20 February 2012 | **MP3** at voaspecialenglish.com

Hunting for Clues to Parkinson's Disease

AP
Doctors operate to place electrical devices in the brain of a patient with Parkinson's to ease symptoms of the disease

BARBARA KLEIN: This is SCIENCE IN THE NEWS, in VOA Special English. I'm Barbara Klein.

BOB DOUGHTY: And I'm Bob Doughty. Today we tell about the latest research and treatments for Parkinson's disease.

(MUSIC)

BARBARA KLEIN: Parkinson's is a disease of the central nervous system. It is a progressive disorder, meaning it gets worse over time. The disease affects a small area of cells in the middle of the brain. This area is called the substantia nigra. The cells slowly lose their ability to produce a chemical called dopamine.

The decrease in the amount of dopamine can result in one or more general signs of Parkinson's disease. These include shaking of the hands, arms and legs. They also include difficulty moving or keeping balanced while walking or standing. Also, there may be emotional changes, like feeling depressed or worried. The symptoms of Parkinson's differ from person to person. They also differ in their intensity.

BOB DOUGHTY: The disease is named after James Parkinson. He was a British doctor who first described this condition in eighteen seventeen.

During the nineteen sixties, researchers discovered changes in the brains of people with the disease. These discoveries led to medicines to treat the effects of the disease. There is no cure for Parkinson's and no way to prevent it. And doctors still are not sure what causes Parkinson's.

BARBARA KLEIN: The United States National Institutes of Health says at least five hundred thousand people in the country are believed to have Parkinson's disease. About fifty thousand new cases are reported each year. That number is expected to grow as the average age of the population increases.

Parkinson's appears most often in people over the age of fifty.Some researchers believe that almost everyone would develop Parkinson's eventually if they lived long enough.

(MUSIC)

BOB DOUGHTY: Most patients have what is called idiopathic Parkinson's disease. Idiopathic means the cause is unknown. People who develop the disease often want to link it to something they can identify. This might be a medical operation or extreme emotional tension.

Yet many doctors reject this idea of a direct link to Parkinson's. They point to people who have similar experiences and do not develop the disease.

There are several theories about the cause of Parkinson's, but none has ever been confirmed. Studies have shown a link between the disease and some chemical products. In two thousand eight, an American study found a link between Parkinson's and pesticides, like those used for killing insects. The study compared three hundred nineteen Parkinson's patients to more than two hundred family members.

BARBARA KLEIN: Scientists say it is difficult to show a direct link between diseases like Parkinson's and environmental factors or influences. But in two thousand seven a European study found a link between Parkinson's and pesticide use. This study also showed that serious head injuries increased a person's risk of the disease.

Scientists at Aberdeen University in Scotland collected information about more than nine hundred people with Parkinson's or similar conditions. They compared this group to almost two thousand people without the disorder. All the people were asked about their use of pesticides, chemical fluids and metals like iron.

The researchers also collected information about family history of the disease and head injuries.

Farm workers and people who said they often used pesticides had a forty-one percent greater risk of Parkinson's than others. The disease was also two and one-half times more common among people who had been knocked unconscious more than once in their lives. These people temporarily lost consciousness after suffering a blow to the head.

BOB DOUGHTY: Another area of study is family genetics. There are examples of members of a family having the disease. The National Institutes of Health says about fifteen percent of people with Parkinson's have a family history of the disease. However, most cases involve people with no such family history.

Researchers have produced what they call a large map to show genetic links with Parkinson's disease. The map identifies changes in genes that may increase the risk in some people.

BARBARA KLEIN: Recently, a group called The Michael J. Fox Foundation for Parkinson's Research announced plans for a major study of the disease. The group is named after actor Michael J. Fox, who has Parkinson's. The study is called PPMI -- the Parkinson's Progression Markers Initiative. Its goal is to identify one or more biological signs of the disease in Parkinson's patients.

The foundation says the study will involve two hundred healthy individuals and four hundred people recently diagnosed with Parkinson's. The PPMI will be carried out at twenty-one clinical centers in the United States and Europe.

(MUSIC)

BOB DOUGHTY: There is no cure for Parkinson's disease. But improved treatments to ease the effects of the disease make it possible for many patients to live almost normal lives. People who have lost their ability to do many things are sometimes able to regain some of these abilities with treatment.

The most commonly used drug is levodopa combined with carbidopa. The National Institutes of Health says levodopa is a chemical found naturally in plants and animals. When it reaches the brain, levodopa is changed into dopamine, the chemical that is lacking in people with the disease. Carbidopa delays the change in levodopa until after it reaches the brain.

BARBARA KLEIN: Levodopa helps ease the symptoms of Parkinson's. But it does not prevent more changes in the brain that are caused by the disease. Other drugs used to treat Parkinson's disease act like dopamine. They produce

reactions in the nerve cells in the brain. They can be given alone or in combination with levodopa. Many of the possible side effects are similar to those linked with the use of levodopa. They include sleepiness, feeling sick or having bad dreams.

(MUSIC)

BOB DOUGHTY: A surgical operation called deep-brain stimulation also is used to treat Parkinson's disease. Doctors use this treatment to shock the brain in areas that help send messages to the body. These areas can become blocked in Parkinson's patients. When this happens, the messages give misinformation to the body.

In deep brain stimulation, doctors make two small holes in the patient's head. Two thin, electrical wires are then placed in the brain. They are connected under the skin to another wire that leads to a small battery placed in the chest. The device supplies electricity.

BARBARA KLEIN: Deep brain stimulation can reduce the need for levodopa and other drugs. It also helps to reduce symptoms such as shaking and slowness of movement.

In two thousand nine, researchers in the United States published a study that examined the effectiveness of deep brain stimulation. They found that the physical condition of Parkinson's patients often improves after they receive deep brain stimulation. And improvement was reported in about seventy percent of patients who received the treatment. In fact, the patients who were treated reported an average gain of nearly five hours each day of good control of their symptoms.

BOB DOUGHTY: But brain stimulation was also shown to have more side effects than drug treatments. About forty percent of the patients who had the surgery experienced problems, including infection.

Deep brain stimulation is not the answer for all Parkinson's patients. Doctors say it is best for patients whose medicines cause side effects or are not working. The treatment is not new. It was first approved for use in the United States in nineteen ninety-seven.

BARBARA KLEIN: Scientists are also exploring other experimental treatments. Since taking office, President Obama ended restrictions on the use of federal money for studies of human embryonic stem cells. Stem cells from very early embryos are able to grow into any tissue in the body. Scientists say such cells might be able to cure or treat diseases like Parkinson's. But opponents say stem

cell experiments are wrong because human embryos are destroyed. They say this is just like destroying a human life.

(MUSIC)

BOB DOUGHTY: This SCIENCE IN THE NEWS was written by Brianna Blake. Our producer was June Simms. I'm Bob Doughty.

BARBARA KLEIN: And I'm Barbara Klein. You can find transcripts, MP3s and podcasts of our programs at voaspecialenglish.com. Listen again next week for more news about science, in Special English, on the Voice of America.