The Pharmacology of Attention.

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON21222

Source
Nationaal Trial Register

Brief title
The Neurobiological Basis of Bias and Disengagement.

Health condition

The neurobiology of attention.

Sponsors and support

Primary sponsor: H.N.A. Logemann, MSc.
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Source(s) of monetary or material Support: NWO.

Intervention

Outcome measures

Primary outcome

1. Behavioural measures;

2. In the Visual Spatial Cuing (VSC) paradigm: the validity effect in ms (RT valid cued target - RT invalid cued target).
A larger validity effect reflects either more bias, or less disengagement;

3. In the stop task paradigm: the stop signal reaction time (SSRT); SSRT reflects inhibition and related disengagement;

4. Neurophysiological EEG (ERP) endparameters in the VSC:

A. Parietal cue ERP components (ADAN + LDAP), related to bias;

B. P1 valid cued target ERP, related to bias;

C. LPD invalidly cued target ERP, related to disengagement.

5. Neurophysiological (ERP) endparameters in the stop task:

A. N2 stop signal ERP, related to disengagement;

B. LPD stop signal ERP, related to disengagement.

Secondary outcome

N/A

Study description

Background summary

For the development of better pharmacological treatment of various disorders in which attention and impulsivity are implicated, such as ADHD, it is of crucial importance to acquire more knowledge on their neurobiological basis. Two functional brain mechanisms that are implicated in visual spatial attention are bias and disengagement. Here, bias refers to increased sensory information processing due to the orientation of attention. Disengagement refers to the interruption of that attentional set, making processing of non attended stimuli possible. The dominant theory posits that cholinergic neurotransmission underlies bias, and disengagement rests on noradrenergic neurotransmission. However, results of pharmacological studies are inconsistent. Scrutinizing the results of pharmacological research suggests the opposite of the dominant model. Therefore a new model is proposed which specifically states that bias rests on noradrenergic neurotransmission and that disengagement rests on cholinergic neurotransmission. Since behavioral outcome reflects

activity in both mechanisms, studying brain activity is crucial. Therefore, hypotheses will be tested by evaluating the effects of cholinergic and noradrenergic antagonism not only on behavioral measures, but explicitly on bias and disengagement associated functional brain indices (i.e., event-related potentials; ERPs).

Study objective

In line with results from recent pharmacological studies, it is expected that:

1. Inhibiting the cholinergic system by Inversine (Mecamylamine Hydrochloride) results in an impairment of disengagement, but will not affect bias;

2. Inhibiting the noradrenergic neurotransmitter system by Clonidine will result in an impairment in Bias, but will not affect disengagement.

Study design

At approximately t=120 min. post drug ingestion, computertasks are performed and EEG is simultaneously recorded.

Intervention

Pilot is a drug-free pilot aimed to verify results (ERPs / behavioral data) of previous studies, 12 participants will be included.

The final study will contrast clonidine (0.1mg) and placebo. Like the pilot, the duration of each condition is 4.5 hours. In this study, 24 participants will be included. The minimal time between conditions is one week.

Contacts

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Eligibility criteria

Inclusion criteria

1. Participants must be between 18 – 40 years old;

2. Passing the medical screening (in which cardiovascular functioning and blood pressure is evaluated) is a prerequisite.

Exclusion criteria

1. Use of any medication;

2. Low blood pressure, systolic bp under 100 mmHg, diastolic under 70 mmHg.

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-05-2009
Enrollment:	48
Type:	Anticipated

Ethics review

Positive opinion

Date:	01-02-2009
Application type:	First submission

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	NL1571
NTR-old	NTR1650
Other	:
ISRCTN	ISRCTN wordt niet meer aangevraagd

Study results

Summary results

N/A