The effect of ketamine and methadon on healthy volunteers with special focus on painscore, sedation, ventilatory depression and change of pupil diameter.

No registrations found.

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

Summary

ID

NL-OMON20544

Source
NTR

Brief title
KETMET-study

Health condition

analgesia
respiratory depression
pijnstilling
analgesie
ademhalingsdepressie

Sponsors and support

Primary sponsor: Leiden University Medical Centre (LUMC)
Source(s) of monetary or material Support: Leiden University Medical Centre (LUMC)

Intervention

Outcome measures

Primary outcome

Little is known on the relative contribution of NMDARand u-opioid receptor systhems in the analgesic and side effect profile of methadone and ketamine, therefore we measure respiration, sedationscore (Visual Analog Score), painscore (Visual Analogue Score) and pupildiameter (pupillometry).

Secondary outcome

N/A

Study description

Background summary

In this double blinded, placebo-controlled crossover trial, the effect of mu opioid receptor (MOR) versus N-methyl-D-aspartate (NMDAR) receptor involvement in ketamine and methadone will be studied in healthy volunteers. 48 Volunteers will receive either a ketamine or a methode infusion and a concomitant placebo or naloxone infusion on two different occasions. Volunteers will be in the respiratory leg or in the analgesia leg of the study. Respiratory measurements by means of the dynamic end-tidal forcing technique or VAS-score upon heatpain and pupil diameter will be assessed regularly throughout the study in order to obtain information on MOR- or NMDAR-involvement.

Study objective

This study is therefore aimed at quantifying the relative contribution of the two major receptor systhems involved in S(+) ketamine and methadone induced analgesia and side effects(respiratory depression,sedation,miosis).

Study design

Respiratory measurements:

Respiratory measurements will be performed at the start of experiment (t=0) untill start of nalaxon/placebo background infusion (t=10).

Respiratory measurements will be resumed before start of test drug injection(methadone) or 90-min infusion (ketamine) up till t=130 min.

After this period respiration will be assessed every 20-30 minutes untill t=300.

At the analgesia leg we measure thermal pain, pupildiameter and sedation score just prior to naloxone/placebo bolus infusion t=10,just prior to test drug infusion t=40 and next at 10 min intervals(1st /2nd hours of the study),at 20 min intervals (3th hour of the study) at 30 min intervals,remainder of the study until t=300.

Intervention

There are 2 separate studies.
Study A,in which the subject will receive a 80 min infusion of S(+) ketamine and
Study B in which the subject will receive iv methadone.
Each study has 2 legs, a respiratory leg and an analgesic leg. Per leg we will recruit 12 subjects.
The respiratory leg is identical for studies A and B. Twenty-four subjects (12 on ketamine and 12 on methadone) will participate.The subject will breath a fixed gas mixture such that his ventilation prior to any drug infusion is 20 L/min= 2L/min.
To that end the end-tidal carbon dioxide concentration will be clamped by 1 to 1,5 Kpa above the subjects resting PetCO2 using the dynamic end tidal forcing (DEF) technique.the inspired oxygen concentration is is normoxic (21%). Subjects will be randomly allocated to receive a background iv infusion of placebo.
The analgesia leg is identical for studies A and B.Twenty-four subjects (12 on ketamine and 12 on methadone) will participate. thermal pain measurements will be performed just prior to the naloxone/placebo bolus infusion(10 min), just prior to the test drug infusion (40 min) and next at 10 min intervals (1st/2nd hoursof the study),20 min intervals (3th hour of the study),30 min intervals,remainder of the study (until t=300 min)
Pupillometry: pupil diameter will be assessed regularly during the analgesia studies by a pupillometry device.
Sedationscore will also be assessed regularly.

Contacts

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Eligibility criteria

Inclusion criteria

48 healthy volunteers of either sex in the range op 18-45 years.

Exclusion criteria

1. Obesity (BMI>35);

2. Presence of medical disease (heart-,lung-, liver-,kidney-, neurologic disease,diabetes m, pyrosis,diaphragmatic hernia);

3. Presence of psychiatric disease;

4. History of chronic alcohol or illicit drug use;

5. Allergy to study medications;

6. For females we require the use of oral contraceptives.

Study design

Design

Study type: Interventional

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

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	02-01-2010
Enrollment:	48
Type:	Anticipated

Ethics review

Positive opinion

Date:	30-09-2009
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	NL1922
NTR-old	NTR2039
Other	METC LUMC : P09.106
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A