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New Ways of Predicting Efficacy of Antidepressants

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Major depressive disorder (MDD) is a neurobiological condition that is becoming increasingly prevalent in society. According to the World Health Organization, there were 300 million patients with MDD in 2015. The Centers for Disease Control and Prevention (2016) states that almost 10% of adults are currently affected by depression. In clinical practice, MDD is a disease process that will be encountered many times in a lifetime. Therefore, understanding the pathophysiology of MDD becomes crucial for the development of effective treatment options.

### Pathophysiology of Major Depressive Disorder

Cognitive and emotional biomarkers are key in the mechanism of this disorder. The purpose of this review is to determine how BDNF and cognitive and emotional tests performed before antidepressant treatment, can be used to predict treatment response in certain MDD groups.

BDNF was found to be decreased in patients with MDD and antidepressant treatment. This decrease may occur due to a high recurrence rate. If BDNF levels are decreased, an impairment of brain development and brain plasticity will occur. If BDNF levels are decreased, an impairment of brain development and brain plasticity will occur.

### Applicability to Clinical Practice

In clinical practice, MDD is a disease process that will be encountered many times in a lifetime. Therefore, understanding the pathophysiology of MDD becomes crucial for the development of effective treatment options.

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### Research Questions

1. In adults with MDD, does BDNF play a role in the pathophysiology of MDD?
2. In treatment of adults with MDD, do cognitive biomarkers predict the efficacy and outcome of treatment and remission?
3. In treatment of adults with MDD, does BDNF predict the efficacy and outcome of treatment and remission?

### Literature Review

**Monotonic-deficiency hypothesis only partly explains the pathophysiology of MDD.** Other hypotheses in the pathophysiology of MDD include inflammatory cytokines, hypothalamo-pituitary-adrenal axis, glutamatergic receptors, BDNF dysfunction, increased apoptosis, & vitamin D dysregulation.

**BDNF as a Target for Treatment Intervention.** Not having a definitive mechanism by which this disease works makes it harder to find a treatment option that works. However, cognitive and emotional biomarkers were able to predict the efficacy of certain antidepressants in the treatment of MDD. BDNF was also found to be decreased in patients with MDD and increased after treatment with certain medications. These biomarkers may offer a more reliable gauge in the treatment of adults with MDD and may finally be able to help find treatment options for patients that will work.

**References**

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