

group was 71% (SD 75%). Logistic regression analysis yielded a significant model ($p < 0.001$, $R^2 = 0.51$, Cox&Snell and $R^2 = 0.68$, Nagelkerke). Initial ST ($p < 0.05$) and percentage of change in amplitude ($p < 0.05$) were significant predictors of change in ST. Percentage of change in post-ictal suppression reached trend level significance ($p = 0.065$).

Conclusions: Increases in ST over a RUL UB ECT course may be predicted by decreases in seizure quality, specifically by amplitude and potentially by post ictal suppression. Such EEG indices may be able to detect changes in the ST over a treatment course with RUL UB ECT, informing that dose adjustments may be necessary.

Keywords: Electroconvulsive Therapy, Right Unilateral Ultrabrief, Seizure Threshold, Seizure Quality

[0225]

ECT MODALITY AND HEALTH RELATED QUALITY OF LIFE OUTCOMES AFTER ECT FOR DEPRESSION

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Introduction: Large improvements in health related quality of life (HRQOL) have been shown after a course of ECT for depression. Currently a wide range of ECT treatment modalities exists in clinical practice, however the effect of different types of ECT on HRQOL outcomes has not been studied. Thus, the present study explored the relationship between different types of ECT modalities and HRQOL outcomes.

Methods: Data from 355 depressed patients receiving ECT in three clinical hospitals was included. HRQOL was measured at baseline and after ECT, using the Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form (Q-LES-Q-SF). ECT modalities given included different combinations of electrode-placements (Right Unilateral, Bitemporal, Bifrontal) and pulse-widths (brief or ultrabrief). The association between type of ECT and HRQOL after ECT was examined by regression analysis, controlling for variables that may affect HRQOL outcomes.

Results: HRQOL scores after ECT increased significantly ($p < 0.0001$; $t = -23.4$) and largely (54% increase, Cohen's $d = 1.43$). Multiple regression analysis yielded a significant model ($P < 0.001$, $R^2 = 0.18$). Baseline HRQOL score ($t = 4.83$; $p < 0.0001$), age ($t = 2.75$, $p < 0.01$) and type of ECT received [Right Unilateral brief vs Bitemporal Ultrabrief ($t = -2.99$; $p < 0.01$) and Right Unilateral brief vs Bifrontal Ultrabrief ($t = -2.70$; $p < 0.01$)] were significant predictors of HRQOL after the ECT course.

Conclusions: Clinically significant improvements in HRQOL were found after an acute course of ECT for depression. Importantly, the ECT treatment modality can impact HRQOL outcomes, with the possibility of bilateral ultrabrief forms of ECT being less beneficial.

Keywords: Electroconvulsive Therapy, Depression, Health Related Quality of Life, Modality

[0228]

LACK OF EVIDENCE BETWEEN SINGLE TRANSCRANIAL DIRECT CURRENT STIMULATION OF DORSOLATERAL PREFRONTAL CORTEX AND IMPROVEMENTS IN COGNITIVE AND ATTENTIONAL IMPULSIVITY

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Introduction: Impulsivity has been investigated widely in the literature. Impulsivity is associated with poor decision making and attentional failures, impairing everyday functioning. Brain lesions or dysfunctions on the Dorsolateral Prefrontal Cortex (DLPFC) were previously related to changes in impulsivity and can affect the process of decision making and attentional control. Transcranial Direct Current Stimulation (tDCS) is a neuromodulation technique that can provide safe, easy to use and cheap stimulation to specific cortical areas.

Objective is investigate if Low Density tDCS can improve attentional and cognitive impulsivity in behavioral cognitive measures.

Methods: we assessed 30 young adults (mean age 24.6+/-5.7 years), with an average IQ (mean 106.9+/-13.3). All participants underwent a brief

session of neuropsychological assessment followed by double-blind tDCS. They were randomly assigned to one of three groups and received active (2mA) neurostimulation on either left ($n = 10$) or right ($n = 10$) DLPFC. Other 10 participants received sham Stimulation. For the assessment of attentional impulsivity we used the Five Digit Test, a numeric-stroop test. Participants performed the FDT before and after tDCS stimulation. Participants performed the IGT during the final quarter of the tDCS 20 minutes stimulation time. We analysed the data using repeated measures ANOVA and general linear models.

Results: we found no interactions between condition (right, left, sham) and assessment (pre, post) on any FDT measures: Reading ($p = 0.489$), Counting ($p = 0.451$), Inhibition ($p = 0.337$), Shifting ($p = 0.111$) and Executive Errors ($p = 0.433$). The three conditions also had no effect on IGT measures: ambiguity ($p = 0.835$) and risk ($p = 0.527$).

Conclusion: tDCS over DLPFC showed no effect on behavioral measures of attentional and cognitive impulsivity. Future studies should investigate this subject by using high density tDCS, other regions of interest or multiple sessions design.

Keywords: tDCS, impulsivity, impulse control, cognitive control

[0230]

BEHAVIOURAL AND NEUROPHYSIOLOGICAL EFFECTS OF TRANSCRANIAL ELECTRICAL STIMULATION (TES) IN HEALTHY AND DEPRESSED INDIVIDUALS: A TMS-EEG STUDY

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Introduction: Transcranial direct current stimulation (tDCS) has been shown to improve cognition in healthy and neuropsychiatric populations. Recent research has suggested that transcranial random noise stimulation (tRNS) may be more effective at modulating cognition. However, there is limited research directly comparing the efficacy of these two methods, and their precise neurophysiological underpinnings remain unclear. This study investigated the efficacy of tDCS and tRNS in improving working memory (WM) performance in healthy and depressed individuals, and compared their neurophysiological impact.

Methods: Ninety-participants (45 healthy, 45 MDD) received 20-minutes of either tDCS (current density=0.03mA/cm², anodal over the left DLPFC), tRNS (100-640Hz with a 1mA DC offset), or sham stimulation. Groups were matched on age, gender, education, depression severity, and WM ability. WM was assessed before and after tES using the Sternberg WM task. Single-pulse TMS-EEG was conducted before and after tES, with TMS delivered over the left DLPFC.

Results: Preliminary behavioural data is available for 65 participants (32 healthy; 33 MDD). For healthy individuals, a significant improvement in Sternberg accuracy was observed following tRNS, but not tDCS or sham, $F(2,32) = 6.59$, $p < .01$. For depressed individuals, a significant improvement in Sternberg reaction time was observed following tDCS stimulation, but not tRNS or sham, $F(2,33) = 4.60$, $p < .05$. Analysis of TMS-EEG data will be presented at the conference and will examine changes in local and global cortical excitability via analysis of the amplitude of TMS-evoked potentials.

Discussion: This study presents preliminary evidence that tRNS may be more effective than tDCS at improving WM performance in healthy individuals. Further, the dissociation in behavioural outcomes between healthy and depressed groups suggests that the underlying neurophysiology of these populations may differ, and these differences may influence the outcome of tES. Exploration of these underlying neurophysiological differences will be presented at the conference following analysis of TMS-EEG data.

Keywords: Transcranial Direct Current Stimulation, Transcranial Random Noise Stimulation, Working Memory, Major Depressive Disorder

[0231]

MORE IS NOT ALWAYS BETTER: IMPACT OF DIFFERENT INTENSITIES OF INTERMITTENT THETA BURST STIMULATION IN PREFRONTAL CORTEX USING TMS-EEG

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