Morphine vs. intravenous Acetaminophen after surgery in patients under the age of 1 year.

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON26881

Source
NTR

Brief title
MAIV

Health condition

Analgesics
Acetaminophen
Perfalgan
Morphine
Pediatrics
Post operative

Post operatieve pijnbestrijding
kinderen
morfine
paracetamol

Sponsors and support

Primary sponsor: Investigator initaited research
Prof. D. Tibboel, MD , PhD
Source(s) of monetary or material Support: Initiator

Intervention

Outcome measures

Primary outcome

- The absolute amount of morphine in mcg/kg/48 hours is the primary outcome measure.

Secondary outcome

Secondary Objective(s):

1. To compare in the first 48 hrs after abdominal or non-cardiac thoracic surgery in infants less than one year of age who receive either acetaminophen IV boluses or morphine IV.

a. number of patients needing extra morphine boluses.

b. the incidence of opioid related adverse effects;

- Vomiting

- Hypotension with the need for vaso- active medication or fluid boluses.

- Seizures without other demonstrable causes.

- Bradycardia other than due to or directly related to the disease or operation.

- Decreased gasto-intestinal motility or intestinal obstruction not directly related to the underlying diagnosis or operation and not previously existing, with the need for intervention.

c. average pain scores, AUEC of pain score and percentage of abnormal scores (comfort / VAS)

d. % of time patient is adequately pain free, based on pain scores.

e. body part activity scores using acceleration sensor as surrogate marker of pain and pain thresholds.

f. saliva cortisol levels (as surrogate marker of stress).

e. renal clearance of acetaminophen and glucuronidation and sulphate formation.

g. pharmacogenetic markers (e.g. CYP polymorphisms)
PK-PD relationship for acetaminophen IV and morphine in this population three blood samples are taken from an indwelling arterial line.

Study description

Background summary

SUMMARY Morphine intravenous vs. Acetaminophen intravenous in neonates and young infants undergoing major non-cardiac surgery

Rationale: Hypotheses:

Patients after non-cardiac thoracic or abdominal major surgery receive morphine as pain relief medication whereas this is associated with morphine related side effects. In these patients a non-opioid drug could be appropriate for postoperative pain relief. Intermittent administration of intravenous acetaminophen, to young infants up to 48 hours after major surgery e.g. thoracic and abdominal, will lead to a clinically significant (>30%) morphine sparing effect.

Objective:
The aim of this study is to test the hypothesis that intravenous acetaminophen will reduce morphine requirements in postoperative infants significantly (>30%).

Study design:
Single centre prospective, randomized double blind study.

Study population:
Infants less than one year of age, who are admitted to the ICU after major thoracic (non-cardiac) or abdominal surgery.

Intervention:
Patients will be randomized to receive either intermittent intravenous acetaminophen or continuous morphine IV infusion up to 48 hrs after surgery, with additional morphine boluses as escape medication in both groups.

Main study parameters/endpoints:

Body weight corrected morphine dose needed in the first 48 hrs post surgery. Mean morphine dose needed will be 30% less in the infants receiving acetaminophen IV as compared to the patients who received only morphine

Nature and extent of the burden and risks associated with participation, benefit and group relatedness:

Possible burden and risk of study participation is the risk of insufficient analgesia after surgery with acetaminophen IV. This risk is minimized by the provision in the protocol for the administration of additional morphine in case of insufficient analgesia.

Acetaminophen has been widely studied in children over all age ranges and is deemed safe in the population to be studied when administered in therapeutic doses.

Benefits of participation can be better observation of the patient in relation to his/her analgesia and more prompt response with additional morphine if necessary. Hence, we expect patients in the study to be more pain free than patients not participating in a pain trial.

Also, if acetaminophen indeed reduces the total morphine dose required, a reduction in adverse effects of morphine can be expected (less post operative vomiting, less respiratory depression).

The study can only be carried out in this population as results from adults or healthy children cannot be extrapolated to this group of patients (critically ill children), due to differences in age and the underlying disease, which are mainly life threatening congenital anomalies, resulting in differences in pharmacokinetics and pharmacodynamics of both drugs.

Study objective

Patients after non-cardiac thoracic or abdominal major surgery receive morphine as pain relief medication whereas this is associated with morphine related side effects. In these patients a non-opioid drug could be appropriate for postoperative pain relief. Intermittent administration of intravenous acetaminophen, to young infants up to 48 hours after major surgery e.g. thoracic and abdominal, will lead to a clinically significant (>30%) morphine sparing effect.

Study design

Patients are followed 48 hours post operatively or is ended after an earlier discharge.

Intervention

After surgery patients will be randomised for treatment with Morphine or Acetaminophen intravenoously.

In case of post operative pain (COMFORT score>=17 and/or VAS>= 4) additional morphine in both groups is administrated following our post-operative pain protocol.

For PK-PD relationship for acetaminophen IV and morphine in this population three blood samples are taken from an indwelling arterial line and saliva cortisol is obtained.

Contacts

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Eligibility criteria

Inclusion criteria

1. Informed consent.

2. Neonate / child under the age of one year.

3. Minimal post conceptual age of 36 weeks.

4. Minimal body weight of 1500 grams.

5. Major thoracic (non cardiac) or abdominal surgery, including urological surgery.

Exclusion criteria

1. Withdrawal of informed consent.

2. Neonate/child with neurological, renal insufficiency, or hepatic dysfunction.

3. Chronic (more than one day) opioid or psychotropic drug (e.g. antiepileptics, benzodiazepines, antidepressants) exposure pre- or postnatal.

4. Opioid exposure <24 hrs before surgery.

5. Receiving ECMO-therapy.

6. Known allergy / intolerance for acetaminophen or morphine.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-03-2008
Enrollment:	72
Type:	Actual

Ethics review

Positive opinion

Date:	05-09-2008
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	NL1378
NTR-old	NTR1438
Other	MAIV : MEC-2007-355
ISRCTN	ISRCTN wordt niet meer aangevraagd

Study results

Summary results
N/A