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TRANSCRANIAL DIRECT CURRENT STIMULATION IS SAFE AND IMPROVES THE FLEXOR MUSCLE TORQUE AND TOTAL WORK IN PATIENT WITH DERMATOMYOSITIS

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BACKGROUND

Several therapeutic strategies have been applied for clinical and functional improvement in patients with dermatomyositis. Transcranial direct current stimulation (tDCS) has emerged as a non-pharmacological tool in motor rehabilitation. Prompted by no available studies in the literature, the objective of the study was to evaluate the safety and efficacy of tDCS in a patient with dermatomyositis.

CASE REPORT

A 52-year-old Caucasian female with defined and stable dermatomyositis (EULAR/ACR 2017) for 4 years has been using mycophenolate mofetil (2 g/day) and was submitted to three consecutive sessions of tDCS (intensity 2mA, density of 0.057 mA/cm², 20 minutes). In addition, as a control group, two other patients with defined and stable dermatomyositis were submitted to sham stimulation. The positive and negative charge electrodes were positioned at C1 (contralateral the dominant limb) and at supraorbital region FP2 (ipsilateral to the dominant limb), respectively. Disease status was evaluated by International Myositis Assessment and Clinical Studies Group (IMACS) core set measures. The elbow flexors' muscle torque (N-m) was assessed with an isokinetic dynamometer. The assessment was performed on the patients over 4 periods from the present study: 15 minutes immediately PRE-tDCS and 15 minutes, 15 days and 30 days POST-tDCS. All assessments prior to the study were familiarized. The data was analyzed by percentage changes from the baseline: [Δ(POST-PRE)/100]% and by PT/BW (%): peak torque (PT) normalized by body weight (BW) of dominant and non-dominant elbow]. Moreover, the patients' physical activity was monitored with the International Physical Activity Questionnaire. All patients were comparable in terms of age and disease status. However, immediately PRE-tDCS, the present patient had a reduced PT in the elbow flexors (10.5%) compared to the sham patients (sham #1: 26.7% and sham 2#: 27.8%), as showed in the Table 1. After the intervention, an increase in the PT was observed, particularly in the dominant limb. This increase was more evident at THE 15th and 30th days post-tDCS in the patient than in the sham patients. The patient's total work also increased. Furthermore, during the protocol, neither clinical and laboratory relapse nor adverse event was reported in any patient.

CONCLUSION

The tDCS appears to show long-term strength in the dominant limb of a patient with stable dermatomyositis.