There is robust support for TMS as an effective treatment for MDD (Loo, 2005; Carpenter et al, 2012). Much less is known about its efficacy with complex and co-occurring disorders such as substance abuse. Almost one third of those with MDD have co-occurring substance abuse and have an increased likelihood of overdose and suicide (Davis et al, 2008; Schulte & Hser, 2014). Such complex problems are often interdependent and extremely treatment resistant. For these reasons, it seems important to begin to examine and address these co-morbid conditions using TMS.

**Introduction**

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**Objective**

This study examined the efficacy of Transcranial Magnetic Stimulation (TMS) for the treatment of complex and severe Major Depressive Disorder (MDD), with comorbid substance abuse, in a series of young adults.

**Methods**

The pre- and post-measures of depression included the Montgomery-Asberg Depression Rating Scale (MADRS) and the Beck Depression Inventory (BDI). Urine toxicology analyses served as measures of sobriety status. Each patient completed at least 18 sessions of dTMS utilizing Brainway’s H1 helmet and the protocol for Depression.

**Introduction**

This series of 5 clinical cases supports the use of dTMS in the treatment of MDD with co-morbid substance abuse. While the sample size is small, the results of these 5 cases showed that treatment of severe, complex MDD with dTMS may also be beneficial for co-occurring substance abuse. Considering the cumulative risks associated with chronic substance abuse in MDD, it is critical to further investigate the parameters and effectiveness of dTMS in this population.

**Participants**

A series of 5 patients (3 males and 2 females) participated. They had MDD and substance abuse according to SCID interviews by an experienced psychiatrist.

**Results**

All 5 patients improved in their pre- to post-TMS MADRS scores (mean = 34%, t=3.26, p=.03) and showed a trend on the BDI (mean = 41%, p=.19). All 5 patients showed improved sobriety, on all urine toxicology measures of alcohol and drug use, both during and after their TMS treatment (mean = 85% sobriety). Three of the 5 patients maintained 100% sobriety on the random urine toxicology screenings during TMS treatment and for the following 29.5 weeks.

**Deep TMS FOR MDD AND CO-OCCURRING SUBSTANCE ABUSE DISORDER**

Louis Dube, Zachary Bloomberg, Laura Viner, PhD and Jesse Viner, MD

Yellowbrick Center for Clinical Neuroscience

**Depression Scores**

<table>
<thead>
<tr>
<th>BDI Pre</th>
<th>BDI Post</th>
<th>MADRS Pre</th>
<th>MADRS Post</th>
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<td>24.17</td>
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**References**


