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TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) FOR SEVERE DRUG RESISTENT MAJOR DEPRESSION: A TEN DAYS TREATMENT PROTOCOL

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Introduction: Transcranial direct current stimulation (tDCS) is a non-invasive and safe neuromodulation technique that induces prolonged excitability changes of the human cerebral cortex. We have shown that patients with severe major depression treated with tDCS twice a day for 5 days improve by some 30% their depressive symptoms. **Objectives** To optimize the tDCS protocol for the treatment of major depression.

Aims: To assess the therapeutic efficacy in severe drug resistant major depression of tDCS over the dorso-lateral prefrontal cortex (DLPC) twice a day for ten days.

Methods: We studied 15 hospitalized patients aged 37-68 years, with severe major depression. Mood was evaluated using the Beck Depression Inventory (BDI) and Visual Analogue Scales (VAS). tDCS was delivered over the DLPC (anodal electrode was placed on F3 and cathodal electrode on F4) at the intensity of 2mA, for 20 minutes, twice a day for 10 days. Depression scales were administered at baseline and after the last tDCS session on day 10. Drug treatments were maintained unchanged since six weeks before the tDCS study.

Results: After ten days of tDCS the BDI improved by about 40% [(Mean \pm SEM) Before: 29.1 \pm 3.5; After: 19.4 \pm 3.7, $p < 0.01$]. The feeling of happiness and sadness as evaluated by VAS improved after tDCS (happiness $p < 0.01$; Sadness $p < 0.05$).

Conclusions: The improvement reported by patients after ten-days tDCS protocol is greater than that we previously reported after the five-days tDCS protocol. Hence, our preliminary findings suggest that ten-days tDCS protocol should be preferred to the five-days protocol for major depression.