

P-1372 - MODULATION OF THE AUTONOMIC NERVOUS SYSTEM BY TRANSCRANIAL DIRECT CURRENT STIMULATION: PRELIMINARY RESULTS OF A PILOT STUDY WITH RELEVANCE TO RESILIENCE TO STRESS SCIENCE

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Introduction: Transcranial Direct Current Stimulation (tDCS) is a non-invasive, technique for brain stimulation. Anodal stimulation causes neuronal depolarisation and long-term potentiation, while cathodal stimulation causes hyperpolarisation and long-term depression. Stressors are associated with an increase in sympathetic cardiac control, a decrease in parasympathetic control, or both.

Associated with these reactions is a frequently reported increase in Low Frequency (LF) Heart Rate Variability (HRV), a decrease in High Frequency (HF) power, and/or an increase in the LF/HF ratio.

Objectives and aims: The present work aims to explore the tDCS potential in the modulation of the Autonomic Nervous System (ANS), through indirect stimulation of Anterior Cingulate Cortex (ACC).

Methods: Two subjects, a 39 year old female and a 49 year old male, gave informed consent. Saline soaked synthetic sponges involving two, thick, metallic (stainless steel) rectangles, with an area of 25 cm² each have been used as electrodes, connected to Iomed Phoresor II Auto device. It has been delivered a 2mA current, for 20 minutes, over the left Dorsolateral Prefrontal Cortex (DLPFC) (Anode). Spectrum analysis (cStress software) of HRV has been performed before and after tDCS administration.

Results: The female/male subject results of LF power, HF power and LF/HF ratio, before tDCS administration, were, respectively: 50,1 nu/60 nu, 46,1 nu/21,7 nu and 1,087/2,771; and, after tDCS administration, respectively: 33,5 nu/52,7 nu, 47,6 nu/22,8 nu and 0,704/2,312.

Conclusions: tDCS over the left DLPFC (left ACC) increased parasympathetic activity and decreased sympathetic activity, suggesting the importance of tDCS in the management of stress-related disorders.