Dorsomedial prefrontal rTMS for major depression: safety, tolerability, and effectiveness for 10 Hz versus iTBS 185 in consecutive cases

Nathan Bakker, S. Saba Shahab, Peter Giacobbe, Daniel M. Blumberger, Zafiris J. Daskalakis, Sidney H. Kennedy, Jonathan Downar, Temerty Centre for Therapeutic Brain Intervention at the Centre for Addiction and Mental Health, Toronto, Ontario, Canada M5T 2S8

Background: Conventional rTMS protocols for major depression target dorsolateral prefrontal cortex using >30 min sessions. However, recent studies have sought to improve costs, capacities, and outcomes by targeting dorsomedial prefrontal cortex (DMPFC), or employing briefer protocols such as theta burst stimulation (iTBS). Objectives: To compare safety, effectiveness, and outcome predictors for DMPFC-rTMS with 10 Hz (30 min) versus iTBS (6 min) protocols, in a large, naturalistic retrospective case series.

Methods: A chart review identified 185 patients with a medication-resistant major depressive episode who underwent 10 Hz (n = 98; iTBS, n = 87) at a single Canadian clinic from 2011–2014. Results: Clinical characteristics of 10 Hz and iTBS patients did not differ prior to treatment, aside from slightly higher age in iTBS patients. A total 7912 runs of DMPFC-rTMS (10 Hz, n = 3683) were administered, without any seizures or other serious adverse events, and no significant differences in rates of premature discontinuation or adverse events between groups. Dichotomous outcomes did not differ significantly between groups (Response/remission rates; BDI-II: 10 Hz, 40.6%/29.2%; iTBS, 43.0%/31.0%; HamD17: 10 Hz, 50.6%/38.5%; iTBS, 48.5%/27.9%). On continuous outcomes, there was no significant difference between groups in pre-treatment or post-treatment scores, or percent improvement on either BDI-II or HamD17. Mixed-effects modelling revealed no significant group-by-time interaction on either measure.

Conclusions: Both 10 Hz and iTBS DMPFC-rTMS appear safe and tolerable at 120% resting motor threshold. The effectiveness of 6 min iTBS and 30 min 10 Hz protocols appears comparable. Randomized trials comparing 10 Hz to iTBS may be warranted.

A Neuron under External Sinusoidal Stimulation

A. Rabinovitch, Y. Biton, D. Braunstein, M. Friedman, I. Aviram


Discussions: The FIM is a rehabilitation scale which measures functional abilities of the patient with disability, regardless of diagnosis. In this retrospective review, we show that while DBS adjustment can improve cardinal features of PD and tremor, patients often remain limited because of their functional dependence. Inpatient rehabilitation, however, in combination with DBS is an important part of the treatment, and even if significant time has elapsed following implantation with residual disability, meaningful outcome can still be achieved.