Improving cognitive performance in MS by transcranial alternating current brain stimulation (tACS); a pilot study

No registrations found.

Ethical review	Not applicable
Status	Other
Health condition type	-
Study type	-

Summary

ID

NL-OMON28830

Source
Nationaal Trial Register

Brief title
tACS in MS

Health condition

Multiple Sclerosis (MS)

Sponsors and support

Primary sponsor: University Medical Center Groningen
Source(s) of monetary or material Support: Dutch MS Research Foundation

Intervention

Outcome measures

Primary outcome

1. Trial endpoints in coherence of EEG signal in theta range

2. Difference in reaction times on Vienna Reaction Time task.

Secondary outcome

1. baseline measures of cognitive performance and lesion load estimated from DTI and MTR measurements as predictors/covariates.

2.post - vs pre –stimulation Neuropsychological evaluation (NPE) scores

Study description

Study objective

We hypothesize that tACS can enhance brain synchronization between frontal and parietal regions, thereby improving cognitive functioning in MS patients.

Study design

Participants recruitment immediately after METC approved;

2. Measurements finalized as soon as enough participants are found;

3. Primary and secondary outcomes up to 6 months after the data were collected for the last subject.

Intervention

Transcranial alternating current stimulation (tACS) in theta range (6 Hz) applied over frontal and parietal regions synchronously

Contacts

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Eligibility criteria

Inclusion criteria

- MS patients with subjective complaints of cognitive impairment or on the recommendation of attending neurologist;

- age 30-60 years;

- MRI compatible;

- decreased values (1.5 standard deviations below the normative control values or below cut-off value for deviation) on at least 2 tests from NPE battery.

- Diagnosis of MS according to the 2010 McDonald criteria;

- No relapse in the last 3 months before the test;

- Signed written informed consent;

- Right handedness.

Exclusion criteria

1. History of psychiatric or neurological illness other than MS

2. Metal implants (e.g., pacemaker, heart valves, vascular clips, eye-implants, copper containing intra-uterine devices, non-removable piercing, cerebral implants)

3. Any risk of having metal particles in the eyes

4. Tattoos containing iron oxide (often found in red pigments)

5. (Suspected) Pregnancy or breast feeding

6. Claustrophobia

7. Alcohol or drug abuse

8. Excessive intake of coffee (>5 units per day) or alcohol (>2 units per day);

9. Recent use of alcohol (2 days before the EEG and/or fMRI measurement.

10. Recent use (within one week) of Tetrahydrocannabinol (THC) or any other nonprescription psychopharmaca;

11. Refusal to be informed of structural brain abnormalities that could be detected using MRI during the experiment

12. Diagnosis of epilepsy, or a personal or first degree family history of epileptic seizures, diagnosis of Parkinson's disease, Myasthenia Gravis, epilepsy and dementia

13. Severe scalp skin lesions

14. Color blindness

Participants are asked not to use alcohol, THC and other above mentioned medication during the course of the study.

Study design

Design

Intervention model:	Parallel
Allocation:	Non controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo

Recruitment

NL

Recruitment status:	Other
Start date (anticipated):	01-05-2017
Enrollment:	0
Type:	Unknown

Ethics review

Not applicable
Application type: Not applicable

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL6254
NTR-old	NTR6428
Other	ABR number 60761 : UMCG Research Register: 201700089

Study results