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Does prilocaine provide a quicker recovery than bupivacaine when used in spinal anaesthesia for cervical stitch surgery?

Submission date	**Recruitment status**	[X] Prospectively registered
22/01/2021	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
08/02/2021	Ongoing	[_] Results
Last Edited	**Condition category**	[_] Individual participant data
29/08/2024	Surgery	[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Cervical cerclage is a procedure in which the doctor puts a single stitch around the cervix to close it in order to prevent preterm loss (miscarriage or stillbirth) in at-risk pregnancies. The anaesthetic used varies widely across the UK. Most centres use regional anaesthetic to avoid exposing the foetus to general anaesthetic drugs, but it can be difficult to achieve discharge on the same day due to residual leg weakness and lack of bladder control. On occasion, patients require urinary catheterisation and admission to hospital.
Prilocaine is a commonly used drug which has a shorter duration of action than bupivacaine, which is the more commonly used drug for spinal anaesthesia. Although prilocaine is used in the context of cervical cerclage, it is more expensive and there is no data to document that it has a significant advantage over bupivacaine.
This study aims to compare patients' recovery from equivalent doses of prilocaine and bupivacaine given by the intrathecal (spinal) route to facilitate cervical cerclage. The main outcomes to be assessed will be time to return of leg movement, ability to pass urine, need for catheterisation and discharge from hospital.

Who can participate?
Women over the age of 18 years undergoing a cervical stitch procedure under spinal anaesthesia during the second trimester of pregnancy.

What does the study involve?
The study involves randomising (like tossing a coin) participants to one of two groups to receive either bupivacaine or prilocaine. It is a 50:50 chance of receiving either.
All staff will adhere to institutional and national guidance for wearing personal protective equipment (PPE) during each of their interactions with participants at each stage of care.
All aspects of care will remain the same, including the methods used to deliver the spinal block, only the type of local anaesthetic used would be different. As is normal the injection will induce numbness in the lower half of the body, which is necessary for the surgery. Neither the participant nor the anaesthetist will know which local anaesthetic is being given. Once the spinal anaesthetic has been given it takes about 10-20 minutes for the body to become adequately

numb for the operation. During this time, frequent assessments will be performed of the developing numbness and weakness of the lower body, by assessing the sensation to cold spray on the skin on the legs and abdomen and the ability to move the legs. Once the cervical stitch has been completed the participant will be transferred back to a bed space on the birth centre. The same assessments will be performed here every 15 minutes to determine how the numbness and weakness reduce over time. A scan of the bladder will be performed at the bedside every 60 minutes to ensure that the participant does not require the toilet. Most patients will have recovered the power in their legs and will be able to walk to the toilet themselves before their bladder becomes full, but as part of the study the researchers will assess how full the bladder becomes before the participant is able to do this. Should the bladder become full before the legs recover their strength, they will use the same technique (the insertion and removal of a soft, sterile plastic tube) used at the end of the procedure to empty the bladder to allow the spinal more time to wear off. Whilst the participant is recovering from the procedure the researchers will also ask two quick questions related to the level of comfort during the procedure and the overall level of satisfaction with the procedure.
Once the participant has eaten and drunk, has been able to walk to the toilet and empty their bladder and are comfortable they will be allowed to go home. The next day they will be contacted by telephone and a few questions asked to make sure that they are comfortable and have no complications from the spinal anaesthetic. This should take just over 2 minutes.

What are the possible benefits and risks of participating?
Although individual participants will not directly benefit from this study, the main advantages of taking part will be to help influence the future of how to deliver anaesthetics for these procedures and improve patient recovery.
Since both prilocaine and bupivacaine are standard and routinely used drugs for providing spinal anaesthesia for cervical stitches, participation in this study will not pose any increased risk to health. The risks associated with spinal anaesthesia with either of the study medications are rare and could include a headache, drop in blood pressure, inadequate pain relief requiring sedative pain relief or general anaesthesia, nerve injury, allergy and accidental unconsciousness.
The specific risks of prilocaine include worsening of heart and liver conditions in patients known to have heart or liver failure, interactions with specific heart rhythm medications or patients with a condition called acute porphyria. Patients with any of these conditions will not be included in this study. Prilocaine has been routinely used for cervical stitch procedures at St Thomas' Hospital and at other institutions, with no cases of harm to the mother or baby. The time taken to answer the additional questions on the day of the procedure and the day after will be an increased burden on the participant, but the researchers do not anticipate this to take more than 15 minutes altogether.

