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New Ways of Predicting Efficacy of Antidepressants

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Abstract

Major depressive disorder (MDD) is a neuropsychiatric condition that is becoming increasingly prevalent in society. According to the last report, there are an estimated 346 million people globally suffering from MDD, an increase of 30% in the past 10 years. The pathophysiology of MDD is not fully understood, and there is a need for diagnostic and therapeutic advances that do not involve long-term or dangerous side effects. There have been many studies and substantial funding dedicated to understand the neurochemical signaling cascades that lead to prevention of cell death and neuronal differentiation. However, there are antidepressant medications to acutely increase all of these signaling cascades which leads to prevention of cell death & neuronal differentiation.

Introduction

MDD, according to Cai et al. (2015), “is a mood disorder characterized by prominent and persistent low mood, sad, melancholic, or irritable mood, and loss of interest or pleasure in activities, associated with significant functional impairment.” Cognitive and emotional tests performed prior to antidepressant treatment may be useful for predicting treatment response. A meta-analysis by Cai et al. (2015) found that MDD “is a mental disorder characterized by prominent and persistent low mood, mental retardation, cognitive impairment, volitional decline, and autonomic dysfunction.”

Statement of the Problem

According to Cai et al. (2015), “MDD can reduce the capacity of a patient to study, work, and engage in social activities.” It can also increase the risk of suicide and disability rate and has been associated with decreased quality of life in MDD. In addition, the diagnosis of MDD is not fully understood, and there is a need for diagnostic and therapeutic advances that do not involve long-term or dangerous side effects. There have been many studies and substantial funding dedicated to understanding the neurochemical signaling cascades that lead to prevention of cell death & neuronal differentiation. However, there are antidepressant medications to acutely increase all of these signaling cascades which leads to prevention of cell death & neuronal differentiation.

Discussion

In clinical practice, MDD is a disease process that will be encountered many times in a clinician’s career. Before initiating antidepressant treatment, it is important to predict treatment response to certain SSRIs and SNRIs.

In the last decade, there has been an abundance of research showing that levels of brain-derived neurotrophic factor (BDNF) are decreased in patients with MDD. BDNF is a critical factor that plays a role in the pathophysiology of MDD. BDNF is involved in the survival, growth, differentiation, and plasticity of neurons. In the past 10 years, there has been a significant increase in the research of BDNF and its role in the pathophysiology of MDD.

In summary, there is a need for diagnostic and therapeutic advances that do not involve long-term or dangerous side effects. There have been many studies and substantial funding dedicated to understanding the neurochemical signaling cascades that lead to prevention of cell death & neuronal differentiation. However, there are antidepressant medications to acutely increase all of these signaling cascades which leads to prevention of cell death & neuronal differentiation.

Research Questions

In adults with MDD, does BDNF play a role in the pathophysiology of MDD?

In treatment of adults with MDD, do cognitive biomarkers predict the efficacy and outcome of treatment and remission?

In treatment of adults with MDD, does BDNF predict the efficacy and outcome of treatment and remission?