Mild cognitive impairment in Parkinson’s disease is improved by transcranial direct current stimulation combined with physical therapy.


INTRODUCTION:
Recent studies in PD patients have shown that repeated sessions of anodal tDCS (A-tDCS) led to an increased performance in both cognitive and motor tasks with stable effects at 1-month or 3-month follow-up. Remarkably, no studies have explored the long-term effects of repeated sessions of tDCS when combined with physical therapy in PD patients.

METHODS:
20 patients with PD were assigned to 1 of 2 study groups: group 1, anodal transcranial direct current stimulation plus physical therapy (n = 10) or group 2, placebo transcranial direct current stimulation plus physical therapy (n = 10). The 2 weeks of treatment consisted of daily direct current stimulation application for 25 minutes during physical therapy. Long-term effects of treatment were evaluated on clinical, neuropsychological, and motor task performance at 3-month follow-up.

RESULTS:
An improvement in motor abilities and a reduction of depressive symptoms were observed in both groups after the end of treatment and at 3-month follow-up. The Parkinson’s Disease Cognitive Rating Scale and verbal fluency test performances increased only in the anodal direct current stimulation group with a stable effect at follow-up.

CONCLUSION:
The application of anodal transcranial direct current stimulation may be a relevant tool to improve cognitive abilities in PD and might be a novel therapeutic strategy for PD patients with mild cognitive impairment.

Contributed by Stephanie Semerda PT, DPT

CONCLUSIONS and CLINICAL IMPLICATIONS: This study highlights transcranial deep brain stimulation in conjunction with physical therapy in patients with Parkinson’s disease may assist with designing new rehabilitation strategies for persons with Parkinson’s disease.