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Efficacy and safety of transcranial magnetic stimulation in the acute treatment of major depression: a multisite randomized controlled trial

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PMID: 17573044 DOI: 10.1016/j.biopsych.2007.01.018

Abstract

Background: We tested whether transcranial magnetic stimulation (TMS) over the left dorsolateral prefrontal cortex (DLPFC) is effective and safe in the acute treatment of major depression.

Methods: In a double-blind, multisite study, 301 medication-free patients with major depression who had not benefited from prior treatment were randomized to active (n = 155) or sham TMS (n = 146) conditions. Sessions were conducted five times per week with TMS at 10 pulses/sec, 120% of motor threshold, 3000 pulses/session, for 4-6 weeks. Primary outcome was the symptom score change as assessed at week 4 with the Montgomery-Asberg Depression Rating Scale (MADRS). Secondary outcomes included changes on the 17- and 24-item Hamilton Depression Rating Scale (HAMD) and response and remission rates with the MADRS and HAMD.

Results: Active TMS was significantly superior to sham TMS on the MADRS at week 4 (with a post hoc correction for inequality in symptom severity between groups at baseline), as well as on the HAMD17 and HAMD24 scales at weeks 4 and 6. Response rates were significantly higher with active TMS on all three scales at weeks 4 and 6. Remission rates were approximately twofold higher with active TMS at week 6 and significant on the MADRS and HAMD24 scales (but not the HAMD17 scale). Active TMS was well tolerated with a low dropout rate for adverse events (4.5%) that were generally mild and limited to transient scalp discomfort or pain.

Conclusions: Transcranial magnetic stimulation was effective in treating major depression with minimal side effects reported. It offers clinicians a novel alternative for the treatment of this disorder.

Trial registration: ClinicalTrials.gov NCT00104611.

Comment in

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