

APPLYING ANODAL TDCS IN A PATIENT WITH MULTIPLE SYSTEM ATROPHY

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Abstract

OBJECTIVE: To evaluate the effects of anodal tDCS on cognitive functions in Multiple System Atrophy.

MATERIAL- METHOD: We applied anodal tDCS in a patient with MSA-P. The battery of neuropsychological tests included measures of the general mental status (MMSE), sustained visual attention and concentration (TM-A), processes of shifting and divided attention (TM-B), verbal-auditory memory and learning (RAVLT), visuomotor activity and processing speed (DSST-WAIS-III), Fluency Test (Phonemic & Semantic) and executive functions (VFT phonemic & semantic). tDCS was applied in 10 sessions. Clinical evaluations were performed at baseline, day 11, day 30 and at day 90.

RESULTS: MMSE improved by 15,4% at 11 days, 3,4% at 1 month, and 11,5% at 3 months.

A positive effect was seen in the speed of information processing and visuomotor coordination (DSST-WAIS-III) (increase by 20,8%, 16,7% and 4,1% at day 11, 1 month and 3 months respectively). In the domain of verbal memory and learning (RAVLT) the score increased from baseline to post-intervention by 61,5% and then decreased by 42,3% and 23,1% at 1 month and 3 months respectively. Visual scanning and concentration (TMT-A), as well as phonemic and -semantic fluency (VFT) scores were of no statistical significance.

CONCLUSIONS: Our data suggest that tDCS has a beneficial effect on cognitive performance in MSA-P, mainly relying on the modulation of functional links connecting the default mode network, cerebellar and limbic networks.