Effect of perioperative ketamine on postoperative cognition – a randomized placebo-controlled trial

No registrations found.

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

Summary

ID

NL-OMON20273

Source
NTR

Brief title
ProKet

Health condition

postoperative cognitive decline

Sponsors and support

Primary sponsor: Leiden University Medical Center
Source(s) of monetary or material Support: Eurocept

Intervention

Outcome measures

Primary outcome

• To assess the effect of perioperative ketamine on postoperative cognitive function on day 1 and 30 following surgery.

Secondary outcome

• To assess the effect of perioperative ketamine on postoperative pain and perioperative analgesics consumption on days 1 and 2 following surgery and persistent pain as measured on day 30 following surgery.

• To assess the effect of perioperative ketamine on depth of anesthesia and sedation (postoperatively) and nociceptive level during anesthesia.

• To assess side effects during ketamine administration: hypertension, tachycardia, nausea/vomiting, psychomimetic side effects, lightheadedness/dizziness, drug high and elevated liver enzymes.

• The assess the effect of ketamine on inflammatory marker C-reactive protein on day 1 after surgery.

Study description

Background summary

S(+)-ketamine (ketanestTM) is an N-methyl-D-aspartate receptor (NMDAR) antagonist available for various indications including the induction and maintenance of anesthesia (in high dose), perioperative pain relief (in moderate dose) and chronic pain relief (in low dose). At LUMC perioperative ketanest is used as adjuvant during large surgical procedures for treatment of pain and stress (consequently the opioid dose may be reduced) and for reduction of perioperative inflammation. Worldwide the use of ketamine is rapidly increasing taking its beneficial effect on chronic pain and ability to produce a rapid (within hours) onset relief of depression-related symptoms in therapy-resistant depression.

Both surgery and anesthesia have long-term postoperative effects on cognition. Especially in the elderly there are indications that stress from surgery (and hospital admittance) and anesthesia have deleterious effects on postoperative cognitive dysfunction. Moreover, pain and inflammation may contribute to postoperative cognitive deterioration. There are indications that ketamine could improve cognition 1 week following cardiac surgery (Hudetz et al. Ketamine attenuates post-operative cognitive dysfunction after cardiac surgery. Acta Anaesthesiol Scand 2009; 53: 864-72). This was related to the anti-inflammatory effects of ketamine. The current study is aimed at assessing the effect of ketamine exposure during and following anesthesia on cognition in patients undergoing elective non-cardiac surgical procedures. To that end patients will be randomized to receive ketanest or placebo in the peri- and postoperative phase and cognitive tests will be performed at day 1 and ~30 following surgery.

Study objective

We hypothesize that perioperative ketamine will reduce cognitive decline in postoperative patients, in line with its analgesic and anti-inflammatory properties.

Study design

- Pre-operative: blood sample, cognition testing

- Peroperative: blood pressure, heart rate, bispectral index, NoL, sufentanil dose, propofol inhalational anesthesia dose

- Acute postoperative: pain scores, occurrence of nausea/vomiting, lightheadedness/dizziness, drug high, psychomimetic side effects

- 1 day postoperative: blood sample, cognition test, pain scores, occurrence of nausea/vomiting, lightheadedness/dizziness, drug high and other psychomimetic side effects, respir8 monitor assessment in the PACU

- 2 days postoperative: blood sample, occurrence of nausea/vomiting, lightheadedness/dizziness, drug high, psychomimetic side effects

- 30 days postoperative: cognition test, pain scores

Intervention

The pharmacy will randomize patients to receive placebo (normal saline; placebo group) or ketanest (S(+)-ketamine; Eurocept BV, Ankeveen, NL) according to the LUMC protocol. This protocol states:

1. Initiate administration prior to surgical incision

2. Start with an intravenous bolus administration of 0.35 mg/kg of ketanest followed by 0.4 mg/kg per h.

3. Surgeries > 2 h: Stop infusion 30-min prior to the end of surgery.

4. Continue or restart infusion in the postoperative phase at 0.1 mg/kg per h and continue for 48 h.

Contacts

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Eligibility criteria

Inclusion criteria

Patients planned for elective surgery lasting > 2 1 h that require postoperative pain relief will be enrolled in the study after written informed consent is obtained.

Exclusion criteria

Exclusion criteria:

• age < 54 years,

• body mass index > 35 kg/m2,

• history or present psychiatric disease,

• untreated/uncontrolled hypertension (with a diastolic blood pressure > 100 mmHg)

• epilepsy,

• increased intracranial pressure,

• untreated hypertension,

• untreated ischemic cardiac disease,

• inability to communicate in the Dutch language,

• inability to give informed consent.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	17-09-2014
Enrollment:	50
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	20-10-2014
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	NL4598
NTR-old	NTR4852
Other	- : P14.060

Study results