

With Parkinson's disease, countering symptoms is key

December 4 2015, by Scott Gilbert



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Parkinson's disease isn't the kind of affliction that will kill most people. Instead, it creeps up slowly and progressively destroys the quality of life of those who develop it.

A disease of the nervous system, Parkinson's is typically diagnosed by [symptoms](#) such as tremors and slow, stiff muscle movements. "Most

people don't actually have symptoms until about 50 to 80 percent of the neurons in their brain have died," said Dr. James McInerney, director of stereotactic and [functional neurosurgery](#) at Penn State Hershey Medical Center.

Research on Parkinson's has found that the neurons are dying for a reason, so replacing dying cells with stem cells tends not to work – the new cells come under attack just as the old ones did.

"The fact that we understand that is an advance," McInerney said. "What we have to figure out is what is attacking them and making them die. We don't have a good way of making cells grow in the brain."

In the beginning stages of the disease, many patients do well with medications that either mimic or help the body produce dopamine, the neurotransmitter that dies with the disease. As the disease progresses, it can become difficult to complete daily tasks of living such as getting out of bed, dressing, eating and moving about safely.

Those with Parkinson's also frequently suffer from nonmotor symptoms such as sleep disturbances, gastrointestinal problems, cognitive difficulties and [clinical depression](#). "All of that makes it difficult for them to do the things they want to do," McInerney said.

A treatment called [deep brain stimulation](#), or DBS, has been used for more than a decade at Penn State Hershey to help Parkinson's patients control their muscular symptoms.

McInerney said the idea for DBS grew out of original surgical procedures in which doctors would purposely create lesions in the brain to stop tremors. Medical professionals stopped performing the procedure when medications were developed that worked better than surgically destroying parts of the brain to control symptoms.

DBS uses an electrical current to mimic the damage surgeons used to purposefully create – but without actually destroying anything. Once implanted, doctors can control the stimulator with an external device that adjusts voltage, amplitude, frequency and location of stimulation. "We can turn it up, so if someone's symptoms worsen, we can respond to that," McInerney said.

While DBS is not the first line of treatment for Parkinson's, once begun, patients no longer need to rely solely on medications. "It works better because it is on all the time and it doesn't cycle on and off the way medications do," McInerney said. "And it typically doesn't produce side effects."

DBS has also proven effective for treating other disorders. It is FDA approved for use with essential tremors, dystonia (abnormal muscle contractions) and obsessive-compulsive disorder. Outside the United States, it is used as a tool for controlling seizures, obesity, addiction, pain and depression.

Doctors have also found that patients with Parkinson's disease often develop clinical depression that requires treatment with antidepressants. Once the depression is treated, the motor symptoms tend to improve. "It's not clear why the [disease](#) manifests itself with a mood disturbance," McInerney said. "But it is absolutely linked."

That's why he encourages his [patients](#) to pay attention to all of their symptoms and seek out treatment for each. "We want to give them a one-stop shop because if you don't, you're not taking care of the whole person," he said. "You have to look for these other symptoms and know they are going on."

Provided by Pennsylvania State University

Citation: With Parkinson's disease, countering symptoms is key (2015, December 4) retrieved 3 July 2024 from <https://medicalxpress.com/news/2015-12-parkinson-disease-countering-symptoms-key.html>

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