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GAIT TRAINING AND NEUROMODULATION ON EXECUTIVE AND MOTOR FUNCTION IN PARKINSON'S DISEASE: A RANDOMIZED CONTROLLED PILOT STUDY

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Background: Cognitive impartment is recurrent in Parkinson's disease (PD), including deficits in cognitive ability to learn, organize new information, form concepts, and switch focus between tasks (executive functions). These dysfunctions lead to gait alterations, because people with PD tend to prioritize only one activity in dual-task situations. Evidence shows that dual task treadmill training results in improved gait, postural balance, and motor coordination in PD. Transcranial direct current stimulation (tDCS) is a relevant tool in improving cognitive skills by modulating cortical excitability. However, there is a gap in the literature regarding the benefits of the association of these techniques when applied simultaneously in PD.
Objectives: The study aimed to analyze the effects of tDCS simultaneous to dual-task treadmill training on motor function, functional mobility, verbal fluency, and processing speed in people with PD.
Methods: The pilot study of a double-blind, randomized controlled clinical trial including people with PD. People aged 40-70 years, above 24 in the Mini-Mental State Examination, and staging 1.5 to 3 of the modified Hoehn and Yahr scale were included. Eveluated for motor function (Unified Parkinson's Disease Rating Scale Part III - MDS-UPDRS, primary endpoint; Timed Up and Go - TUG test; Timed Up and Go dual task - TUG DT); and cognitive function (Stroop Test; Trail Making Test - TMT; Verbal Fluency Test - VF) before and after the 12 intervention sessions over four weeks. All received 2mA excitatory stimulation in the left dorsolateral prefrontal cortex for 20 minutes and treadmill gait training. The experimental group realized simultaneously a validated protocol for a randomized controlled trial of dual-task training, containing mental sorting, decision-making, and verbal fluency activities. We analyzed the normality of the sample by the Shapiro-Wilk test and the data by the Wilcoxon test, with a significance level of 95%.
Results: Six subjects participated in the study, aged 60 (5.02) years; mixed clinical type (83%); MMSE score of 27.5 (1.71); H&Ymod of 2.08 (0.5); levodopa equivalent dose per day of 765.2 (399.3). They presented in the primary endpoint significant difference in motor function for MDS-UPDRS part III (Z=-2.060; p=0.039), in TUG functional mobility (Z=-1.992; p=0.046) and TUG DT (Z=-1992; p=0.046). As for cognitive function, there was no significant difference for the tests: Stroop (Z=-943; p=0.345); FV (Z=-1.761; p=0.078); and TMT (Z=-0.135; p=0.893).
Conclusion: The results suggest that the association between dual-task training and CBT affected motor function and functional mobility. Processing speed and verbal fluency showed no changes by dual-task training in the study.
Implications: The findings help explore methodologies and introduce new procedures to confirm the effects of the protocol under test.
Keywords: Parkinson's disease, Neuromodulation, Dual-task

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: To CAPES: work carried out with the support of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES) - Funding Code 001.
Ethics committee approval: Ethics committee approval: The project was approved by the Research Ethics Committee of the CCS of the Universidade Federal da Paraíba (CEP-UFPB), through Plataforma Brasil, under the number CAAE 30668420.7.0000.5188

https://doi.org/10.1016/j.bjpt.2024.100905

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KNOWLEDGE AND SKILLS FOR USING SCIENTIFIC EVIDENCE IN CLINICAL DECISION MAKING

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Background: Evidence-Based Medicine (EBM) is an approach that aims to solve health problems through decision-making based on the best scientific evidence, patient values and preferences, and clinical experience. To this end, health professionals must obtain knowledge and skills that allow them to formulate clinical questions, carry out searches in the literature, carefully evaluate the evidence, carry out the transposition of this evidence into the clinical context and verify its effectiveness for solving the initial problem. Despite the relevance of the topic, there are still few studies that assess the level of knowledge and skills of medical students regarding the use of EBM principles for clinical decision-making.
Objectives: To diagnose the level of knowledge and skills of medical students regarding the use of scientific evidence for clinical decision-making, considering the principles of EBM.
Methods: This is an observational, cross-sectional study with a population of medical students. Inclusion criteria were: Brazilian nationality, being over 18 years old, being enrolled from the 3rd year of the course and taking courses listed in the clinical cycle. Sociodemographic questionnaires and questionnaires on the level of prior knowledge in EBM were used, in addition to the Assessing Competencies in Evidence-Based Medicine (ACE) tool. All instruments were transferred and made available through the Google Forms online questionnaire platform. Data were analyzed using descriptive statistics.
Results: The sample consisted of 45 students, mostly men (68.9%), brown (64.4%), single (84.4%) and enrolled in federal universities (91.1%), between the 3rd and 5th year of the course (56.8%). Most claimed to have knowledge (82.2%), regular skills (57.5%) and apply them (82.2%) in clinical practice, however, the average percentage of correct answers in the ACE tool was 43.97 % and about 41.7% left answers blank.
Conclusion: The results of the study demonstrate that, although most medical students claim to have knowledge and skills for the use of scientific evidence in clinical decision-making, there is a disagreement between the way participants perceive their own knowledge and actual knowledge, considering It was found that after applying the measurement instrument, only a reasonable percentage demonstrated adequate mastery of this clinical practice.
Implications: This study reveals important diagnostic points about knowledge and skills of medical students for the use of EBM that can be used to expand the training of health professionals in EBM. Such an approach helps in the formation of physicians with greater capacity for analysis, autonomy and willing to maintain the continuing