

TMS and OCD: Investigating the effects of rTMS on obsessions and compulsions

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Introduction

rTMS has been shown to be effective in the treatment of OCD. There are no studies which have specifically investigated whether TMS has a differential treatment effect on obsessions and compulsions.

Method

103 patients (58 males, ages 17-73, average age = 37). OCD symptoms were measured at baseline and after treatment with the Yale-Brown Obsessive-Compulsive Scale (YBOCS). Patients were treated with at least 5 sessions of rTMS for OCD (average = 17 sessions, range 5-50 sessions). YBOCS scores ranged from 11-40 (average = 26) which with the YBOC, is equivalent to mild to extremely severe OCD.

Patients received 1st line rTMS treatment: F4 (Left Dorsolateral Prefrontal Cortex). cTBS. 40 secs. 80% rMT. Followed by FCZ (Supplementary Motor Area). Bilateral. Continuous 1Hz. 20 minutes. (1200 pulses) at 100% rMT. If the 1st line treatment was unsuccessful, patients were treated using 2nd line treatment: FP1 (Left Medial OFC). Intermittent 1Hz. (360 pulses). 8.5 minutes. at 100% rMT. 5 min gap.

Mean YBOCS scores before and after rTMS treatment

	Baseline	Completion
Overall YBOCS	26.28	20.00
YBOCS Obsessions	14.06	10.42
YBOCS Compulsions	12.31	9.54

Results

A paired samples t-test found that baseline YBOCS scores (M=26.28; SD= 6.76) were significantly higher compared to post rTMS treatment scores (M=20.00; SD= 9.19), $t(102) = 8.30$, $p < .001$, (d= .81).

Paired samples t-test found that baseline YBOCS Compulsion scores (M= 12.31; SD=9.54) were significantly higher compared to post rTMS YBOCS Compulsion scores (M=9.54; SD= 5.03), $t(102) = 6.80$, $p < .001$, (d= 0.67).

Paired samples t-test found that baseline YBOCS Obsession scores (M=14.06; SD=3.42) were significantly higher compared with post rTMS YBOCS Obsession scores (M=10.42; SD=4.70), $t(102) = 8.72$, $p < .001$, (d= 0.86).

Conclusion

The results indicate that rTMS treatment significantly reduces overall YBOCS scores, as well as YBOCS Obsession and Compulsion scores, supporting our hypotheses. There is a trend to greater effect size (improvement) in the Obsession YBOCS scores (d= 0.86) compared YBOCS compulsion scores (d= 0.67), indicating that rTMS treatment may be more beneficial in treating the obsessional aspects of OCD.

Future research should attempt to replicate the findings of this study with larger and more varied samples.

Conflict of Interest & Funding

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