

TDCS as future treatment option for schizophrenia patients: a neurophysiological investigation of induced plasticity over motor and prefrontal cortex using sloreta

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duration of illness of 5 years was required as inclusion criteria. Semi structured interviews were conducted with patient and family members separately in 1–2 sessions. Questions were mainly related to their knowledge about causes of relapse in patients in their perspective. Interviews were recorded and transcripts were generated. All the transcripts were read separately by the 3 investigators and common themes agreed upon by all the investigators were generated. We used content analysis for the purpose of the study. A total of 36 sessions psychoeducation were taken in in-patients from National Medical College, Birgunj, Nepal. Eight out of 12 patients were males. The group therapy was psycho-education oriented and based on NIMHANS manual for family-based intervention in schizophrenia. We included those patients who were admitted and improving as per PANSS score (more than 50% of the score at admission).

Results: The patients' family members told that these sessions were useful because their issues were discussed and addressed and simpler terms were used during the process. The patients showed ability to participate and understand the proceedings though not always. Two of the patients had sub-normal intelligence and so they were not benefited more than being heard about their sufferings. Their family members reported a better understanding of the illness and non-pharmacological approach for these patients after the sessions. Participants were encouraged to make notes out of the discussions in the sessions but few of them did so.

Following themes emerged after the analysis of transcribed verbatim from the patients and family members.

Themes generated from patient's versions:

1. Residual negative/depressive symptoms
2. Critical comments from family members
3. Adverse effects of medications
4. Improper education about the duration of treatment

Themes generated from family member's versions:

5. Lack of awareness about the illness
6. Belief in super natural causes
7. Affordability issues
8. Poor insight about the illness
9. Poor compliance to medications
10. Stress

Discussion: Conclusion: Educating our patients can be tiring and mundane during regular out-patient department. However, the psychoeducation sessions are very important part of the treatment. During that process we should anticipate the possible causes of relapse and educate the same for better outcome.

S207. TDCS AS FUTURE TREATMENT OPTION FOR SCHIZOPHRENIA PATIENTS - A NEUROPHYSIOLOGICAL INVESTIGATION OF INDUCED PLASTICITY OVER MOTOR AND PREFRONTAL CORTEX USING SLORETA

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Background: Transcranial direct current stimulation (tDCS) is a non-invasive, plasticity-inducing brain stimulation technique that can induce long-lasting excitability changes in the motor cortex and has been discussed as an alternative treatment option for patients with schizophrenia. Therefore, the aim of the present study was to detect electrophysiological correlates after motor cortical and prefrontal tDCS in order to improve the understanding of tDCS-mechanisms. Anodal and cathodal tDCS was applied over motor cortex (M1) and dorsolateral prefrontal cortex (DLPFC), which is known as one major region of interest considering neurobiology of psychosis. Thus,

we looked for tDCS-induced source-localized activity changes in resting EEG by using sLORETA (standardized low-resolution brain electromagnetic tomography) and compared the effects of motor and prefrontal cortex.

Methods: A total of 20 healthy volunteers were examined within five sessions (within-subject design). Anodal tDCS (1mA, 13 minutes) and cathodal tDCS (1mA, 9 min) were applied over M1 and respectively DLPFC. In addition, there was a sham tDCS of DLPFC. Transcranial magnetic stimulation (TMS) was performed before and after motor cortical tDCS in order to generate motor evoked potentials (MEP) as periphery indicators of motor cortical plasticity. A 6-minute resting EEG was performed before and after each tDCS treatment. EEG data was then investigated by sLORETA for source-localized brain activity changes.

Results: After tDCS over M1, the expected increase of MEP amplitude after anodal tDCS and reduction after cathodal tDCS could be measured. Following anodal tDCS over M1 an increased activity was found in the area of precuneus in EEG frequency band alpha. After cathodal tDCS over M1 an activity decrease was seen in frequency band alpha, beta and total power, which could be localized in insula and temporal gyrus.

After anodal as well as cathodal tDCS over DLPFC decreased activities could be measured in most frequency bands (e.g. delta, theta, alpha, beta, total power). Most of these changes were found in frontal lobe, anterior cingulate or insula. Unexpectedly there were also significant changes after sham tDCS in all frequency bands. However, these were measured mostly in right-sided temporal lobe, which could be due to jaw muscle artefacts.

Discussion: The polarity-specific tDCS effects, which can be demonstrated in motor cortex, cannot be seen in prefrontal cortex; instead we detected a polarity-independent frontal modulation. This lack of prefrontal polarity specificity may be explained by a more complex mode of action in frontal cortex. This is consistent with the variable results of prefrontal tDCS in other publications. As the effects from motor cortical studies cannot easily be transferred to the frontal system in healthy subjects, one could speculate that in schizophrenic patients the responses to prefrontal tDCS might be even more difficult to predict. Further investigations are required to evaluate the heterogeneity of source-localized tDCS-effects and to understand prefrontal mechanisms, so that frontal tDCS may be used as a future treatment in schizophrenia patients.

S208. PREDICTORS OF RESPONSE TO COGNITIVE REMEDIATION THERAPY: SYSTEMATIC REVIEW OF LITERATURE

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Background: Impaired cognitive functioning is considered a core aspect of schizophrenia and is associated with poorer functional outcomes. Proving only marginally responsive to pharmacological interventions, there has been an acceleration of research investigating the efficacy of cognitive remediation therapy (CRT) in ameliorating cognitive deficits. While small to moderate effect sizes have been reported, closer examination suggests 40–60% of participants fail to realise a benefit. To improve both efficacy and effectiveness, better understanding of the factors that predict cognitive response to CRT is needed. To date, no systematic review of the evidence base has been conducted. We aimed to address that gap by providing a synthesis of predictor variables, whether they were moderators, mediators or predictors, of cognitive response to CRT.

Methods: An electronic database search was conducted across Scopus, Web of Science and PsychINFO databases and the Cochrane Collaboration Controlled Trials Register for all years until 30/09/2017. Reference lists of published meta-analyses and review articles were hand searched. Eligibility assessment was performed independently in an unblinded standardised manner by two reviewers. Studies that included a CRT arm, had a majority (≥70%) schizophrenia / schizoaffective disorder participants, had at least one training-distinct pre-post measure of cognition and at least one predictor of cognitive outcome were included. Studies that incorporated social