ISRCTN29008609 https://doi.org/10.1186/ISRCTN29008609

Subcutaneous oxytocin administration before a surgical incision to reduce pain

Submission date
04/10/2018

Recruitment status
No longer recruiting

Registration date
19/11/2018

Overall study status
Completed

Last Edited
26/11/2018

Condition category
Surgery

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English Summary

Background and study aims
During surgery different procedures are taken to block the pain sensation and reduce the body's autonomic response to tissue damage. The blockade of the nerve activation is currently a well-known procedure that inhibits the activation of nerves presented in the area where the surgical incision is done. Subcutaneous (under the skin) lidocaine administration is the current way of producing this effect. Nevertheless, the search for other drugs is convenient as they can have better outcomes.
Oxytocin has demonstrated important pain-relieving effects in different basic and clinical research studies. It was recently shown that there are oxytocin receptors in the skin of rats, and that peripheral oxytocin administration could activate these receptors, therefore decreasing the pain transmission.
In this study, we evaluated the effect of subcutaneous preventive injection of oxytocin in the surgical field before the incision. We recorded the autonomic pain response to tissue damage and assessed in the postsurgical period the intensity of pain. We compared the effects of oxytocin with the effects of lidocaine.

Who can participate?
Adults scheduled for laparoscopic cholecystectomy (keyhole gallbladder removal) under general anesthesia

What does the study involve?
All patients will undergo general anesthesia. They will be randomly allocated into 3 groups - the oxytocin group, the lidocaine group and the control group. The oxytocin group will be given oxytocin before the surgical incision, the lidocaine group will be given lidocaine before the surgical incision, and the control group will not receive anything. Prior to and during the surgery, heart rate and blood pressure will be measured, and pain will be assessed after the surgery.

What are the possible benefits and risks of participating?
The possible benefit of participating is that participants will receive a medication that has been shown to reduce the pain intensity when it is administered under the skin. Results also suggest

that this drug has anti-inflammatory properties.
The drugs that we will use have little to no side effects, therefore there are no known risks to participants taking part in this study.

Where is the study run from?
Trial study centre: Hospital Regional de Pemex Salamanca (Mexico)
Trial run from: Instituto de Neurobiología (Mexico)

When is the study starting and how long is it expected to run for?
February 2016 to May 2018

Who is funding the study?
Instituto de neurobiología. Universidad Nacional Autónoma de México (Mexico)

Who is the main contact?
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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
006/02-2016. 52H

Study information

Scientific Title
Effect of local infiltration with oxytocin on hemodynamic response to surgical incision and postoperative pain in patients having laparoscopic surgery under general anesthesia. A randomized, double blind, clinical trial.

Acronym
SORHRSIPP

Study hypothesis
Preclinical studies have described that oxytocin (OT) could exert local subcutaneous antinociceptive actions. The study hypothesis of the current work is that subcutaneous pre-incisional OT infiltration at the ports of patients subjected to laparoscopic cholecystectomies will produce an antinociceptive and analgesic action with a similar efficacy as lidocaine, evaluated through the hemodynamic autonomic nociceptive response to surgical incision and the level of postsurgical pain assessed by the visual analogue scale.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Comité de Bioética del Hospital PEMEX Salamanca (PEMEX Salamanca Hospital Bioethics Committee), 01/02/2016, reference number 006/02-2016
2. Comité de Bioética del Instituto de Neurobiología (Neurobiology Institute Bioethics Committee), 02/05/2016, reference number 52H

Study design
Interventional single-center double-blinded proof of principle randomised placebo-controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use contact details to request a participant information sheet

Condition
Laparascopic surgery, hemodynamic nociceptive automatic response and post-surgical pain

Interventions
All patients receive standardised anesthetic induction and mantainence. The patients are randomly assigned to one of three groups using block randomization:
1. The oxytocin group
2. The lidocaine group
3. The control group.

