

S22: Social Connectedness, Ageing and Mental Health in Doctors

Being a doctor is tough, especially in a post-pandemic world. Never has the field of doctors' health been so stretched by need. Senior doctors, and medical leaders in particular, have been particularly taxed, as have their families. Unpacking some of the insights gleaned about medical leadership and wisdom in medicine, and conversely when this is lacking, is important for the sake of patients and doctors alike. In this symposium we will address new perspectives in doctors' health tailored to this new healthcare world. Topics include: (i) Systemic interventions to support senior medical leadership; (ii) Wisdom in medicine; (iii) The dysfunctional or disruptive physician in healthcare; (iv) Senior doctors and their families; (v) Medical retirement in a post-pandemic world. Strong audience participation will be encouraged in this symposium.

Free/Oral Communications

FC1: Effect of Transcranial Direct Current Stimulation (tDCS) on Left Dorsolateral Prefrontal Cortex (DLPFC) in Dementia with Lewy Bodies (DLB)

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Introduction: tDCS application to the DLPFC is associated with the improvements of executive function, memory enhancement, language, processing speed, global cognitive symptoms and apathy over time after treatment. DLB is the second most common form of degenerative dementia. There is no FDA-approved medications that can slow, stop or improve the progression of cognitive declines in DLB. Identifying effective treatments is a critical issue for DLB. In neuropathology, extracellular α -syn oligomers interfere with the expression of long-term potentiation (LTP), and influence memory and learning. tDCS has been proposed to affect long-term synaptic plasticity through LTP and long-term depression, thereby improving cognitive ability. So far, only two studies have evaluated the effect of tDCS in DLB. In this pilot study, we investigate the effect of tDCS on left DLPFC in DLB.

Method: Fourteen DLB aged 55-90 years (mean age 76.4, with 4 males and 10 females) were included in a double-blind, randomized, sham-controlled cross over design study. DLB diagnostics is according to DSM-5 criteria. CDR ratings for DLB participants ranged from 0.5 to 2. The active tDCS (or sham) process consists of daily sessions of active tDCS (or sham) for 10 consecutive days. The anodal electrode was placed over the left DLPFC and the cathodal electrode was placed over the right supraorbital area, with a current intensity of 2 mA and an electrode size of 25 cm² for 30 min in a session. Before and after these treatment sessions, all subjects received a series of neuropsychological tests, including CDR, MMSE, CASI, NPI and WCST. Chi-square test, Wilcoxon signed ranks test and Mann-Whitney U test were used to assess differences in participant demographic characteristics and to compare differences among groups.

Results: The active tDCS group showed significant improvements on the three items of CASI, 'language ability', 'concentration and calculation', 'categorical verbal fluency', after active stimulations. There is no improvement in MMSE, CASI, NPI and WCST scores in the sham groups.

Conclusion: These results suggest that left DLPFC anodal, and right deltoid cathodal tDCS, may have some cognitive benefits in DLB. Larger-scale trials are needed to confirm the effect of tDCS in DLB.

Key words: Transcranial Direct Current Stimulation, Dementia with Lewy Bodies, cognitive function, Wisconsin Card Sorting Test, left DLPFC

FC2: The effect of Maintenance phase of Transcranial Direct Current Stimulation (tDCS) in Alzheimer's Dementia

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Introduction: Transcranial direct current stimulation (tDCS) has been proposed to affect long-term synaptic plasticity through LTP and LTD, thereby improving cognitive ability. In pathology, the amyloid deposits in AD disrupts the balance between long-term potentiation (LTP) and long-term depression (LTD) of neuronal cells and synaptic plasticity. An increasing number of studies have been concluded a positive therapeutic effect on cognition in AD. In brain stimulation, dorsolateral prefrontal cortex (DLPFC) was associated with improvements in memory enhancement, language, processing speed, global cognitive symptoms, and apathy over a period of treatment. Theoretically, the aftereffect of tDCS would need to be re-stimulated by tDCS to maintain its delayed plastic response benefits. In this pilot study, we investigate the maintenance effects of continuing tDCS at three different times, weekly, every two weeks, and every four weeks, for 12 weeks.

Method: Twenty-eight AD participants aged 55-90 years were enrolled (mean age 72.7, 77.3, and 76.2 in the three groups - maintained weekly (7 cases), biweekly (9 cases) and every 4 weeks (12 cases)). The anodal electrode was placed over the left dorsal lateral prefrontal cortex and the cathodal electrode was placed over the right supraorbital area. In each active session, we applied a current intensity of 2 mA and an electrode size of 25 cm² for 30 min. All subjects received a series of neuropsychological assessments including CDR, MMSE, CASI and WCST at (1) baseline, (2) post-10sessions of tDCS (in 2weeks), and (3) post-maintenance phase (total of 12 weeks). Chi-square tests, Wilcoxon signed rank tests and Mann-Whitney U tests were used to assess differences in participant demographic characteristics and to compare differences in test scores between groups.