Feasibility of dual channel low field TMS for improvement of brain functioning.

Gepubliceerd: 20-02-2012 Laatst bijgewerkt: 13-12-2022

Using low field stimulation on two brain regions simultaneously, we aim to specifically alter the connectivity between one or more pairs of brain areas.

Ethische beoordeling	Niet van toepassing
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON21943

Bron
NTR

Verkorte titel
Dual low field TMS

Aandoening

Impaired connectvity

Ondersteuning

Primaire sponsor: University Medical Center Groningen
Overige ondersteuning: University Medical Center Groningen

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

1. The change in effective brain connectivity estimated by DCM for EEG;
2. The differences in concentrations of oxygenated (HBo) and de-oxygenated blood before, during and after the treatment (as estimated from NIRS measurements).

Toelichting onderzoek

Achtergrond van het onderzoek

Brain connectivity, which refers to the anatomical and functional connections between different brain regions, is often pathologically altered in patients with psychiatric or neurological disorders such as epilepsy. Transcranial magnetic stimulation (TMS) is a tool to non-invasively modulate brain function. It is known that TMS can influence brain connectivity, but epilepsy is one of the prime contra-indications for TMS research. We intend to overcome this limitation by using a very weak form of TMS, largely developed and implemented in-house: microTMS. This is a proof of principle study is required before this technique can be tested on patients.

Doel van het onderzoek

Using low field stimulation on two brain regions simultaneously, we aim to specifically alter the connectivity between one or more pairs of brain areas.

Onderzoeksopzet

1. 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

Two electromagnets are fitted over the EEG/NIRS cap. Magnetic field flux densities <5mT are applied to the head. The microTMS stimulus will consist of pulsed magnetic stimulation. Pulses will consist of random white noise (frequencies ranging from 0.3-100Hz) with a Gaussian envelope and will have a duration of 50 ms followed by 30 ms of rest.
Before and after the stimulation the subjects will perform a cognitive task, during and before which EEG/NIRS will be recorded (active and resting conditions). These measurement are needed to determine the functional brain connectivity between two targeted brain areas.

Contactpersonen

Publiek

Antonius Deusinglaan 2

Curcic-Blake Branislava
Groningen 9713 AW
The Netherlands
+31 (0)50 5267584

Wetenschappelijk

Antonius Deusinglaan 2
Curcic-Blake Branislava
Groningen 9713 AW
The Netherlands
+31 (0)50 5267584

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. Adult healthy volunteers;

2. Native Dutch speaker;

3. Age 18-80.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Psychiatric or neurological disease, present or past;

2. Visual or hearing limitations that can not be corrected for;

3. Alcohol or drug addiction;

4. Excessive intake of coffee (>10 units per day) or alcohol (>10 units per day);

5. Recent use of alcohol (within 1 day);

6. Recent use (within four weeks) of cannabis or any other non-prescription psychopharmaca;

7. Presence in the body of MRI-incompatible implants, electronic implants (e.g. cardiac pacemakers), or connectors of electronic equipment (e.g. electrodes);

8. Pregnancy, lactation.

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Parallel
Toewijzing:	Gerandomiseerd
Blindering:	Dubbelblind
Controle:	Placebo

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	15-03-2012
Aantal proefpersonen:	70
Type:	Verwachte startdatum

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	NL3174
NTR-old	NTR3318
Ander register	ABR number : 39489
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Resultaten

Samenvatting resultaten
N/A