LEFT-HANDEDNESS AND RESPONSE TO HIGH FREQUENCY LEFT AND INTERMITTENT THETA BURST REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IN TREATMENT RESISTANT DEPRESSION

Keywords: Brain stimulation; theta-burst; treatment resistance; handedness

Research Objectives:
Recent work by Fitzgerald and colleagues (Fitzgerald et al., 2020), explored whether handedness affects the clinical effects of rTMS in depression. They found that left-handed subjects experienced greater symptom reduction and higher response for high-frequency left-sided rTMS (HFL) but not low-frequency right-sided rTMS (LFR). We conducted secondary analyses of the THREE-D trial, as there are no available data on the effect of handedness on response to intermittent theta burst stimulation (iTBS).

Methods:
In the THREE-D trial, treatment resistant depression patients (TRD) were randomized to either left-sided iTBS or HFL (Blumberger et al., 2018). 381 non-ambidextrous, treatment-completing individuals with TRD were analyzed. Change in the Hamilton Rating Scale for Depression (HRSD) (Hamilton, 1967) was compared by handedness using t-tests. To test covariate effects, an ANOVA model for change in HRSD with clinical-demographic covariates was used. Fisher’s exact test was used for effects of handedness on response.

Results:
Change in HRSD did not differ by handedness (p=0.25). Results were similar analyzing separately for iTBS (p=0.30) and HFL (p=0.60). In a model including covariates, the overall model was non-significant (p=0.20), as was handedness (p=0.35). The proportion of responders did not differ by handedness, neither in the total sample (p=0.19), nor in the iTBS (p=0.19) or HFL (p=0.80) subgroups.

Conclusions:
Left- and right-handed individuals with TRD had a similar clinical response to both iTBS and HFL. These findings inform clinical practice, providing evidence that laterality of treatment should not be modified in left-handed individuals regardless of rTMS stimulation type.

References:


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