MEDICAL SCHOOL DIVISION OF RESEARCH
ETHICS COMMISSION

INFORMED CONSENT TO PARTICIPATE IN A MEDICAL RESEARCH STUDY

Registration Number: FM/DI/56/2021 Registration date: June 6, 2022 Area of research: Biomedical
Research Location: Faculty of Medicine of the National Autonomous University of Mexico.
Principal Investigator: Diana Patricia Guízar Sánchez

You are being invited to participate in this medical research study. Before you decide whether to participate, you should know and understand each of the following sections. This process is known as informed consent. Feel free to ask questions about anything that will help clarify your concerns.
Once you have understood the study and if you wish to participate, then you will be asked to sign this consent form, a signed and dated copy of which will be given to you.

1. JUSTIFICATION FOR THE STUDY.

Major depressive disorder (MDD) is a major public health problem, adversely affecting cognition, with cognitive deficits affecting information processing speed, attention, memory, executive function, and working memory. In addition, cognitive deficits associated with MDD do not resolve after successful treatment of depressive symptoms. In one study, 94% of individuals with MDD and cognitive deficits at the start of treatment retained these deficits one year later, despite achieving clinical remission. Long-term maintenance of antidepressants does not prevent cognition decline, despite maintaining recovery from depression. Non-invasive brain stimulation mainly comprises transcranial direct current stimulation (tDCS) as well as transcranial magnetic stimulation (TMS). tDCS has a very good safety and tolerability profile (compared to transcranial magnetic stimulation) and low cost. Several studies have reported beneficial effects of tDCS on working memory in healthy individuals. Transcranial direct current stimulation (tDCS) has been found as a possible way to improve depressive symptomatology, working memory and sustained attention in neuropsychiatric population. Anodal tDCS on dlPFC has been shown to facilitate cognitive processes such as working memory, making tDCS a promising tool for the improvement of working memory impairment induced by depression and/or stress.
The present study aims to evaluate the effectiveness of multi-session dorsolateral prefrontal cortex stimulation (in conjunction with cognitive stimulation) on working memory, cognitive functioning, P300 cognitive potentials, and academic performance of medical school students subjected to significant stressors and with a high prevalence of depression. Similar to single session working memory enhancement studies, the anode will be placed over the dorsolateral prefrontal cortex and the cathode over the orbitofrontal prefrontal cortex (contralateral above the right eye).

2. OBJECTIVE OF THE STUDY

You are being invited to participate in a research study that aimsto: Evaluate the effect ofcognitive stimulation in conjunction with transcranial direct current stimulation (tDCS) on the dorsolateral prefrontal cortex to improve scores on tests of working memory, cognitive functioning, P300 cognitive potentials and academic performance in medical students at UNAM vs. cognitive stimulation in conjunction with simulated transcranial direct current stimulation.

3. BENEFITS OF THE STUDY

If you agree to participate in this study, the direct benefit will be that all clinical and neuropsychological evaluations performed, as well as cognitive stimulation will be free of charge.
With your participation you will help to know if transcranial direct current treatment is useful for cognitive functioning and working memory in patients with a diagnosis of major depressive disorder.

4. STUDY PROCEDURES

If you agree to participate in the study, you will be asked some questions about yourself, your habits and medical history, and a clinical interview will be conducted to capture relevant demographic and clinical data, clinical and neuropsychological instruments will be applied for diagnostic certainty, which in turn will count as a baseline measurement. The total application of the instruments could be done in one session (3 hours with a 15-minute break). After that, the questionnaire of stimulation safety measures will be applied (see APPENDIX I) and the P300 will be recorded. The following measurements will be taken at the end of the 15 sessions and at the end of maintenance.

The patient will then be randomly assigned to one of the two tDCS groups and will be given 15 sessions, 5 per week from Monday to Friday and then one per week for 4 weeks. After each session, adverse effects will be asked about and recorded in a questionnaire (see APPENDIX). They will be evaluated at the beginning, at the end of the 15 sessions (three weeks) and four weeks after the end of the study maneuver. At the same time, each participant will receive three sessions per week of cognitive stimulation using the manual adapted to Mexican Spanish of the UMAM method.

5. RISKS ASSOCIATED WITH THE STUDY

Regarding the safety profile, to date, the use of conventional tDCS protocols in human trials has not produced any reports of a serious adverse effect or irreversible injury. Headache, neck pain, unpleasant tingling, dizziness, itching and burning, and mild nausea were reported.

In case of worsening of depressive symptoms, the patient will be referred to the Department of Psychiatry and Mental Health of the UNAM or to the Ramón de la Fuente Muñiz National Institute of Psychiatry, a hospital with a 24-hour, 365-day-a-year continuous care service for immediate attention.

In relation to the application of scales and interviews, these will be carried out by a physician specialized in psychiatry with training in the application of neuropsychological tests.

6. DISCLAIMERS

- Your decision to participate in the study is completely voluntary.
- There will be no unfavorable consequences for you if you do not accept the invitation.
- If you decide to participate in the study, you may withdraw at any time you wish, even if the responsible researcher does not request it, and you may or may not inform the reasons for your decision, which will be respected in its entirety.
- You will not have to pay any expenses during the study.
- You will not receive payment for your participation.
- During the course of the study, you may request updated information about the study from the responsible investigator.
- The information obtained in this study, used to identify each patient, will be kept strictly confidential by the research team.
- In the event that you develop any unanticipated adverse side effects, you are entitled to compensation, provided that these effects are a consequence of your participation in the study.
- You also have access to the Research and Ethics Committees of theUNAM School of Medicine in case you have any doubts about your rights as a study participant: Telephone: 5623 2136.
- If you feel that there are no doubts or questions about your participation, you may, if you wish, sign the Letter of Informed Consent that is part of this document.

7. LETTER OF INFORMED CONSENT

I have read and understood the above information and my questions have been answered to my satisfaction, have read and understood the above information and my questions have been answered to my satisfaction. I have been informed and understand that the data obtained in the study may be published or disseminated for scientific purposes. I agree to participate in this research study. I will receive a signed and dated copy of this consent form.

Signature of participant or parent or guardian Date

Witness 1 Date

Witness 2 Date

This part is to be completed by the Investigator (or his/her representative): I have explained to Mr(a). _____ the nature and purposes of the research; I have explained to him/her about the risks and benefits involved in his/her participation. I have answered questions to the extent possible and asked if he/she has any questions. I agree that I have read and know the relevant regulations for conducting research with human subjects and I adhere to them. Once the question and answer session was concluded, the present document was signed.

Researcher's signature Date

8. REVOCATION OF CONSENT

Protocol title: "Transcranial direct current stimulation (tDCS) on the dorsolateral prefrontal cortex as adjunctive therapy to cognitive stimulation in working memory, cognitive functioning, P300 cognitive evoked potentials and academic performance in medical students with depressive symptomatology: clinical, cognitive and electrophysiological markers".

Principal investigator: Dr. Diana Patricia Guízar Sánchez

Place where the study will be carried out: Department of Physiology. Faculty of Medicine. UNAM

Student's name:

I hereby wish to inform you of my decision to withdraw from this research protocol for the following reasons: (This section is optional and may be left blank if the patient so wishes).

If the patient so wishes, he/she may request that all the information collected about him/heras a result of his/her participation in the present study be given to him/her.

Signature of participant or parent/guardian Date

Witness Date

Witness Date

c.c.p The patient.

(To be prepared in duplicate, one copy to be kept by the patient).