

The Effectiveness of Transcranial Direct Current Stimulation on the Anxiety and Severity of Stuttering in Adolescents Aged 15 to 18

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Original Article

Abstract

Introduction: Since the anxiety is one of the effective factors in stuttering, the present study examined the effect of transcranial direct current stimulation (tDCS) on anxiety and the severity of stuttering in stammering adolescents.

Materials and Methods: The present study adopted pre-test and post-test quasi-experimental design with one control group. For this purpose, after applying inclusion and exclusion criteria, 30 stuttering adolescents were selected by convenience sampling method, and were randomly divided into experimental and control groups. During 10 sessions, one of the experimental groups (EG1) including 15 participants were experimented by 2 mA current of tDCS on two sides of the anterior temporal region for 20 minutes. The other one (EG2) including 15 participants as a sham group experienced tDCS with a similar process for 10 sessions. The difference was that the device was turned off after they felt an initial burning sensation. Anxiety and severity of stuttering were evaluated before and after treatment.

Results: There was a significant difference between the experimental and sham groups in the anxiety of the subjects ($P < 0.05$, $F = 64.725$). In addition, there was a significant difference in the severity of stuttering between the experimental and sham groups among participants ($P < 0.05$, $F = 15.897$).

Conclusion: According to the results, compared to the sham group, anxiety and the severity of stuttering in stammering adolescents who were affected by tDCS, were reduced significantly. Therefore, it seems that tDCS on both sides of the anterior temporal region can be effective in reducing anxiety and severity of stuttering. Though, other similar studies in this field are needed to prove the obtained results.

Keywords: Transcranial direct current stimulation; Stuttering; Anxiety; Temporal area

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