

Poster session

P.2.a Affective disorders and anti depressants - Affective disorders (clinical)

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**Right-sided, 1-Hz repetitive TMS compared with venlafaxine extended-release in the treatment of resistant depression: a double-blind study**

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**Purpose of the study and Objectives:** Previous studies have shown effectiveness of repetitive transcranial magnetic stimulation (rTMS) in the treatment of depression [1,2]. There is a lack of studies comparing this method with standard antidepressant treatment and the position of rTMS in current guidelines for treatment of unipolar depression is unclear [3]. This double-blind study compared efficacy of 1 Hz rTMS over the right prefrontal dorsolateral cortex with venlafaxine ER in the treatment of resistant depression. We hypothesized that LF rTMS would produce a greater therapeutic effect than venlafaxine ER.

**Methods:** A total of 60 inpatients with depressive disorder (DSM-IV criteria), who previously did not respond to at least one antidepressant treatment, were randomly assigned to 1 Hz rTMS (20 session, 600 pulses, 100% of motor threshold) with placebo (n = 29) and venlafaxine ER ( $\geq 150$  mg pd) with sham rTMS (n = 31) for 4 weeks. We used the traditional 5 cm anterior navigation method for targeting dorsolateral prefrontal cortex. Placebo (sham) stimulation was delivered in the same anatomical location with identical stimulation parameters as real rTMS but with the lateral edge of the coil rotated 90° away from the scalp.

The primary outcome measure was score change in the Montgomery-Asberg Depression Rating Scale (MADRS). We also used Clinical Global Impression (CGI) and Beck Depressive Inventory-Short Form (BDI-SF). The response was defined as a  $\geq 50\%$  reduction of MADRS score and the remission as the MADRS score equal or less than 10 points. The primary efficacy analyses were based on intent-to-treat (ITT) data set with the last observation analysis (LOAN) method. All tests were 2-sided and an exact significance level of 0.05 was adopted. The Prague Psychiatric Centre Institutional Review Board reviewed and approved this study and a written informed consent to participate in the research was obtained from all subjects.

**Results:** There were no baseline differences in demographic and clinical parameters between treatment groups. Fifty-eight subjects were included in the efficacy analyses (venlafaxine ER n = 31; rTMS n = 27). Two subjects from rTMS group lacking post-baseline evaluation were excluded from analyses. There were no significant differences (ANOVA) between treatment groups in MADRS (p = 0.38), BDI-SF (p = 0.56) and CGI (p = 0.17) scores from baseline to endpoint. Mean change in total MADRS score from baseline to week 4 for patients treated by rTMS was  $7.56 \pm 7.0$  points and  $8.19 \pm 7.9$  points for patients from venlafaxine group, a non-significant difference (unpaired t-test, p = 0.75). Response rates for rTMS (33%) and venlafaxine (39%) as well as remission rates (19% vs. 23%) and drop-out rates (rTMS 3/29, venlafaxine 5/31, p = 0.71) did not differ between treatment groups (Fisher Exact Test). There were significant reductions of MADRS, CGI and BDI-SF scores in both groups (paired t-test).

**Conclusion:** The right sided rTMS of dorsolateral prefrontal cortex produced clinically relevant reduction of depressive symptomatology in the acute treatment of patients with resistant depression. This effect was comparable to the effect of venlafaxine ER. This study was supported by a grant of Ministry of Education of Czech Republic MSMT 1M0517.

**Reference:** 1. Daskalakis, Z.J., Levinson, A.J., Fitzgerald, P.B., 2008 Repetitive transcranial magnetic stimulation for major depressive disorder: a review. *Canadian Journal of Psychiatry* 53, 555-566.  
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