Theme: Neurostimulation

Transcranial magnetic stimulation as a treatment for Negative Symptoms in Schizophrenia: preliminary data

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Abstract:

About 90% of patients with first-episode schizophrenia present negative symptoms of schizophrenia (NSS), and 30% will have persistent NSS even when adequately treated with antipsychotics. High-frequency repetitive transcranial magnetic stimulation (rTMS), including intermittent theta burst stimulation (iTBS), over the left dorsolateral prefrontal cortex (dlPFC) has shown promising results on reducing NSS.

Here, we present preliminary results for two male patients with schizophrenia (mean age of 38.5 years) who completed an acute course of 30 sessions in an accelerated protocol of 2 sessions per day, with a 50-minute interval. The iTBS protocol, built upon existing literature, consists of 50 Hz triplet bursts repeated at 5 Hz (600 pulses delivered at 120% of the motor threshold) in trains of 2 seconds and intertrains of 8 seconds. This protocol was administered with a Magventure MagPro X100 magnetic stimulator with Magventure butterfly-shaped coil MC-P-B65. Psychometric assessment was conducted before and after the acute course.

Overall, patients revealed improvement in most scales, with a total of 10% of improvement in the Positive and Negative Syndrome Scale (PANSS) General Psychopathology Scale, 8.33% in the Positive Scale, 26.98% in the Negative Scale, and 17.01% improvement in the Total Score); a 25% improvement in the Clinical Global Impression-Schizophrenia Scale (CGI-SCH); 28.21% in the Personal and Social Performance Scale (PSP); 26.53% in the Brief Negative Symptom Scale (BNSS). There were no relevant changes in the Brief Cognitive Assessment Tool for Schizophrenia (B-CATS) nor in scores of the Calgary Depression Scale for Schizophrenia (CDSS).

These preliminary results are promising, with patients showing overall improvement in NSS after an acute course of TMS. However, this therapy requires further validation with a larger group of patients and evaluating its long-term impact, namely the need and benefits of maintenance courses.

Keywords: Schizophrenia, Negative Symptoms, TMS, iTBS