The influence of cocaine and cannabis on impulsivity.

No registrations found.

Ethical review	Not applicable
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON25495

Source Nationaal Trial Register

Health condition

cannabis
cocaine
impulsivity
impulsiviteit
genotypering
genotyping
dopamine
COMT
DBH

Sponsors and support

Primary sponsor: ZonMW Source(s) of monetary or material Support: ZonMW

Intervention

Outcome measures

Primary outcome

The influence of cocaine and cannabis on impulsivity modulated by COMT and DBH genotypes. Genotyping of DBH will be performed before inclusion, COMT after testing.

Secondary outcome

Outcomes on:

- 1. Matching familiar figures;
- 2. Stop-signal task;
- 3. Tower of London;
- 4. CTT/DAT;
- 5. Attentional Switch task;
- 6. Prospective memory task;
- 7. Cued Go/NoGo task.

Study description

Background summary

Genetic variations may affect drug induced changes in impulsivity and vulnerability to drug abuse. Two prime genes linking loss of impulse control, prefrontal dopamine (DA) and drug addiction are catechol O-methyltransferase (COMT) and dopamine beta-hydroxylase (DBH). Yet, the precise role of genetic variations on prefrontal DA and vulnerability to drug abuse is largely unknown. The current research proposal is designed to assess the influence of cocaine and cannabis on impulse control and to define the modulating role of the COMT and DBH genotypes on prefrontal DA and impulsive behaviours in cannabis and cocaine abusers. The research program consists of two major studies in regular users of cannabis and cocaine (N=60 in both studies) that will be conducted in parallel at Maastricht University and Radboud University Nijmegen Medical Centre. In each study, subjects will receive single doses of placebo, a THC dose of maximal 20mg and cocaine HCl 300mg according to a double blind, cross-over design. Impulsivity will be assessed objectively after administration of cannabis and cocaine with several performance models of impulse control (e.g. stop signal task, Cued Go/NoGo task) as well as with event related potentials and fMRI. Performance data will be analyzed separately for each centre but also combined in a meta-analysis over 120 subjects. It is expected that acute challenges with cocaine and cannabis will induce two opposing dopaminergic states in the brain. That is, cocaine will stimulate dopamine release leading to hyperdopaminergia whereas cannabis will reduce central dopamine levels resulting in hypodopaminergia. At present the common assumption is that a state of

hypodopaminergia will lead to an increase in impulsive and risky behaviours such as drug use. Yet, the present studies are expected to demonstrate that drug induced impulsive behaviours can occur during both dopaminergic states depending on COMT and DBH genotypes and type of drug.

Study objective

Acute challenges with cocaine and cannabis will induce two opposing dopaminergic states in the brain. Cocaine will stimulate dopamine release leading to hyperdopaminergia whereas cannabis will reduce central dopamine levels resulting in hypodopaminergia. Drug induced impulsive behaviours can occur during both dopaminergic states depending on COMT and DBH genotypes and type of drug.

Study design

Timepoint: 1 day.

Intervention

- 1. Cocaine HCl 300mg as capsule;
- 2. Cannabis 20mg by inhalation;
- 3. Placebo.

Contacts

Public Postbus 616 J. Wel, van Maastricht 6200 MD The Netherlands Scientific Postbus 616 J. Wel, van Maastricht 6200 MD The Netherlands

Eligibility criteria

Inclusion criteria

- 1. Regular use of cannabis and cocaine;
- 2. Good physical and mental health;

3. Body weight between 80 and 130% of the ideal bodyweight as defined in the Metropolitan Life Insurance tables;

4. Age 18-40.

Exclusion criteria

- 1. Pregnancy or lactation;
- 2. Cardiovascular abnormalities as assessed by standard ECG;
- 3. Excessive drinking;
- 4. Hypertension;
- 5. History of psychiatric and neurological disorders.

Study design

Design

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

Recruitment

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NL	
Recruitment status:	Pending
Start date (anticipated):	01-01-2010
Enrollment:	60

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Type:

Anticipated

Ethics review

Not applicable Application type:

Not applicable

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	NL2010
NTR-old	NTR2127
ССМО	NL29685.068.09
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results N/A