PET Scans May Help Diagnose Movement Disorders

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Manhasset, NY (Vocus) January 13, 2010 -- Can brain scans help diagnosis Parkinson’s disease at the onset of symptoms? One clever way to know for sure is to take snapshots of the brain at the time of the first symptoms of tremor or rigidity, and follow the patients over the years to see whether the diagnosis was correct. About 10 to 20 percent of patients initially thought to have Parkinson’s suffer from another movement disorder.

“This is a big problem for physicians,” said David Eidelberg, MD, head of the Center for Neurosciences at The Feinstein Institute for Medical Research in Manhasset, NY. “The treatments for Parkinson’s will not work for these patients and they can cause their own side effects.”

Dr. Eidelberg and his colleagues have used brain scans to identify the networks involved with three different neurological conditions – Parkinson’s, multiple system atrophy (MSA) and progressive supranuclear palsy (PSP). They designed a study to follow 167 patients over three years to figure out whether the initial brain scan could be used to accurately predict the cause of the symptoms. This information is critical in making treatment decisions.

The researchers calculated the odds of having each of the three diseases based on the findings from fluoro-deoxy-glucose (FDG) positron emission tomography, a technology that images glucose metabolism. They found that FDG PET scan can identify what kind of movement disorder a patient has – something that now can only be assessed after years of clinical follow-up. “Accurate diagnosis is key,” said Dr. Eidelberg. Nine people died during the course of the study and an autopsy substantiated the imaging diagnosis.

“It is important to provide patients with an early diagnosis to ensure proper treatment,” said Dr. Eidelberg. “Also, if people are enrolled in clinical trials for Parkinson’s treatments, we want to know that we have enrolled the right patients.”

“The pathology is totally different but the earliest symptoms are so similar,” said Chris C. Tang, MD, the lead investigator of the study. Patients in the study were treated by movement disorder specialists, and after almost three years, the final diagnoses were matched with the initial findings on the brain scans. There was a 98 percent match suggesting that the scans could be used with great accuracy to diagnose correctly very early in the disease process.

The findings were published in the February edition of The Lancet Neurology. Dr. Eidelberg said that PET imaging can help clinicians more accurately diagnose Parkinson’s and other atypical movement disorders that share symptoms.

The researchers have mapped out distinct brain networks for each of the movement disorders. The studies
suggest that MSA and PSP progress much faster than Parkinson’s. There are no effective treatments for MSA or PSP and using medicines for Parkinson’s disease can make things worse.

PET is an expensive tool and is not used routinely to help diagnosis Parkinson’s. They are expanding the study to include a larger number of patients.

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