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

Gepubliceerd: 09-05-2017 Laatst bijgewerkt: 18-08-2022

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

Ethische beoordeling	Niet van toepassing
Status	Anders
Type aandoening	-
Onderzoekstype	-

Samenvatting

ID

NL-OMON28830

Bron
NTR

Verkorte titel
tACS in MS

Aandoening

Multiple Sclerosis (MS)

Ondersteuning

Primaire sponsor: University Medical Center Groningen
Overige ondersteuning: Dutch MS Research Foundation

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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

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

Toelichting onderzoek

Doel van het onderzoek

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

Onderzoeksopzet

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.

Onderzoeksproduct en/of interventie

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

Contactpersonen

Publiek

Antonius Deusinglaan 2

B Curcic
NeuroImaging Center
Groningen 9713 AW
The Netherlands
050-3616395

Wetenschappelijk

Antonius Deusinglaan 2

B Curcic
NeuroImaging Center

Groningen 9713 AW
The Netherlands
050-3616395

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- 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.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

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.

Onderzoeksopzet

Opzet

Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blindering:	Dubbelblind
Controle:	Placebo

Deelname

Nederland

Status:	Anders
(Verwachte) startdatum:	01-05-2017
Aantal proefpersonen:	0
Type:	Onbekend

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

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

Resultaten