Effect of daily repetitive transcranial magnetic stimulation on motor performance in Parkinson's disease.

Khedr EM1, Rothwell JC, Shawky OA, Ahmed MA, Hamdy A.

Abstract:

Abstract Previous studies in patients with Parkinson's disease have reported that a single session of repetitive transcranial magnetic stimulation (rTMS) can improve some or all of the motor symptoms for 30 to 60 minutes. A recent study suggested that repeated sessions of rTMS lead to effects that can last for at least 1 month. Here we report data that both confirm and extend this work. Fifty-five unmedicated PD patients were classified into four groups: two groups (early and late PD) received 25 Hz rTMS bilaterally on the motor arm and leg areas; other groups acted as control for frequency (10 Hz) and for site of stimulation (occipital stimulation). All patients received six consecutive daily sessions (3,000 pulses for each session). The first two groups then received a further three booster sessions (3 consecutive days of rTMS) after 1, 2, and 3 months, while the third group had only one additional session after the first month. Unified Parkinson's Disease Rating Scale (UPDRS), walking time, key-tapping speed, and self-assessment scale were measured for each patient before and after each rTMS session and before and after the monthly sessions. Compared to occipital stimulation, 25 Hz rTMS over motor areas improved all measures in both early and late groups; the group that received 10 Hz rTMS improved more than the occipital group but less than the 25 Hz groups. The effect built up gradually during the sessions and was maintained for 1 month after, with a slight reduction in efficacy. Interestingly, the effect was restored and maintained for the next month by the booster sessions. We conclude that 25 Hz rTMS can lead to cumulative and long-lasting effects on motor performance. Copyright 2006 Movement Disorder Society

Published In:

Mov Disord. 2006 Dec;21(12):2201-5. , 21(12) , 2201-5.