

Non invasive brain stimulation in the treatment of schizophrenia

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**OBJECTIVE** Auditory verbal hallucinations (AVH) are a characteristic symptom of schizophrenia. Previous studies have investigated 1-Hz repetitive transcranial magnetic stimulation (rTMS) to the left temporoparietal region as a non-invasive treatment option for treatment-resistant patients, with several studies with large sample sizes not demonstrating efficacy of rTMS compared to sham stimulation. A new stimulation protocol using continuous theta-burst rTMS could provide a more effective therapeutic option.

**METHODS** In a double-blind study, forty-one patients with AVH were randomly allocated to either continuous theta-burst rTMS or sham treatment. The theta-burst TMS group received 10 treatments over left temporoparietal cortex distributed over five consecutive days. The placebo group received 10 treatments of sham stimulation following the same procedures as the theta-burst group. Severity of AVH was assessed using the psychotic symptom rating scales (PSYRATS), the auditory hallucinations rating scale (AHRS) and item P3 of the positive and negative syndrome scale (PANSS) before treatment, after five days of treatment, and during follow-up one month later. Data were analyzed using repeated measures ANOVA.

**RESULTS** Significant main effects of treatment were observed for the PSYRATS ( $p=0.017$ ) and a trend was observed for the AHRS ( $p=0.053$ ), indicating lower hallucination severity scores after treatment. No significant interaction effects were observed for any of the hallucination severity scales, indicating that AVH did not significantly improve after theta-burst stimulation compared to sham stimulation.

**CONCLUSION** These results suggest a placebo effect of continuous theta-burst rTMS on the left temporoparietal region.