System and Method for Differentiating Mental Illnesses and Predicting Medication-Class Response in Patients

Published date: Aug. 7, 2018

Technology description

A clinical decision support tool to differentiate mental illness and appropriate medication.
This predictive algorithm has demonstrated high accuracy (>90%) in tests using medication-class responses in real patients. The most significant advantage of this approach is that it utilizes objective criteria, namely, brain activity, rather than subjective evaluations. This reduces hypothesis bias, allowing the data to draw its own conclusions.

Background

Differentiating bipolar disorder (BD) from major depressive disorder (MDD) using current methods such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) is challenging in patients without obvious distinctions. The DSM contains a predefined set of criteria used to diagnose a patient and does not always provide a clear diagnosis. Because patients with BD generally spend more time in depressive than manic states, BD is often misdiagnosed as MDD. BD patients often go 6–10 years without a proper diagnosis. While the adoption of a spectrum approach to mood disorder diagnosis is appealing, the treatment response of patients to the different medication classes, antidepressants (AD) versus mood stabilizers (MS), suggests that there is a fundamental difference between MDD and BD in many cases. MSs often do not effectively treat MDD, while ADs may worsen BD type I. Obtaining the correct mood diagnosis and the correct medication-class to best support recovery of a patient is imperative.

Technology Description

Researchers at the Mind Research Network and the University of New Mexico have developed a clinical decision support tool to differentiate mental illness and appropriate medication. This predictive algorithm has demonstrated high accuracy (>90%) in tests using medication-class responses in real patients. The most significant advantage of this approach is that it utilizes objective criteria, namely, brain activity, rather than subjective evaluations. This reduces hypothesis bias, allowing the data to draw its own conclusions.

Publications

Complexity in mood disorder diagnosis: fMRI connectivity networks predicted medication-class of response in complex patients.

About STC.UNM

As the technology-transfer and economic-development organization for the University of New Mexico, STC.UNM protects and commercializes technologies developed at the University of New Mexico (UNM) by filing patents and copyrights and transferring the technologies to the marketplace. We connect the business communication (companies, entrepreneurs and investors) to these UNM technologies for licensing opportunities and the creation of startup companies. Visit www.stc.unm.edu.

STC.UNM
SUPPORTING TECHNOLOGY TRANSFER AND CATALYZING ECONOMIC DEVELOPMENT AT THE UNIVERSITY OF NEW MEXICO

Application area

Tool to diagnose general mental disorders
Provides insight and knowledge that can improve both diagnostic strategies administered in the clinic and treatment for patients with complex presentations of mood disorders who may otherwise go unsuccessfully treated for years
May use with existing resources to recommend a medication that could help a patient to sustained recovery to euthymia
High accuracy achieved by not being restricted to established functional networks or theoretical biases
Unlike the standard approach using the DSM, this tool employs objective criteria to diagnose patients
Applications include the mental health clinics, health insurance companies, pharmaceutical companies, hospitals, and utilization by professionals in psychiatry and psychology; may also be used by policy makers and government agencies that regulate psychiatric drugs

Institution

The University of New Mexico

Inventors

Jing Sui
Eric Verner
Vince Calhoun