Neurobiological correlates of biased cognitive processing in smoking addiction

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Project 1: To investigate the neuroanatoimical correlates of attentional processing bias in nicotine addicts, using fMRI.Project 2: To examine whether attentional biases are dependent on dopaminergic transmission in the mesolimbic system using…

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Observational invasive

Summary

ID

NL-OMON32053

Source
ToetsingOnline

Brief title
Neural correlates of biased cognitive processing in smoking addiction

Condition

- Other condition

Synonym
Smoking addiction, Smoking dependence

Health condition

Verslaving

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus Universiteit Rotterdam
Source(s) of monetary or material Support: NWO

Intervention

Keyword: Attention bias, dopamine, fMRI, Nicotine addiction

Outcome measures

Primary outcome

The main study parameter is the brain activity in multiple brain regions in reaction to the attention tasks, accompanied by behavioural responses to the tasks (reaction times). The end of this study will be reached when eighty participants are included and tested successfully.

Secondary outcome

Not applicable

Study description

Background summary

Addictive behaviours, such as smoking, are associated with biases in the processing of drug-related stimuli. These processing biases are hypothesized to have a causal effect on substance use and relapse in addiction. However, little is known about the neural mechanisms behind these biases. Current studies provide preliminary indications that addiction-related stimuli yield differential neural activation in addicts as compared to other stimuli, suggesting enhanced processing of these stimuli. However, more detailed knowledge about the neurobiology of these biases is needed in order to design better treatments for this chronic and invalidating condition. We will investigate the neurobiology of attentional biases in two complementary projects.

Study objective

Project 1: To investigate the neuroanatoimical correlates of attentional

processing bias in nicotine addicts, using fMRI.
Project 2: To examine whether attentional biases are dependent on dopaminergic transmission in the mesolimbic system using pharmaco-fMRI with a dopamine challenge.

Study design

In the first project, participants will perform two attention tasks in the fMRI scanner to examine the neural correlates of attentional bias. In the second project a double-blind placebo controlled cross-over design will be used. In both sessions participants will get either a single dose 2mg haloperidol of placebo and perform the the attention tasks in the fMRI scanner. In both projects 20 smokers will be compared with 20 non-smokers. Participants need to abstain from alcohol use for 24 hours before scanning and 3 hours from smoking.

Study burden and risks

fMRI is a save and non-invasive method for measuring brain activity. Since participants have to lie still in the scanner and are exposed to scanner noise, effort will be made to make it as comfortable as possible. Previous studies have shown that a challenge with a single dose 2mg haloperdiol can be used safely without complications in these kind of study designs.

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

Signed informed consent
Age between 18 and 55 years
Smoking at least 15 cigarettes a day for smokers / not smoked more than 3 cigarettes lifetime for non smokers
Right handedness

Exclusion criteria

fMRI contraindications
Indications of psychopathology
Use of psychoactive medication
Regular use of drugs of abuse other than nicotine
Claustrophobia
Pregnancy
For project two: contra-indication for taking a single low dose of haloperidol

Study design

Design

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

Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	01-03-2009
Enrollment:	80
Type:	Actual

Ethics review

Approved WMO

Date:	14-07-2008
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

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	NL22250.078.08