

## **Adjunctive Triple Chronotherapy in the Acute Treatment of Depression and Suicidality in the Adolescent Population: A Randomized Controlled Trial**

According to the Centers for Disease Control and Prevention, suicide was the third leading cause of death among adolescents between ages 10 and 14, and the second between ages 15 and 34 in the United States. In 2015, suicide was the second leading cause of death among individuals between ages 10 and 44 in Montana, suggesting that people in Montana are more vulnerable to suicide from adolescence to adulthood than those living in other states.

Billings Clinic is Montana's largest health system serving Montana, Wyoming and the western Dakotas and provides the only inpatient child and adolescent psychiatric care in eastern Montana. As a not-for-profit community-governed organization, working with other organizations in the community to address mental health care needs is an important part of our mission. Our goal is to bring the benefits of the newest medical research to physicians and their patients, and to provide a clinical research evidence-based focus.

Chronotherapy, defined as the therapeutic manipulation of sleep-wake cycles, is a promising approach for the treatment of adolescent depression. The study of chronotherapeutic interventions as an adjunctive treatment for depression began in the 1970s, when investigators noted a rapid, albeit transient, antidepressant response to sleep deprivation. Another chronotherapeutic technique, bright light therapy, has consistently shown benefit in the treatment of seasonal affective disorders. Its use in the treatment of non-seasonal unipolar and bipolar depression has also shown promising results.

Combination chronotherapeutics, such as triple chronotherapy (TCT), have also been trialed with some demonstrated efficacy. TCT is an approach that combines sleep deprivation, bright light therapy, and sleep phase advancement in the acute treatment of depression. Although evidence is growing for the use of TCT to manage acute depression and suicidality in adults, studies in the adolescent population are lacking.

### **Purpose**

This study is a randomized controlled trial examining the effectiveness of adjunctive TCT in the acute treatment of depression and suicidality in adolescents compared to usual treatment care, which includes individual and group therapy, and medication adjustments.

This study has been approved by the IRB of Billings.

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