P14 Neurophysiology of post-stroke fatigue—**W. De Doncker *, A. Kuppuswamy (UCL, Institute of Neurology, London, United Kingdom)**

Introduction: Fatigue is one of the most commonly self-reported symptoms after stroke. Despite the high prevalence of fatigue, an understanding of the neural mechanisms underlying fatigue is currently lacking. We have previously shown that post-stroke fatigue is related to lower cortical excitability. Using fMRI data, we showed altered interhemispheric interactions in high fatigue. Based on these findings we proposed that post-stroke fatigue may be a result of reduced sensory attenuation.

Objectives: Our first aim was to replicate the finding of lower cortical excitability in high fatigue. Our second aim was to investigate interhemispheric interactions using TMS. Our third aim was to investigate pre-movement excitability in search of evidence for the proposed hypothesis of sensory attenuation.

Methods: We tested ninety-eight non-depressed stroke survivors with minimal motor and cognitive impairment and varying levels of self-reported fatigue using transcranial magnetic stimulation (TMS) to obtain measures of cortical excitability. Seventy-five of these patients took part in a simple warned reaction time task (SWRTT) together with TMS to assess cortical excitability changes during movement anticipation. The SWRTT was also carried out in 22 healthy participants. Forty-one patients took part in an interhemispheric inhibition (IHI) protocol to test the effect of left to right hemisphere and right to left hemisphere inhibition on post-stroke fatigue. Self-reported fatigue was captured using the fatigue severity scale (FSS-7).

Results: Cortical excitability did not correlate with fatigue when the entire group of 98 patients was treated as one cohort. However, when patients were divided into groups depending on whether their dominant hemisphere was affected (Left Hemisphere), the there was a positive correlation between fatigue and cortical excitability (CC = 0.304, p = 0.0381). There was a non-significant negative correlation between cortical excitability and FSS-7 when the non-dominant hemisphere was affected (CC = −0.229, p = 0.130). There was no difference in the temporal profile of cortical excitability during the SWRTT between the different levels of fatigue and healthy participants. There was greater Left to Right Hemisphere and lesser Right to Left Hemisphere inhibition with increasing levels of fatigue; however none of the trends reached significance.

Conclusion: The results from the threshold and IHI data appear to suggest that left hemisphere strokes mediate fatigue via different mechanisms compared to right hemisphere strokes. There does not appear to be any differences in movement anticipation, irrespective of the hemisphere affected by the stroke.

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P15 The effects of single-session anodal transcranial direct current stimulation (tDCS) on working memory performance—**J. Bjekic [a,*], M. Živanovic [b], D. Paunovic [a], S. Filipovic [a] ([a] University of Belgrade, Institute for Medical Research, Human Neuroscience, Belgrade, Serbia, [b] Institute for Psychology, Faculty of Philosophy, University of Belgrade, Belgrade, Germany)**

Question: Accumulating evidence points towards the beneficial effects of tDCS on working memory (WM). Still, the reproducibility of increased WM performance following single session anodal tDCS has been brought into question by some recent studies. In series of experiments, we aimed to explore the effect of single-session anodal tDCS over both left and right dorsolateral prefrontal cortex (DLPFC) and posterior parietal cortex (PPC) on WM assessed by the n-back task (i.e. 3-back) in the verbal and non-verbal modality in the online and offline protocol.

Methods: Three sham-controlled within-subject design experiments were conducted. Each experiment had three conditions (anodal tDCS over DLPFC; anodal tDCS over PPC; and sham) that were repeated across participants in counterbalanced order (Exp1: N = 21, age range: 21–35 years, gender M/F = 9/12; Exp2: N = 21, age range: 20–35 years, gender M/F = 9/12; Exp3: N = 21, age range: 21–30, gender M/F = 10/11). In Exp1, participants completed verbal and non-verbal 3-back task immediately following 20 min tDCS over the left DLPFC/PPC (i.e. F3 and P3 of the International 10–20 EEG system). Exp2 followed the same protocol but with right-hemisphere electrode placement (i.e. F4 and P4 of the International 10–20 EEG system). Finally, in Exp3, the electrode placement was the same as in Exp1, but 3-back tasks were performed during, instead of after the stimulation.

Results: The experiments yield mixed results. Namely, WM performance was enhanced following the stimulation of the right but not left DLPFC ($p < .05$). Furthermore, tDCS over right PPC positively affected performance on verbal ($p < .05$) but not non-verbal 3-back task (p = .15), while the stimulation of the left PPC enhanced non-verbal (p = .01), but not verbal 3-back task performance (p= .14). Finally, tDCS had no effect on neither verbal nor non-verbal 3-back task in the online protocol (Exp3).

Conclusion: The results have shown that a single session anodal tDCS can increase WM performance in young healthy participants immediately following the stimulation. Still, it seems that the magnitude and the reproducibility of the effects depend on factors related to electrode positioning i.e. stimulation site (frontal vs parietal region; left/right hemisphere), experimental protocol (online/offline) as well as properties of the behavioral task (verbal/non-verbal material).

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P16 Differences in patterns of temporal variability related to different response to electroconvulsive therapy in schizophrenia—**W. Qin *, J. Gong, Y. Zhao (Xidian University, School of Life Science and Technology, Xi'an, China)**

The aim of this study is to identify the difference of temporal variability among schizophrenia (SZ) patients with different responses to electroconvulsive therapy (ECT) and healthy controls (HC), and further explore the relationship between pre-treatment temporal variability and response to ECT.

A flowchart for the data processing and analyses was shown in Fig. 1. At baseline, 48 SZ patients who have indications for use of ECT and 50 matched HC received clinical assessments and resting-state functional magnetic resonance imaging scans. After 4 weeks" ECT, patients were classified as responsive schizophrenia (RS, n = 23) and non-responding schizophrenia (NRS, n = 25) based on the reduction of positive and negative syndrome scale (PANSS). The temporal variability of 90 brain nodes was calculated for further analysis. The differences between the MDD and HC were determined by the two-sample t-test. The differences among RD, NRD, and HC groups were determined the by the ANOVA and post hoc analyses. The discriminant performance of each potential measure or combined measures from the results of differences between the SZ and HC on differentiating the SZ and HC was determined by binary Logistic regression analysis and evaluated using area under the receiver operating characteristic (ROC) curves (AUC) based on a leave-one-subject-out cross-validation (LOOCV)framework. The discriminant performance of each potential measure or combined measures from the results of differences between the RS and NRS on