medication over time to control their Parkinson's," said Gerhard Friehs, M.D., interim chairman of neurosurgery at Scott & White. "As the disease progresses and potentially becomes disabling, a treatment like [Deep Brain Stimulation](#) can provide significant improvement to a patient's quality of life."

DBS works by inactivating parts of the brain that cause Parkinson's disease and its associated symptoms without purposefully destroying the brain where electrodes are placed in the globus pallidus or subthalamic nucleus. "These electrodes are connected by wires to a type of pacemaker device implanted under the skin of the chest, below the collarbone, said Dr. Friehs. Once activated, the device sends continuous electrical impulses to the target areas in the [brain](#), blocking the impulses that cause tremors, which can be turned on or off by the patient."

As with any surgical procedure, there are risks with DBS. There is a two to three percent risk of a serious and permanent complication such as paralysis, changes in cognition, memory and personality, seizures and infection.

Provided by Scott & White Healthcare

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