Risk factors for Parkinson's disease under study

January 7 2008

Doctors know an impaired sense of smell is an early indicator of Parkinson's Disease. Now they want to know if a smell test can help determine if people with no symptoms eventually develop the disease.

"The analogy would be like diagnosing coronary artery disease before the heart attack," says Dr. Kapil Sethi, director of the Movement Disorders Program at the Medical College of Georgia and a lead investigator the Parkinson's Associated Risk Syndrome Study.

"With Parkinson's, we are dependent on the presence of motor symptoms like tremors, stiffness and slowness in order to diagnose it. By that time you have lost 50 to 60 percent of your dopaminergic cells, which make dopamine and are key to movement control. The question becomes, is there a window between when you had non-motor symptoms like loss of smell and when you begin to demonstrate clinical motor symptoms?"

Dr. Sethi and researchers at 17 other sites across the country will recruit 15,000 close relatives of Parkinson's patients as part of the study, which is being led by the Institute for Neurodegenerative Disorders and the University of Pennsylvania.

"By testing those with a family history of the disease, we have an enriched population," he says. "We already know that those people are more at risk. To enrich the sample even further, we'll test their sense of smell. It's not just the essence of a sense of smell that is different in

these people. It's a quantitative decrease in their ability to distinguish odors."

Patients will be given the University of Pennsylvania's Smell Identification Test, which tests for 40 common odors and has been used to detect the first signs of neurodegenerative disorders.

People with a normal sense of smell who take the test can usually identify around 35 odors correctly. Parkinson's patients typically can only identify 20 or less.

The study will also help determine if the smell test can also predict who will get Parkinson's.

"We believe that if you're a person who is going to develop Parkinson's, you'll also score lower than others," Dr. Sethi says.

Based on the results of the smell test, study participants will be divided into two groups – those with a normal sense of smell and those without. Both groups will undergo functional neuroimaging analyses at the Institute for Neurodegenerative Disorders in New Haven. Functional neuroimaging can identify changes in brain activity associated with Parkinson's.

Both also will be clinically examined by a movement disorder specialist and followed for three to five years.

"We believe that a proportion of those who have the deteriorated sense of smell will develop Parkinson's over the next two or three years," Dr. Sethi says.

Study participants also will be asked about other common symptoms of the disease that may be present prior to the telltale motor symptoms. For

example, people with Parkinson's and other neurological diseases often suffer from a sleep disorder called REM Behavior Disorder, which causes them to act out their dreams.

"While most people are paralyzed when they dream so they can't hurt themselves or others, people with Parkinson's are not," Dr. Sethi says. "They yell, scream and kick. No one knows why, but half of the people who have this sleep disorder will develop Parkinson's or a similar disease."

Questions about excessive daytime sleepiness and anxiety and constipation – other pre-symptoms of Parkinson's – also will be asked.

"The goal is to give someone a degree of risk based on one or multiple factors," Dr. Sethi says. "We don't know specific numbers now, but hopefully, in the future, we will be able to tell people who have a deteriorated sense of smell and the sleep disorder specifically how much their risk goes up."

The long-term goal, he says, is to develop prevention strategies once risk is established.

Source: Medical College of Georgia

Citation: Risk factors for Parkinson's disease under study (2008, January 7) retrieved 28 April 2024 from https://medicalxpress.com/news/2008-01-factors-parkinson-disease.html

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