TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS) IN PREGNANT WOMEN WITH DEPRESSIVE SYMPTOMS

Lõokene M, The North Estonia Medical Centre

Background: Major depressive disorder (MDD) is the most common morbidity in pregnancy, affecting approximately 10% of pregnant women (Gavin et al., 2005). Untreated or incompletely treated depression can have profound adverse implications for maternal and fetal health. It has been estimated that approximately 80% of pregnant women with depression do not receive adequate treatment (Sreeraj et al., 2016). As a noninvasive method lacking systemic effects, transcranial direct current stimulation (tDCS) provides a promising alternative strategy for the treatment of depression and other mental disorders during pregnancy. However, only few case reports are currently available describing efficacy and safety of tDCS in treatment of prenatal depression.

Objectives: The aim of this study was to assess the effectiveness and tolerability of tDCS in pregnant women with depressive symptoms.

Materials and Methods: Seven pregnant women with the diagnosis of major depressive disorder or anxiety disorder received tDCS and a clinical evaluation with the 24-item Hamilton Rating Scale for Depression at baseline and post-treatment. Adverse events were collected using a questionnaire. tDCS was delivered using Sooma tDCS™ portable device. The anode was placed on the scalp over the left DLPFC (F3) and the cathode on the right DLPFC (F4). A direct current of 2 mA was delivered for 30 minutes 5 times per week for 2–3 weeks, further maintenance treatment was administered according to individual needs.

Results: Total depression scores decreased in all participants after the tDCS treatment, two patients achieved clinical remission. No serious adverse effects were reported.

Conclusions: These results suggest that tDCS is a well-tolerated and effective non-pharmacological treatment option for prenatal depression.

Patient	Age	Diagnosis (ICD-10)	Depression history	Gestational age at the treatment initiation (weeks)	Medications	tDCS sessions (acute phase)	tDCS sessions (maintenance phase, number of sessions)	Total number of tDCS sessions
1	36	F32.1	First depressive episode, anxiety diagnosis in history	15	Escitalopram 10 mg/day Quetiapine 50 mg/day Antidepressant medication initiated 3 weeks before tDCS treatment	5 times a week 2 weeks	-	10
2	34	F33.1	Several depressive episodes	25	Duloxetine medication stopped before pregnancy	5 times a week 3 weeks	3	18
3	35	F33.1	Several depressive episodes and AD-s in history	19	Escitalopram 10 mg/day	5 times a week 3 weeks	8	23
4	23	F41.2	At least one depressive episode in history	13	-	5 times a week 3 weeks	5	20
5	30	F32.1	First depressive episode	20	-	5 times a week 3 weeks	4	19
6	26	F41.1	At least one depressive episode in history	27	Fluoxetine 20 mg/day, Alprazolame 0.25 mg on demand	5 times a week 3 weeks	3	18
7	40	F41.1	At least one depressive episode in history	24	-	5 times a week 2 weeks	23	33

Sources:

- Data supporting the findings are available in The North Estonia Medical Centre electronic health records
- Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal depression: A systematic review of prevalence and incidence. *Obstet Gynecol.* 2005 Nov;106(5 Pt 1):1071-83
- Sreeraj, V. S., Bose, A., Shanbhag, V., Narayanaswamy, J. C., Venkatasubramanian, G., & Benegal, V. (2016). Monotherapy with tDCS for Treatment of Depressive Episode during Pregnancy: A Case Report. *Brain Stimul.* 2016 May-Jun;9(3):457-58