S193. EFFICACY AND SAFETY OF TRANSCRANIAL DIRECT CURRENT STIMULATION FOR TREATING NEGATIVE SYMPTOMS IN SCHIZOPHRENIA: THE FOLLOW-UP PHASE

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Background: Schizophrenia is a severe mental illness presenting a substantial, increasing burden. Its negative symptoms include flattened affect, loss of interest, and emotional withdrawal and are associated with poor functional outcomes. Most antipsychotic drugs are not effective for such symptoms and present important adverse effects3 and low tolerability. v Nonpharmacological interventions are also limited. Transcranial direct current stimulation (tDCS) is a noninvasive neuromodulatory technique that presents low costs, portability, ease of use, and no serious adverse effects. The technique injects weak, direct currents via scalp electrodes. A current fraction penetrates the brain, increasing or decreasing the neuronal excitability of regions near the anode or the cathode, respectively. Mimicking rTMS studies, tDCS trials have used anodal stimulation over the left PFC aiming to ameliorate negative symptoms. In a seminal study, Brunelin et al used a frontotemporalparietal montage in 30 patients with schizophrenia and demonstrated large effect sizes for improvement of negative symptoms and auditory hallucinations (AHs). Recently, we confirmed that active tDCS is more effective than sham tDCS for the negative symptoms of schizophrenia in a randomized, sham-controlled clinical trial with 100 patients. However, the studies showed tDCS efficacy only during the acute phase of the treatment of the negative symptoms of schizophrenia. In fact, to understand tDCS role in the therapeutic arsenal of schizophrenia, it is crucial to assess its efficacy during the continuation treatment. We performed a 24-week follow-up study to assess the relapse of patients presenting a clinical response after acute tDCS treatment. We also explored whether baseline clinical and demographic characteristics were predictors of relapse. Finally, we report the results of patients from the open-label, crossover phase of the study.

Methods: The follow-up phase was the open-label in which all responders (>20% negative PANSS improvement or negative PANSS < 20) who had previously received active-tDCS were enrolled to a 24-week, follow-up phase in which a maximum of 9 tDCS sessions were performed – every other week for 3 months and, thereafter, once a month for the subsequent 3 months – sessions would be interrupted earlier whether the subject relapsed. TDCS was applied at 2mA/30-min, with the anode over the left dorsolateral prefrontal cortex and the cathode over the tempoparietal junction. Relapse was the outcome measure.

Results: We had 20 responder in the clinical trial to tDCS and more 12 out 29 in the cross-over phase (who were sham and entered in an open-label exactly as the original clinical trial). Of this 32, 27 accepted to participate in the follow-up phase. The survival rate per Kaplan–Meier analysis was 61%. Patients with treatment ultra-resistant presented lower 24-week survival rate as compared to nonrefractory patients (58% vs. 67%), but without statistical difference between groups (P < .5). Equivalents dosages use of haloperidol, clozapine use, number of hospitalizations or length of the schizophrenia were a predictor of relapse. TDCS was well tolerated and with few side effects.

Discussion: Patients after using tDCS for negative symptoms of schizophrenia presents a low rate of relapse when compared the use of tDCS for major depression. tDCS can be an alternative to the treatment of negative symptoms of schizophrenia at long-term.

S194. CLOZAPINE AND ELECTROCONVULSIVE THERAPY AUGMENTATION IN ADOLESCENTS WITH TREATMENT-RESISTANT SCHIZOPHRENIA

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Background: Early onset schizophrenia is associated unfavorable treatment response and psychosocial outcome. Clozapine or Electroconvulsive Therapy (ECT) have suggested that these therapies may have an important role in treatment in treatment resistant schizophrenia in adolescents. The aim of this study was to compare effectiveness between clozapine and ECT augmentation in adolescents with treatment-resistant schizophrenia.

Methods: We retrospectively reviewed the electronic medical records of 27 adolescents with treatment-resistant schizophrenia (age 15.6±1.4 years; 16 boys, 59.3%) who were treated with clozapine or clozapine plus ECT. Effectiveness was measured with the Clinical Global Impressions–Severity (CGI-S) and/or Clinical Global Impressions–Improvement (CGI-I) scales at baseline, and after 2, 4, and 8 weeks. Treatment response was defined as a CGI-S < 3 or CGI-I < 3.

