Using Position Emission Tomography (PET) to Diagnose Depression

Based on the data, this method could be the first objective diagnostic test for depression

Background

Major depressive disorder (MDD) is devastating in terms of an individual’s suffering, the high mortality rate, and the high cost to society. There are no diagnostic tests a clinician can perform to determine if an individual is depressed. The clinician diagnoses a patient with depression based on self-reporting by the patient and the clinician’s judgment. This subjective system is prone to error and is unrelated to the biological causes of depression. Identification of biomarker for MDD would lead to objective diagnostic test for MDD, provide understanding of the biological nature of the disease and open up new therapeutic possibilities.

Technology

Dr. Ramin Parsey Professor and Chair of the Department of Psychiatry and Director of PET Research at Stony Brook University has developed a new method to determine the relationships between serotonin1A binding in the brain and suffering from MDD using positron emission tomography (PET) and a serotonin1A antagonist radiotracer. The role of the serotonergic system in MDD pathophysiology has been well described and Selective Serotonin reuptake Inhibitors (SSRIs) remain the first line treatment for depression. Dr. Parsey’s visualized and quantified the serotonin1A binding in the brain of depressed men compared to controls and found significant differences between depressed (higher binding) and control subjects.

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Advantages
• Objective,
• Quantitative
• Faster diagnosis of depression in males

Applications
• Diagnosis of Major Depressive Disorder
• Screening method for early intervention
• Development of new anti-depressant medications and non-medication-based treatment approach

Sean Boykevisch, PhD
Assistant Director

Office of Technology Licensing and Industry Relations
N5002 Melville Library
Stony Brook University
Stony Brook, NY 11794-3369
631-632-6952
Sean.boykevisch@stonybrook.edu
www.stonybrook.edu/research/otlir