Effects of cannabis on memory.

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

Samenvatting

ID

NL-OMON24951

Bron
NTR

Aandoening

cannabis-induces memory impairment

Ondersteuning

Primaire sponsor: Maastricht university
Overige ondersteuning: Maastricht university

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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.

Toelichting onderzoek

Achtergrond van het onderzoek

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.

Doel van het onderzoek

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.

Onderzoeksopzet

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.

Onderzoeksproduct en/of interventie

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.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

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.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

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.

Onderzoeksopzet

Opzet

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

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	10-03-2010
Aantal proefpersonen:	18
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	25-03-2010

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	NL2147
NTR-old	NTR2271
Ander register	Maastricht University : MEC 08-3-097
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Resultaten

Samenvatting resultaten
N/A