The Pharmacology of Attention.

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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...

Ethische beoordeling	Positief advies
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON21222

Bron
NTR

Verkorte titel
The Neurobiological Basis of Bias and Disengagement.

Aandoening

The neurobiology of attention.

Ondersteuning

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Overige ondersteuning: NWO.

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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.

Toelichting onderzoek

Achtergrond van het onderzoek

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).

Doel van het onderzoek

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.

Onderzoeksopzet

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

Onderzoeksproduct en/of interventie

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.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

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.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Use of any medication;

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

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Dubbelblind
Controle:	Placebo

Deelname

Nederland
Status: Werving nog niet gestart

(Verwachte) startdatum:	01-05-2009
Aantal proefpersonen:	48
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	01-02-2009
Soort:	Eerste indiening

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	NL1571
NTR-old	NTR1650
Ander register	:
ISRCTN	ISRCTN wordt niet meer aangevraagd

Resultaten

Samenvatting resultaten
N/A