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Value of cathodal transcranial direct current polarisation in multidrug resistant focal epilepsy patients

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Background: Epileptic seizures are resistant to pharmacotherapy in approximately 1/3 of all instances, a statistic that has not changed despite the introduction of >20 new antiepileptic drugs in the late twentieth and early twenty-first century. Accordingly, neuromodulation protocols are emerging as potentially valuable tools for seizure control. In focal epilepsy, the capacity of cathodal transcranial direct current polarisation to reduce cortical excitability has prompted research into this technique's antiepileptic potential. Purpose to investigate whether cathodal transcranial direct current polarisation can modify seizure frequency in drug resistant focal epilepsy patients assessed by clinical evaluation, seizure diary and electroencephalography.

Methods: A randomized, double blind, placebo controlled clinical trial on 20 patients diagnosed with multidrug resistant focal epilepsy was enrolled in our study. The patients were randomized into 2 groups. Group A received real 5-day sessions of cathodal tdc over the area of most frequent interictal epileptiform discharges or the area of suspected ictal onset inferred by MRI findings, ictal EEG and clinical seizure semiology. Group B received sham sessions. Outcome indicators were baseline and post sessions seizure diary as well as EEG (epileptiform discharges were counted per hour).

Results: There were no significant differences in age and gender between patients and controls ($p > 0.05$). The percentage reduction of epileptiform discharges was greater for real stimulation group versus the placebo group ($p = 0.0124$). In addition, the percentage reduction of seizure frequency was greater for real stimulation group versus the placebo group ($p = 0.0308$). It is noted that cathodal direct current stimulation can improve control of focal drug resistant epilepsy patients. Conclusion our study shows that cathodal tdc is a promising therapeutic tool for short term seizure reduction in chronic drug resistant focal epilepsy patients.

Biography

Ann Ali Abdelkader Hanafy has completed her MD at the age of 30 years from Cairo University and postdoctoral studies from Cairo University School of Medicine. She is a Professor of Clinical neurophysiology & the President of Egyptian Clinical Neurophysiology Society. She has published more than 100 papers in local and international journals.

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