Effectiveness of Transcranial Direct Current Stimulation on Medial Prefrontal Cortex in Aesthetic Judgement

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Abstract: Introduction: Among various brain regions involved in aesthetic judgment, Medial prefrontal cortex has a pivotal role in judging the beauty of visual stimuli. It seems that this region's influence in aesthetic preference is an effect of its role in affective processes. In the following study, we have used transcranial Direct Current Stimulation (tDCS) in order to evaluate the role of medial prefrontal cortex in aesthetic judgment. Method: we used three different types of tDCS stimulation, that is, anodal, cathodal, and sham. 36 participants (18 female) undertook in three experimental sessions randomly in which they received 1mA stimulation for 20 min on their medial prefrontal cortex. Active electrodes were located bilaterally on the forehead and the reference electrode was on the right arm. Ten minutes after the onset of stimulation, subjects got involved in the on-line computerized task of the aesthetic judgment. Results: In general, the effect of tDCS on medial prefrontal cortex on aesthetic judgment was significant $F(2 \& 37.84)=3.89$, $p=0.029$). The results show that anodal stimulation of the medial prefrontal cortex affect the aesthetic preference significantly ($p=0.036$), while no such effect was seen in cathodal stimulation ($p=0.663$). There was no sex-related effect ($F(1 \& 33.48)=3.39$, $p=0.074$). Discussion: Medial prefrontal cortex through its top-down control over affective side of aesthetic preference can reduce the preference.