The oxytocin group receive subcutaneous oxytocin (oxitopisa® 5 UI 4 µg in 4 ml, diluted in saline) before the incision in the surgical site for the placement of three or four trocars.
The lidocaine group receive subcutaneous lidocaine 1% (pisacaina 1% R 4 ml) infiltration.
The control group do not receive any treatment at the surgical site.
The experimental drugs are given once. The patients and anesthesiologists are blinded to the composition of the injected solution. In al groups, the following parameters are recorded with a GE Health Care model Datex Ohmeda S5 monitor during the operation:
1. Heart rate
2. Non-invasive blood pressure (systolic, diastolic and mean)
3. Pulse oximetry
4. End-tidal CO_2

These parameters are recorded during the entire procedure but are documented specifically at the following points:
1. Basal
2. Anesthetic induction
3. Post-intubation (correspondent to drug infiltration)
4. Surgical incision
5. Transoperative (insufflation of pneumo-peritoneum)
6. Anesthetic emersion

Any requirement for intraoperative salvage administration of fentanyl as a response to increased blood pressure (>20%) is also documented.
Post-operative pain at rest is recorded using the visual analogue scale after the patient's admission to and discharge from the post-anesthetic care unit (PACU) and during hospitalisation 24 hours after surgery.
The occurrence of adverse events is also assessed throughout.
There are no follow-up consultations.

Intervention Type
Drug

Phase
Phase I/II

Drug/device/biological/vaccine name(s)

Study drug: Oxytocin (Oxitopisa® 5 UI 4 µg in 4 ml, diluted in saline) Active control: Lidocaine (Pisacaina 1% R 4 ml). All patients were subjected to general anesthesia with midazolam 50 micrograms/kg, fentanyl 4 micrograms/kg, propofol 2 mg/kg and rocuronium 0.6 mg/kg (anesthetic induction). Oxygen IF 1 and sevoflurane 2.5% (transoperative anesthetic maintenance).

Primary outcome measure
1. Nociceptive hemodynamic response to surgical incision recorded as the change in the heart rate, diastolic and systolic blood pressure, measured using a GCE Healthcare model Datex Ohmeda S5 monitor during the surgical procedure
2. Post-surgical pain level, assessed using a visual analogue scale (VAS) at the post-anesthetic care unit arrival, post-anesthetic care unit discharge and during hospitalisation

Secondary outcome measures
Incidence of adverse effects and side effects, monitored throughout the study and additionally assessed by a post-operative evaluatiob by the surgeon 7-10 days after surgery

Overall study start date
01/11/2015

Overall study end date
01/05/2018

Eligibility

Participant inclusion criteria
1. Aged 18-75
2. ASA (American Society of Anesthesiologists) Hazard Scale I or ASA II
3. Undergoing scheduled laparoscopic surgery

Participant type(s)
Mixed

Age group
Adult

Lower age limit
18 Years

Upper age limit
75 Years

Sex
Both

Target number of participants
30 patients (10 for each group)

Participant exclusion criteria

1. ASA III or more
2. Emergency surgery
3. Hemodynamic instability
4. Surgical complications (bleeding, intestinal injury)
5. Taking inotropic drugs

Recruitment start date
01/02/2016

Recruitment end date
01/08/2017

Locations

Countries of recruitment
Mexico

Study participating centre
HOSPITAL REGIONAL PEMEX SALAMANCA.
910 th Tampico st. bellavista.
Salamanca, Gto.
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36730

Study participating centre
Instituto de Neurobiologia. UNAM
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Sponsor information

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Instituto de Neurobiología. UNAM. lab. B16. Dr. Miguel Condés-Lara

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Sponsor type
University/education

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ROR
https://ror.org/01tmp8f25

Funder(s)

Funder type
University/education

Funder Name
Instituto de neurobiología. Universidad Nacional Autónoma de México

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
01/11/2018

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request from Hector Zayas (hzayas100@comunidad.unam.mx). The raw data spreadsheet, including fields used for analysis will be available, and patient confidentiality will be ensured.

IPD sharing plan summary
Available on request