Is neuromodulation (tDCS) a feasible tool for enhancing action training for the rehabilitation of chronic spatial neglect?

Monika Harvey
School of Psychology and Neuroscience, University of Glasgow, United Kingdom

Up to 80% of people who experience a stroke that affects the right hemisphere can suffer from spatial neglect. This syndrome is debilitating, impedes rehabilitation, and is a strong independent predictor of poor recovery.
We ran a feasibility study of applying transcranial direct current stimulation (tDCS) to the brain as well as an action training programme, alone or in combination.
We had planned to recruit 60 subacute neglect patients (>4 weeks post stroke) to be randomly allocated to 10 sessions of 15 minutes each of 1 mA constant tDCS, 10 sessions of rod lifting with the unaffected hand, both interventions, or a control task. Our primary outcomes were recruitment and retention rates, with secondary outcomes measuring effect size and variance scores of neglect, ADL and quality of life tests, assessed directly after the interventions and at 6 months follow up.
Of 288 confirmed stroke cases referred, we randomised 24 (8%) over 29 months. The largest exclusions (91/288 (34%)) were dueto medical comorbidities preventing patients from undergoing 10 hospital based intervention sessions. 21/24 (88%) patients completed the interventions and subsequent assessments and 14 (67%) were available for 6 months follow up. There were no tDCS related SAEs.
Despite good referral and retention rates, we established poor feasibility for a larger trial of this type. Regarding the secondary outcome measures we also found no indication that tDCS stimulation, or the combined tDCS /action training yielded greater recovery than the action training.