

## Cognitive Function During the First Two Hours of Spravato Administration in Patients with Major Depressive Disorder

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**Abstract :** We have employed THINC-it® to study the acute effects of Spravato on the cognitive function of patients with severe major depression disorder (MDD). The scores of the four tasks (Spotter, Symbol Check, Code Breaker, Trails) found in THINC-it® were used to measure cognitive function throughout treatment. The patients who participated in this study have tried more than 3 antidepressants without significant improvement before they began Spravato treatment. All patients received 3 doses of 28 mg Spravato 5 minutes apart (84 mg total per treatment) during this study with THINC-it®. The data were collected before the first Spravato administration (T0), 1 hour after the first Spravato administration (T1), and 2 hours after the first Spravato administration (T2) during each treatment. The following data were from 13 patients, with a total of 226 trials in a 2-3 month period. Spravato at 84 mg reduced the scores of Trails, Code Breaker, Symbol Check, and Spotter at T1 by 10-20% in all patients with one exception for a minority of patients in Spotter. At T2, the scores of Trails, Symbol Check, and Spotter were back to 97% of T0 while the score of Code Breaker was back to 92%. Interestingly, we found that the score of Spotter was consistently increased by 17% at T1 in the same 30% of patients in each treatment. We called this change reverse response while the pattern of the other patients, a decline (T1) and then recovery (T2), was called non-reverse response. We also compared the scores at T0 between the first visit and the fifth visit. The T0 scores of all four tasks were improved at visit 5 when compared to visit 1. The scores of Trails, Code Breaker, and Symbol Check at T0 were increased by 14%, 33%, and 14% respectively at visit 5. The score of Code Breaker, which had two trends, improved by 9% in reverse response patients compared to a 27% improvement in non-reverse response patients. To our knowledge, this is the first study done on the impact of Spravato on cognitive function change in major depression patients at this time frame. Whether we can predict future responses to Spravato with THINC-it® merits further study.

**Keywords :** Spravato, THINC-it, major depressive disorder, cognitive function

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