

Randomized sham controlled trial of repetitive transcranial magnetic stimulation to the dorsolateral prefrontal cortex for the treatment of panic disorder with comorbid major depression.

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Abstract

BACKGROUND: In an open-label trial low-frequency repetitive **transcranial magnetic stimulation** (rTMS) to the right dorsolateral prefrontal cortex (DLPFC) significantly improved symptoms of panic disorder and major depression. Here we present data of a randomized double-blind study.

METHODS: Twenty-five patients were assigned 4 weeks of active or sham rTMS to the right DLPFC. rTMS parameters consisted of 1800 stimuli/day, 1-Hz, at 110% of resting motor threshold. Response was defined as a $\geq 40\%$ decrease on the panic disorder severity scale and a $\geq 50\%$ decrease on the Hamilton depression rating scale. At the end of the randomized phase, patients were offered the option of receiving open-label rTMS for an additional 4 weeks.

RESULTS: Repeated-measures ANOVA revealed significantly better improvement in panic symptoms with active compared with sham rTMS, but no significant difference in depression. At 4 weeks, response rate for panic disorder was 50% with active rTMS and 8% with sham. After 8 weeks of active rTMS, response rate was 67% for panic and 50% for depressive symptoms. Repeated-measure ANOVA showed significant improvements in panic disorder, major depression, clinical global impression, and social adjustment. Clinical improvement was sustained at 6-month follow-up.

LIMITATIONS: Limitation of this study is the relatively small sample size.

CONCLUSIONS: Although 4 weeks of rTMS was sufficient to produce a significant effect in panic symptoms, a longer course of treatment resulted in better outcomes for both panic disorder and major depression. These data suggest that inhibitory rTMS to the right DLPFC affects symptoms expression in comorbid anxiety and depression. ClinicalTrials.gov Identifier: [NCT00521352](https://clinicaltrials.gov/ct2/show/study/NCT00521352).

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