Results: The 21 adolescents treated with clozapine alone (age 15.5±1.2 years; 14 boys, 66.7%), and six adolescents treated with clozapine plus ECT (age 16.0±2.1 years; 2 boys, 33.3%) were compared their treatment effectiveness. The 13 adolescents (61.0%) in clozapine alone group and four adolescents (66.7%) in clozapine plus ECT group met the treatment response criterion. Three (50.0%) of adolescents with clozapine plus ECT group experienced mild post ictal confusion and two (9.5%) of adolescents with clozapine alone group experienced mild reduction of WBC and ANC.

Discussion: Our results suggest that clozapine and ECT augmentation could be one of safe and effective treatment in adolescents with treatment-resistant schizophrenia.

S195. ROLE OF BOOSTER SESSION TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS) FOR PERSISTENT AUDITORY HALLUCINATIONS IN SCHIZOPHRENIA

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Background: Auditory verbal hallucinations (AH), one of the hallmark symptoms, are present in 60–80% of schizophrenia (SZ) patients. 25% of patients suffering from AH in schizophrenia fail to respond to any psychotropic medication. Non-invasive brain stimulation techniques like transcranial direct current stimulation (tDCS), with cathodal electrode placement on the left temporoparietal junction (TPJ) is known to alleviate such symptoms in SZ. In this study, we describe the effects of booster tDCS after relapse of AH in patients. The pattern and effectiveness of booster treatment cycles for alleviation of AH in a naturalistic clinical setting are explored in this study.

Methods: Patients with persistent AH (n=15) received an initial course (cycle) of add-on tDCS with cathode at left TPJ and anode over left dorsolateral prefrontal cortex (L-DLPFC) with 2mA current, twice-daily

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20-minute sessions for 5 days with intersession interval of 3-hours. Clinical global impression- improvement scale (CGI-I) was rated at the end of the course for every patient. All the patients who were found to show response (“much improved” and “very much improved”) received repeat cycles of add-on booster tDCS after a varying duration ranging from 1–32 months from initial treatment course, due to relapse/persistence of AH. Thirteen out of fifteen patients received one booster cycle while one patient received 3 booster cycles and another received 12 booster cycles. We conducted a spearman’s rank correlation test to determine the correlation between CGI-I score rating at the end of add-on tDCS, and the duration of maintenance of improvement before relapse/ worsening of AH.

Results: Six of the fifteen patients (40%) had responded “very much improved” and nine (60%) patients had responded “much improved” to tDCS in the initial cycle. It was found that 50% of the initial “very much improved” responders (n=3) had a comparable response to tDCS after booster sessions for relapse of symptoms while 50% of patients showed “much improved” (n=2) and “minimally improved” (n=1) response in the booster sessions. Among the nine patients who showed “much improved” response from the initial cycle, one patient showed better response than initial cycle (“very much improved”) to booster session. Five patients showed “minimally changed” response in the second cycle in the booster sessions while three patients had comparable responses. The average duration of symptom free interval/ maintenance of improvement with initial cycle of tDCS was found to be 10.46± 9.23 months. The CGI improvement from the initial add-on tDCS course and the duration of the maintenance of improvement/symptom-free interval before the booster session was not found to be significantly correlated (r=0.332, p=0.226)

Discussion: A reduction in hallucinations was noted with booster tDCS in patients who had responded to the initial course of add-on tDCS. Booster tDCS is a feasible option and given its cost-effectiveness and ease of administration, booster sessions of tDCS can be considered for resurgence of symptoms. Future studies are recommended in systematically exploring maintenance tDCS as an add-on treatment for persistent/recurrent AVH in schizophrenia.

References

1. Vasiliu O, Vasile D, Făinăreà AF, et al. Analysis of risk factors for antipsychotic-resistant schizophrenia in young patients- a retrospective analysis. Romanian Journal of Military Medicine 2018;CXXI(1):25–29.
2. Dlabac-de Lange J, Knehterig R, Aleman A. Repetitive transcranial magnetic stimulation for negative symptoms of schizophrenia: review and meta-analysis. J ClinPsychiatry 2010;71:411–418.
3. Freitas C, Fregni F, Pascual_leone A. Meta-analysis of the effects of repetitive transcranial magnetic stimulation (rTMS) on negative and positive symptoms in schizophrenia. Schizophr Res 2009;108:11–24.
4. Mogh A, Purvis R, Eranti S, et al. Repetitive transcranial magnetic stimulation for negative symptoms of schizophrenia: a randomized controlled pilot study. Schizophr Res 2007;93:221–228.
5. Hansbauer M, Wobrock T, Kunze B, et al. Efficacy of high-frequency repetitive transcranial magnetic stimulation on PANSS factors in schizophrenia with predominant negative symptoms- results from an exploratory re-analysis. Psychiatry Res 2018;263:22–29.