Investigating Delay Discounting and Reward Dependence in ADHD and comorbid conditions using fMRI*

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To investigate the role of the dopaminergic system in reward discounting and reward anticipation in ADHD and comorbid disorders. The study investigates the following question: Do patients with ADHD without comorbidity differ from those with ADHD and...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Cognitive and attention disorders and disturbances
Study type	Observational invasive

Summary

ID

NL-OMON46668

Source
ToetsingOnline

Brief title
Delay Discounting and Reward in ADHD

Condition

- Cognitive and attention disorders and disturbances

Synonym
Attention Deficit Hyperactivity Disorder

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universitair Medisch Centrum
Source(s) of monetary or material Support: Horizon2020 programma van de EU

Intervention

Keyword: ADHD, comorbidity, Delay Discounting, Dopamine, Reward

Outcome measures

Primary outcome

BOLD signal in the brain regions to be examined in fMRI (striatal system,

fronto-mesial system, paralimbic cortex), and behavioral variables (reaction

times, gain, discount-gradient, etc. depending on the paradigm used).

Secondary outcome

n.a.

Study description

Background summary

Dysregulation of dopaminergic neurotransmission is one of the key mechanisms underpinning attention deficit / hyperactivity disorder (ADHD) (DelCampo et al 2011), as well as underpinning the most common comorbid disorders (obesity, addictions and affective disorders, Whiton et al 2015). The dopaminergic system is an important link between attention deficit syndrome and the development of the aforementioned comorbid disorders. One of the behavioral equivalents of the dopaminergic system is the processing of rewards or positively evaluated stimuli. Experimentally, this can be measured by two paradigms: "Delay Discounting": deferred rewards appear to be less valuable than immediate rewards (McClure 2004), and "reward anticipation": the timing of the reward and the anticipation of a reward are temporally separated; Knutson et al 2000). At present, the mechanism responsible for the association between ADHD and these the comorbid disorders mentioned has not been experimentally studied.

Study objective

To investigate the role of the dopaminergic system in reward discounting and reward anticipation in ADHD and comorbid disorders. The study investigates the following question: Do patients with ADHD without comorbidity differ from those with ADHD and comorbidities (substance abuse, mood disorders or obesity) in terms of dopaminergic involvement?

Study design

This is a fMRT approach to study the dopaminergic system in ADHD patients without comorbid disorders (n = 34) as well as those with comorbid disorder (substance abuse, depression or obesity, n = 34 in each case). So far, there is no study that has investigated both "delay discounting" and "reward anticipation" in the same subjects.

Study burden and risks

Participants will also undergo a 1-hour MRI session. The degree of anxiety and pleasure will be monitored before and during the MRI session. If participants show resistance, the procedure will be stopped immediately. Participants will be 18-50 years old. There are no special risks associated with our research and we have ample experience with all these types of procedures

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

ADHD (with depression, or with substance use disorder, or with obesity)
Sufficient mastery of Dutch
IQ>85

Exclusion criteria

severe medical / psychiatric conditions

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	07-11-2018
Enrollment:	68
Type:	Actual

Ethics review

Approved WMO

Date:	26-09-2018
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Approved WMO

Date:	13-02-2019
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

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
CCMO	NL64162.091.17