

Effect of Sodium Nitroprusside (SNP) on R,S- and S-Ketamine-induced psychotropic side effects, hemodynamic changes and pain relief in healthy volunteers

Published: 04-03-2015

Last updated: 14-04-2024

The objectives of the study are to assess whether:(1) SNP will reduce the occurrence of psychomimetic side effects during exposure to low-dose ketamine;(2) SNP will reduce the ketamine-induced increase in blood pressure and cardiac output;(3) SNP is...

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

Summary

ID

NL-OMON43889

Source

ToetsingOnline

Brief title

SNIK

Condition

- Other condition

Synonym

Chronic Pain, neuropathic pain

Health condition

chronische (neuropathische) pijn

Research involving

Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Ketamine, Pain relief, Side effects

Outcome measures

Primary outcome

Psychedelic and negative effects are measured using visual analog scales

ranging from 0 (no effect) to 10 cm (maximum effect) of the Bowdle and Bond &

Lader questionnaires (Appendix 1A and B).^{11,12}

Secondary outcome

Pain relief from ketamine (S vs RS) and placebo vs SNP.

Study description

Background summary

Since its introduction in the early 1960s in clinical practice, ketamine has progressed from a general anesthetic to a more versatile drug and is currently frequently used in the treatment of acute and chronic pain, therapy-resistant major depression, migraine and post-traumatic stress disorder. Ketamine is a drug that interacts with many receptors but antagonism of the N-methyl-D-aspartate receptor (NMDAR), an excitatory glutamate receptor ubiquitously present in the central nervous system, is considered most important. An important negative ketamine effect, that causes many physicians to be cautious with its use, is the induction of dissociative, psychomimetic and other central nervous system (CNS)-related side effects. We hypothesize that negative effects during ketamine treatment is related to the reduced NO formation from NMDAR antagonism. In this study we will assess the effect of sodium nitroprusside (SNP), and NO donor, on ketamine's positive and negative effects in a group of healthy volunteers. The effect of SNP will be tested in

subjects that received the S-enantiomer S-ketamine or racemic (R,S) ketamine.

Study objective

The objectives of the study are to assess whether:

- (1) SNP will reduce the occurrence of psychomimetic side effects during exposure to low-dose ketamine;
- (2) SNP will reduce the ketamine-induced increase in blood pressure and cardiac output;
- (3) SNP is without effect on ketamine-induced pain relief;
- (4) SNP is effective in reducing negative effects in both S-ketamine and RS-ketamine treated subjects.

Study design

Double blind, randomized and placebo controlled

Study burden and risks

The expected side effects are topic of the study. We expect mild effects with most prevalent symptoms *drug high* and dizziness. Other side effects that may occur are nausea (which we will treat with ondansetron 4 mg iv), hypertension (we expect just mild effects with an increase in CO from 6 to about 9 L/min; this is an acceptable and mild increase), mild tachycardia. During concomitant infusion of SNP the hemodynamics effects will possibly be less. Finally some bruising and hematomas formation may occur at sites at which the iv and arterial entered the skin. The pain tests cause no side effects.

Contacts

Public

Leids Universitair Medisch Centrum

Albinusdreef 2
Leiden 2333 ZA
NL

Scientific

Leids Universitair Medisch Centrum

Albinusdreef 2
Leiden 2333 ZA
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years)

Elderly (65 years and older)

Inclusion criteria

Male subjects, aged 18-34 years with a body mass index < 30 kg/m².

Exclusion criteria

Severe medical disease including hypertension, liver/renal disease, neurological disorders, diaphragmatic hernia/pyrosis; (history of) psychiatric or neurological disease; allergy to study medication; (history of) illicit drug abuse/alcoholism.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	20-04-2015
Enrollment:	26
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	Ketalar
Generic name:	RS-ketamine
Registration:	Yes - NL intended use
Product type:	Medicine
Brand name:	Ketanest
Generic name:	S(+)-ketamine
Product type:	Medicine
Brand name:	Sodium Nitroprusside
Generic name:	Sodium Nitroprusside
Registration:	Yes - NL outside intended use

Ethics review

Approved WMO	
Date:	04-03-2015
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	01-04-2015
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	17-07-2015
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	11-08-2015
Application type:	Amendment

Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	25-11-2015
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO	
Date:	09-06-2016
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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
EudraCT	EUCTR2015-000550-37-NL
CCMO	NL52444.058.15

Study results

Date completed:	24-08-2017
Actual enrolment:	36

Summary results

Trial is ongoing in other countries