Effects of cannabis on memory.

No registrations found.

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

Summary

ID

NL-OMON24951

Source
NTR

Health condition

cannabis-induces memory impairment

Sponsors and support

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

Intervention

Outcome measures

Primary outcome

Memory performance is the primary outcome and is measured immediately after each cannabis/placebo treatment. Memory is measured with a verbal memory test and a prospecitve memory test.

Secondary outcome

N/A

Study description

Background summary

Previous studies have shown that THC causes dose related deficits in cognitive functions. A consistent finding is that THC affects the ability to acquire new information (learn) in a memory task. The CB1 receptors via which THC works are abundantly present in the hippocampus, a structure underlying memory functions. Animal studies have shown that CB1 receptors in the hippocampus are especially present on the terminals of glutamate and acetylcholine receptors. Both glutamate and acetylcholine are very important in memory processes. It is possible that THC exerts its memory effects through one of these two mechanisms.

The aim of the present study is therefore to find out whether THC-induced memory impairment is mediated via glutamaterge or cholinergic mechanisms. This will be accomplished by reversing a THC-induced inhibition (in cholinergic or glutamaterge mechansims) by glutamatergic or cholinergic stimulation.

The study will be conducted according to a placebo controlled, six way crossover study. Treatments will be (1) rivastigmine (cholinerge drug), vardenafil (glutamatergic drug) or placebo combined with (2) THC or placebo.

Subjects will be 18 recreational cannabis users.

It is predicted that the PDE5 inhibitor Vardenafil will reverse memory impairment induced by THC if the latter depends on glutamatergic neurotransmission.

It is predicted that the cholinesterase inhibitor Rivastigmine will reverse THC induced memory impairment if the latter depends on acetylcholine depletion.

Study objective

It is predicted that the PDE5 inhibitor vardenafil will reverse memory impairments induced by THC if the latter depend on glutamatergic neurotransmission.

It is expected that the cholinesterase inhibitor rivastigmine will reverse THC-induced memory impairment if the latter depends on acetylcholine depletion.

Study design

Subjects receive pretreatment (Rivastigmine, Vardenafil or placebo). 50 minutes post pre-treatment THC will be inhaled using a vaporizer. Subsequently, a blood sample will be taken to determine plasma level concentrations of the pre-treatment (rivastigmine/vardenafil) and treatment (THC). Subjects will then start with the first block of cognitive tasks (± 1hour). At 2h post pre-treatment inhalation of THC/placebo is repeated, and followed by a second

cognitive testbattery.

Intervention

This is a cross-over, 6-way within-subjects study. On each testday, subjects are pretreated with a single dose of vardenafil (20mg), rivastigmine (3mg) or placebo. Approximately 1h later they inhale cannabis (300microgram/kg bodyweight) or placebo. Approximately 2 hours after pre-treatment, a second dose of cannabis (150microgram/kg bodyweight) or placebo is inhaled.

Contacts

Public
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Eligibility criteria

Inclusion criteria

1. Light occasional cannabis users (minimal 1 year experience; 36 > times a year > 8);

2. Age between 18 and 40 years;

3. Free from psychotropic medication;

4. Good physical health as determined by medical examination and laboratory analysis;

5. Absence of any major medical, endocrine and neurological condition;

6. Normal weight, body mass index (weight/height2) between 18.5 and 28 kg/m2;

7. Written Informed Consent.

Exclusion criteria

1. History of drug abuse (other than the use of cannabis) or addiction;

2. Pregnancy or lactation;

3. Excessive drinking (> 20 alcoholic consumptions a week);

4. Hypertension (diastolic> 100; systolic> 170);

5. Current or history of psychiatric disorder.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	10-03-2010
Enrollment:	18
Type:	Anticipated

Ethics review

Positive opinion

Date:	25-03-2010
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	NL2147
NTR-old	NTR2271
Other	Maastricht University : MEC 08-3-097
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A