Abnormal Metabolic Brain Networks in Tourette Syndrome

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Manhasset, NY (Vocus/PRWEB)March 26, 2011 -- Scientists at The Feinstein Institute for Medical Research have identified specific brain networks associated with Tourette syndrome (TS), a condition characterized by chronic motor and vocal tics. The findings, published in Neurology, suggest that a brain scan to identify abnormal metabolic brain networks could be used to diagnose Tourette syndrome and possibly to test medicines to see if they correct these abnormal pathways.

Michael Pourfar, MD, Andrew Feigin, MD and their colleagues at the Feinstein Institute used a positron emission tomography (PET) scan to study brain metabolism in a dozen patients with Tourette and an equal number of healthy volunteers. The patients with Tourette had a brain pattern marked by reduced activity of the striatum and orbitofrontal cortex and increases in the premotor cortex and cerebellum. Another abnormal pathway – reduced activity of the anterior cingulate and dorsolateral prefrontal cortical regions and an increase in primary motor cortex and precuneus - was only found in those Tourette patients with Obsessive Compulsive Disorder. The presence of the abnormal metabolic changes in these regions correlated with the severity of a patient’s symptoms.

“Identifying single brain regions that account for the manifestations of Tourette syndrome is challenging because the symptoms of TS are very heterogeneous,” said Dr. Feigin, an expert on movement disorders. He said that the symptoms are likely to stem from abnormalities in brain circuits rather than abnormalities in specific brain regions. Fixing these abnormal chemical signals could reduce symptoms, he said.

The TS-related brain areas identified in this study work together to create a complex symptom profile. For instance, Tourette syndrome patients might have only tics, or they could also have multiple behavioral changes including Obsessive-Compulsive Disorder, attention deficit hyperactivity disorder or others in addition to tics. Therefore, though this study identified two brain networks in TS, other abnormal brain networks may underlie some of the other clinical manifestations of TS.

About The Feinstein Institute for Medical Research
Headquartered in Manhasset, NY, The Feinstein Institute for Medical Research is home to international scientific leaders in cancer, leukemia, lymphoma, Parkinson's disease, Alzheimer’s disease, psychiatric disorders, substance abuse, rheumatoid arthritis, lupus, sepsis, inflammatory bowel disease, diabetes, human genetics, neuroimmunology, and medicinal chemistry. Feinstein researchers are developing new drugs and drug targets, and producing results where science meets the patient, annually enrolling some 10,000 subjects into clinical research programs.

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Contact Information
Jamie Talan
The Feinstein Institute for Medical Research
516-562-1232

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