

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

Effect of Transcranial direct-current stimulation on improvement of cognitive biases and coherence pattern of cortex in patients with major depression

Protocol summary

Study aim

Effect of Transcranial direct-current stimulation on improvement of cognitive biases and coherence pattern of cortex in patients with major depression

Design

Of all major depressive patients in Tabriz, 30 patients were selected using Purposive sampling and randomly assigned in experimental, sham and control groups (n=10)

Settings and conduct

The cognitive function of each group was assessed using cognitive tests of Eriksen Folaner test and Corsi block-tapping test. Also, brain activity of each group was recorded by electroencephalography. Then, on the experimental group, tDCS was applied with an anodic electrode in the left DLPFC region and a cathode electrode in the right DLPFC region for 10 continuous days, with direct electric current, at 2mA with a duration of 20 minutes per session. also, In the placebo group (sham), the intervention was conducted for 10 continuous days as a silent device, so that the subjects were unaware of this topic and the treatment protocol. So this study is a single blind. Finally, the mentioned cognitive tests were performed again from the groups and their brain activity was recorded by electroencephalography

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age range 18 to 40 years, having Major Depression Disorder Based on DSM5 Criteria, Minimum education middle school, dextrality. exclusion criteria: Having psychotic diseases and coincidence with other disorders, Concurrent use of drug and medicine, and The subject's dissatisfaction of collaborate

Intervention groups

The experimental group receiving the intervention, the group that receives intervention as a sham and the control group that does not receive an intervention

Main outcome variables

Improvement of depression and cognitive biases;
Improvement of Cortical Coherence Pattern
interhemispheric and intrahemispheric between different parts of the brain in different bands of electrical activity

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180704040344N1**

Registration date: **2018-08-05, 1397/05/14**

Registration timing: **retrospective**

Last update: **2018-08-05, 1397/05/14**

Update count: **0**

Registration date

2018-08-05, 1397/05/14

Registrant information

Name

Ali Arabi

Name of organization / entity

Azərbaycan Şahid Mədanı University

Country

Iran (Islamic Republic of)

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+98 51 4622 7853

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2017-09-23, 1396/07/01

Expected recruitment end date

2018-02-20, 1396/12/01

Actual recruitment start date

2017-12-16, 1396/09/25

Actual recruitment end date

2018-05-05, 1397/02/15

Trial completion date

empty

Scientific title

Effect of Transcranial direct-current stimulation on improvement of cognitive biases and coherence pattern of cortex in patients with major depression

Public title

Effect of Transcranial direct-current stimulation on cognitive biases and coherence pattern of cortex

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Age range 18 to 40 years, having Major Depression Disorder Based on DSM5 Criteria, Minimum education middle school, dextrality.

Exclusion criteria:

Having psychotic diseases and coincidence with other disorders, Concurrent use of drug, Concurrent use of medicine, and The subject's dissatisfaction of Continue to collaborate.

AgeFrom **18 years** old to **40 years** old**Gender**

Both

Phase

N/A

Groups that have been masked

- Participant

Sample sizeTarget sample size: **30**Actual sample size reached: **24****Randomization (investigator's opinion)**

Randomized

Randomization description

Of patients with major depression in Tabriz, 30 patients were selected using Purposive sampling. Then, 10 patients in the experimental group, 10 patients in the sham group (placebo) and 10 patients in the control group were randomly (Using random numbers table) selected.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, there are three groups of experimental, sham (placebo) and control groups that the placebo group is not aware of because they are in the placebo group (sham) and are not being treated; because it is known whether the effect of the intervention is solely due to Therapeutic tool (tDCS) or the induction of placebo has also been effective in the treatment.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of Tabriz University of Medical Sciences

Street address

Deputy of research and technology, Third floor, Central building number 2, Tabriz University of Medical Sciences, Golgasht Street.

City

Tabriz

Province

East Azarbaijan

Postal code

5166/15731

Approval date

2017-07-31, 1396/05/09

Ethics committee reference number

IR.TBZMED.REC.1396.385

Health conditions studied**1****Description of health condition studied**

Major Depression Disorder

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Improvement of Cognitive biases due to Depression

Timepoint

Before applying tDCS and 10 sessions after applying tDCS

Method of measurement

Cognitive tests of Eriksen Folanker and Corsi block-tapping

2**Description**

Improvement of Cortical Coherence Pattern interhemispheric and intrahemispheric between different parts of the brain in differen bands of electrical activity

Timepoint

Before applying tDCS and 10 sessions after applying tDCS

Method of measurement

Electroencephalography(EEG)

Secondary outcomes

1

Description

Improvement of Depression

Timepoint

Before applying tDCS and 10 sessions after applying tDCS

Method of measurement

Beck Depression Inventory

Intervention groups

1

Description

Intervention group: tDCS was applied with an anodic electrode in the left DLPFC region and a cathode electrode in the right DLPFC region for 10 continuous days, with direct electric current, at 2 mA with a duration of 20 minutes per session.

Category

Treatment - Other

2

Description

Placebo group: tDCS electrodes were placed on the head for 10 consecutive sessions and with a duration of 20 minutes, but the device was turned off and not stimulated.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Bozorgmehr Clinic

Full name of responsible person

Dr. Gholamreza Chalabianloo

Street address

South Army Street, opposite the Central Post Office

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Deputy of Research _ Azarbaijan Shahid Madani University

Full name of responsible person

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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Deputy of Research _ Azarbaijan Shahid Madani University

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Azarbaijan Shahid Madani University

Full name of responsible person

Ali Arabi

Position

Master's student of cognitive science-cognitive psychology

Latest degree

Bachelor

Other areas of specialty/work

Student

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

There is no more information.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available