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Augmentation effect of repetitive transcranial magnetic stimulation over the supplementary motor cortex in treatment refractory patients with obsessive compulsive disorder.

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Author information

Abstract

BACKGROUND: There are only a few effective treatment options currently available for treatment-refractory obsessive compulsive disorder (OCD). The supplementary motor area (SMA) has been reported to play an important role in the pathophysiology of OCD. Functional neuroimaging studies indicate that OCD is associated with increased activity in the SMA, caudate nucleus, and anterior cingulate gyrus. Novel treatment strategies like repetitive transcranial magnetic stimulation (rTMS) have been proposed for OCD refractory to standard treatments. These clinic-based data report on the efficacy of rTMS in medication-resistant OCD.

MATERIALS AND METHODS: Twelve right-handed persons with medication-resistant OCD were administered rTMS as an add-on treatment. Stimulation was given at 1 Hz for 10 seconds followed by 15 seconds pause and 100 trains of stimulus over the SMA per session for 5 days in a week. Assessments were done on yale brown obsessive compulsive scale (Y-BOCS) at baseline and at the end of rTMS intervention.

RESULTS: The subjects had a mean age of 33.17±12.74 years. Mean scores on Y-BOCS were 26.17 at baseline and 17.17 at the end of treatment, reflecting significant improvement. The subjects did not report any significant side effects except one person with known bipolar illness, who developed manic symptoms after the 3(rd) session of the rTMS.

CONCLUSIONS: Low-frequency rTMS over the SMA appears a promising treatment strategy as an add-on treatment in treatment-refractory patients of OCD.

KEYWORDS: Obsessive compulsive disorder; repetitive transcranial magnetic stimulation; supplementary motor area

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Randomized sham-controlled trial of repetitive transcranial magnetic stimulation in treatment-resistant obsessive-compulsive disorder.

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Abstract

In open trials, 1-Hz repetitive transcranial magnetic stimulation (rTMS) to the supplementary motor area (SMA) improved symptoms and normalized cortical hyper-excitability of patients with obsessive-compulsive disorder (OCD). Here we present the results of a randomized sham-controlled double-blind study. Medication-resistant OCD patients (n=21) were assigned 4 wk either active or sham rTMS to the SMA bilaterally. rTMS parameters consisted of 1200 pulses/d, at 1 Hz and 100% of motor threshold (MT). Eighteen patients completed the study. Response to treatment was defined as a > or = 25% decrease on the Yale-Brown Obsessive Compulsive Scale (YBOCS). Non-responders to sham and responders to active or sham rTMS were offered four additional weeks of open active rTMS. After 4 wk, the response rate in the completer sample was 67% (6/9) with active and 22% (2/9) with sham rTMS. At 4 wk, patients receiving active rTMS showed on average a 25% reduction in the YBOCS compared to a 12% reduction in those receiving sham. In those who received 8-wk active rTMS, OCD symptoms improved from 28.2+/-5.8 to 14.5+/-3.6. In patients randomized to active rTMS, MT measures on the right hemisphere increased significantly over time. At the end of 4-wk rTMS the abnormal hemispheric laterality found in the group randomized to active rTMS normalized. The results of the first randomized sham-controlled trial of SMA stimulation in the treatment of resistant OCD support further investigation into the potential therapeutic applications of rTMS in this disabling condition.

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