

of suicidal thoughts, were independent of socio-demographic factors. Two-tailed Student's t-test, Mann-Whitney's U test, Pearson's chi-squared test were applied to compare socio-demographic, clinical characteristics and CANTAB tests scores of patients without and with suicidal thoughts (based on the MADRS-SIGMA 10th Item).

Results: Overall, the sample had moderate to severe depression (MADRS-SIGMA mean score [SD] - 30.8 [8.6]). Suicidal thoughts were reported by 21 (70 %) patients. The CGT total deliberation time was significantly shorter in patients with suicidal thoughts in comparison to patients without suicidal thoughts (mean time [SD]: 1644 [397] ms vs. 2291 [416] ms; $p = 0.001$, consecutively). Among all the CANTAB tests, only the CGT total deliberation time showed a significant negative correlation with higher severity of suicidal thoughts ($r = -0.551$; $p = 0.002$). This association remained significant in multivariable analysis including gender, age and education added to the model of CGT deliberation time and suicidal thoughts ($\beta = -0.409$; $p = 0.046$).

Conclusions, Cognitive indicators, particularly those related to impulsive decision making, may be targeted in the identification of suicidal ideations in individuals with MDD. Our findings imply that testing for neurocognitive biomarkers of suicide risk may supplement clinical assessment in patients with MDD. Interventions aimed at cognitive impairment may be incorporated into strategies for the prevention of suicidal behavior.

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NEUROSCIENCE APPLIED 2 (2023) 102442 103760 SELECTIVE SEROTONIN REUPTAKE INHIBITORS (SSRIS) MAY IMPROVE BEHAVIORAL INHIBITION IN PATIENTS WITH OBSESSIVE COMPULSIVE DISORDER: A FEASIBILITY STUDY

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Introduction, The OTO study (Optimal Treatment for Obsessive Compulsive Disorder)1 was a feasibility study which compared three groups for the treatment of OCD: Sertraline monotherapy, CBT monotherapy and combination-treatment (Sertraline + CBT). Whilst the primary endpoint was focused on symptomatology using the Y-BOCS scale, there were additional secondary endpoints which included data obtained from a battery of computerised neurocognitive tasks (CANTAB)2. This paper analyses the data from the Intra/Extra Dimensional (ID/ED) Set Shifting Task (ID/ED Task), which assesses cognitive inflexibility, and the Stop Signal Task (SST), which assesses motor impulsivity. This study is the first to apply these tests across different treatment groups of OCD patients, with the aim of exploring relationships between cognitive functioning and to improve personalized forms of treatment.

Method, This was a three arm, multi centre, randomised feasibility study. The treatment arms were SSRI monotherapy (Sertraline), CBT monotherapy and combination therapy (SSRI and CBT). We used a paired samples T-test to compare the baseline scores and the post stimulation scores at week 16 on the CANTAB tasks for each treatment group.

Results: We had complete neurocognitive data (baseline and post stimulation)

for 23 patients (N=45 participants at baseline). The level of drop out was high and similar across all three treatment groups. On the Stop Signal Reaction Time - (SSRT) Task, the most significant item of the SST, an analysis using Last Observation Carried Forward (LOCF) approach found a significant effect for sertraline ($d=1.00$, $p=0.036$), and no significant improvements for the combination treatment group ($d=0.07$, $p=0.906$) or for the CBT monotherapy group ($d=-0.29$, $p=0.554$). No significant effect was found for ID/ED task in any of the three groups. An analysis on the completers only showed that in the SSRI monotherapy group there was a statistically significant effect on the SSRT ($d=1.36$, $p=0.021$), while no significant effect was found in the other two groups on SSRT. In the ID/ED task, again, no significant improvement was shown in any of the three groups in the analysis on completers.

Conclusions, The significant finding from our analysis is the improvement in motor impulsivity (as measured by the Stop Signal Reaction Time) in the Sertraline monotherapy group. A reduction in motor disinhibition measured on the Stop Signal Task differentiated the response to SSRI, from that to CBT or CBT+SSR, hinting SSRI may be optimal for OCD with this cognitive profile - possibly patients with OCD and comorbid Attention deficit hyperactivity disorder (ADHD). The analyses for the ID-ED highlight that cognitive flexibility was not significantly altered by any of the treatment groups in this study, suggesting this neurocognitive function is difficult to improve with current treatment modalities. However, our analysis demonstrates that there is scope for improving motor impulsivity in patients with OCD who are treated with SSRIs.

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NEUROSCIENCE APPLIED 2 (2023) 102442 103761 TRANSCRANIAL DIRECT CURRENT STIMULATION IN OBSESSIVE COMPULSIVE SYMPTOMS: A PERSONALISED APPROACH

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Background: Transcranial-direct-current-stimulation (tDCS) is a non-invasive form of neurostimulation with potential for development as a self-administered intervention. It has been shown to be promising as a safe and effective treatment for obsessive compulsive disorder (OCD) in a recently published paper1. Our aim is to investigate if specific neurocognitive markers of inhibition and flexibility, implicated in the mechanism of effect of tDCS, represent viable predictive biomarkers for personalising the choice of stimulation target and thereby optimising clinical outcomes.

Methods: FEATSOCS was a randomised, double-blind, sham-controlled, crossover, multicentre study. Twenty adults with DSM-5-defined OCD took part: each received three courses of clinic-based tDCS (SMA-supplementary motor area, L-OFC-left orbitofrontal cortex and Sham), randomly allocated and delivered in counterbalanced order. Each course comprised four 20-minute 2 mA stimulations, delivered over two consecutive days, separated by a 'washout' period of at least four weeks. Patient representatives with lived experience of OCD were actively involved at all stages. In this project, we focused on the neurocognitive data collected via the CANTAB-Battery2 and in particular on motor-impulsivity (stop signal reaction time - SSRT) and cognitive inflexibility (stage-8 and stage-9 of the Intra/Extra-Dimensional-Set-Shifting-Task – assessing extra dimensional set shifting and reversal learning). Neurocognitive assessments were conducted before and after stimulation. We used a paired samples T-test to compare the baseline scores and the post-stimulation scores on the CANTAB tasks for each