Population PK/PD of propofol and nadroparin in extreme morbidly obese patients

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This study is performed in order to study the population pharmacokinetics and pharmacodynamics of propofol and nadroparin in morbidly obese patients with a total body weight higher than 170 kg. The recently developed and published pharmacokinetic...

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

Summary

ID

NL-OMON36134

Source
ToetsingOnline

Brief title
POP4 study

Condition

- Other condition
- Gastrointestinal therapeutic procedures

Synonym
pharmacokinetics and pharmacodynamics of propofol and nadroparin in morbidly obese patients

Health condition

Obesitas

Research involving

Human

Sponsors and support

Primary sponsor: Sint Antonius Ziekenhuis
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Morbid obesity, Nadroparin, Pharmacokinetics, Propofol

Outcome measures

Primary outcome

Pharmacokinetic parameters of propofol in patients with a total body weight higher than 170 kg: clearance, intercompartmental clearance, volume of central compartment and volume of peripheral compartment.

Pharmacodynamic parameters of nadroparin using anti-Xa levels in patients with a total body weight higher than 170 kg: clearance, intercompartmental clearance, volume of central compartment and volume of peripheral compartment, absorption rate constant, transit rate constant.

Secondary outcome

Pharmacodynamic parameters of propofol in patients with a total body weight higher than 170 kg; time to induction of anaesthesia (stop counting, eyelash reflex, quality of anaesthesia, corresponding dose required for induction of anaesthesia for both induction doses), EC50 using BIS, required doses of propofol during maintenance of anaesthesia, wake-up time.

The occurrence of bleedings or thrombotic events in patients with a total body weight higher than 170 kg.

Cardiac output records during surgery, measured by the NICOM® (Cheetah Medical)

and Vigileo (Edwards Lifesciences) monitor

Study description

Background summary

There is an increasing incidence of obese patients in Western countries of 20% in men and 25% in women in the United States, respectively. As studies on the influence of (morbid) obesity on the pharmacokinetics and pharmacodynamics of commonly used drugs are scattered, there is a need for systematic pharmacokinetic and pharmacodynamic studies in this special group of patients. Therefore we recently evaluated the pharmacokinetics and pharmacokinetics of both propofol and nadroparin in morbidly obese patients (POP study (VCMO registration number R-06.42A) and POP-2 study (VCMO registration number R-09.13A)). For propofol, a pharmacokinetic and pharmacodynamic model based dosage regimen in morbidly obese patients up to a total body weight of 170 kg was developed. This dosage regimen is nowadays common practice for anaesthesia of morbidly obese patients up to total body weight of 170 kg in our hospital. For nadroparin, a pharmacodynamic model was developed using anti-Xa levels. The results of this analysis showed similar clearance values in patients with a total body weight lower than 170 kg while in three patients with a total body weight higher than 170 kg, increased clearance values were observed.

Study objective

This study is performed in order to study the population pharmacokinetics and pharmacodynamics of propofol and nadroparin in morbidly obese patients with a total body weight higher than 170 kg. The recently developed and published pharmacokinetic and pharmacodynamic models will serve as a basis and a covariate analysis will be performed on all available data in order to account for variability in pharmacokinetic and/or pharmacodynamic parameters.

Study design

A therapeutic and non-invasive study.

Study burden and risks

A maximum amount of 50 millilitres of blood will be sampled from an indwelling arterial line during and after surgery. The patient will be asked to count slowly during induction of anaesthesia. The arterial line will be kept in place 4 hours longer than usual. One week after surgery the patient will be checked for thrombosis using ultrasonography. During surgery cardiac output will be measured using two different monitoring systems, the NICOM® (Cheetah Medical)

and Vigileo (Edwards Lifesciences). These non-invasive cardiac output measurements do not represent additional burden of the patient.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

8 morbidly obese patients a total body weight higher than 170 kg undergoing laparoscopic banding, laparoscopic sleeve gastrectomy or gastric bypass surgery, with a Body Mass Index > 40 kg/m2, 18-60 year old and American Society of Anaesthesiologists (ASA) physical status II to III.

Exclusion criteria

Epilepsy, pregnancy, breastfeeding and known allergy for propofol, nadroparin, egg lecithin or soy bean oil.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	20-02-2012
Enrollment:	8
Type:	Actual

Ethics review

Approved WMO

Date:	09-09-2011
Application type:	First submission
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)

Approved WMO

Date:	02-01-2012
Application type:	Amendment
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)

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
CCMO	NL36753.100.11