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Does rTMS treat insomnia?

To the Editor

Huang et al. published the results of a sham-controlled, randomized trial of a 10 days of 1 Hz rTMS at 90% of resting motor threshold (3 trains of 500 pulses with an inter-train interval of 10 min), applied to the right posterior parietal lobe 10–20 (P4 electrode site) in patients with generalized anxiety (GAD) [1]. They reported statistically and clinically significant and apparently lasting improvements in the active vs sham stimulation group compared with baseline for Hamilton Rating Scale for Anxiety (HRSA) scores as a primary outcome.

We applaud the investigators for the inclusion of measures of depression (Hamilton Rating Scale for Depression [HRSD]) and insomnia (Pittsburgh Sleep Quality Index [PSQI]) as secondary outcomes but must take issue with the interpretation that they have shown a benefit for insomnia that is independent of the benefit for GAD. As we encountered in our examination of sleep factor changes associated with rTMS treatment of Major Depression as a secondary analysis of the well-controlled Neuronetics pivotal trial [2] this is difficult and perhaps impossible to tease apart. In our study, the improvement in sleep factors was highly correlated with non-sleep related items on the HRSD, such that we could only conclude that TMS did not have an independent effect upon sleep. It is clear in this study as well, that improvement over baseline was highly correlated between the measures, and only baseline HRSA did not correlate with improvement in PSQI scores.

Huang et al. note that insomnia is a symptom of GAD, but do not address the potential confound that insomnia is one of 14 items on the HRSA. We would predict that this item likely covaried with the remainder of the items. Unfortunately, given the high incidence of anxiety in individuals with primary insomnia symptom ratings may never unravel this mystery. P4 is a relatively novel target for rTMS stimulation and a head-to-head comparison of sleep outcomes with frontal targets might be fruitful. The recent identification of measurable differences in dynamic functional connectivity between GAD patients with and without insomnia may ultimately point the way [3].

Conflict of interest declaration

The authors have no conflicts to disclose relative to this letter, apart from remote research funding of the original TMS trial in reference [2].

References

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