Where is the study run from?
St Thomas' Hospital (UK)

When is the study starting and how long is it expected to run for?
July 2017 to August 2025

Who is funding the study?
1. Obstetric Anaesthetists' Association (OAA) (UK)
2. National Institute of Academic Anaesthesia (NIAA) (UK)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number
2019-001548-23

IRAS number
225703

ClinicalTrials.gov number
NCT04394533

Secondary identifying numbers

CPMS 44955, IRAS 225703

Study information

Scientific Title
Does subarachnoid administration of hyperbaric prilocaine produce an improved recovery from anaesthesia when compared with hyperbaric bupivacaine when used to make cervical cerclage easier in pregnant women at risk of pre-term loss?

Acronym
PRILOCC

Study objectives
The hypothesis is that subarachnoid block (SAB) with hyperbaric 2% prilocaine will result in a clinically significant reduction in the time taken for regression of motor blockade, as determined by achieving a Bromage score of I, when compared to an equipotent dose of hyperbaric bupivacaine when used to facilitate cervical cerclage in pregnant women in the second trimester of pregnancy.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 20/05/2020, London – Central Research Ethics Committee (3rd Floor Barlow House, 4 Minshull Street, Manchester, M1 3DZ, UK; +44 (0)207 104 8221; londoncentral.rec@hra.nhs.uk), REC ref: 20/LO/0231

Study design
Randomized; Interventional; Design type: Treatment, Drug

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 the contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Elective cervical cerclage in pregnant women at risk of pre-term loss

Interventions

On the day of surgery, baseline demographic data will be collected preoperatively. Random allocation to groups will be achieved using "Castor" randomisation software. This software uses a validated variable block randomisation model.

Participants will be allocated to one of two treatment groups:
Intervention group: Subarachnoid block (SAB) with 40 mg (2 ml) of hyperbaric 20 mg/ml prilocaine and 15 mcg (0.3 ml) fentanyl (50 mcg/ml)
Control group: Subarachnoid block (SAB) with 10 mg (2 ml) of hyperbaric 5 mg/ml bupivacaine and 15 mcg (0.3 ml) fentanyl (50 mcg/ml)

Intraoperative data collection:
1. Time since last solid and fluid (hours)
2. Baseline blood pressure (BP) and heart rate (HR)
3. Time of SAB
4. Sensory and motor block evaluation at 0, 5, 10, 15 and 20 minutes
5. Time of start of surgery
6. Lowest BP & HR
7. Incidence vasopressor or vagolytic treatment (Y/N)
8. Need for anaesthetic, sedative or analgesic supplementation (Y/N)
9. Incidence of nausea or vomiting
10. Intraoperative fluid volume infused (ml)
11. Time of end of surgery
12. Maximum NRS pain score during the procedure

Postoperative data collection (day of surgery in recovery):
1. Motor block assessment at arrival in recovery and every 15 mins until Bromage score of I reached
2. Sensory block assessment at arrival in recovery and every 15 mins until regression to T12 reached
3. Need for postoperative analgesia – medication and doses
4. Fluid intake (intravenous and/or oral, ml)
5. Bladder volume as assessed by ultrasound scan every 60 minutes
6. Incidence of need for catheterisation
7. Time of first ambulation
8. Time of first spontaneous micturition
9. Time of meeting discharge criteria

Follow up (24 hours after discharge)
1. Screening questions for transient neurological symptoms (TNSs)
2. Incidence of backache
3. Incidence of headache
4. Patient satisfaction numerical rating score (NRS, 0-10)

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Prilocaine, fentanyl, bupivacaine

Primary outcome measure
Time taken in minutes from initiation of SAB (time 0) until regression of motor block as assessed using a Bromage score* of I. This will be assessed every 5 minutes in theatre until 20 minutes and then every 15 minutes postoperatively until regression of motor block.

Secondary outcome measures
1. Mean time in minutes until achievement of loss of cold sensation to ethyl chloride spray at the tenth thoracic dermatomal level (T10), assessed every 5 minutes in theatre up to 20 minutes
2. Mean time in minutes until achievement of complete motor block, assessed as Bromage score = IV, assessed every 5 minutes in theatre up to 20 minutes
3. Uppermost (cephalad) dermatomal level of sensory block as measured by loss of cold sensation to ethyl chloride spray at 20 minutes (mean)
4. Mean degree of motor block as assessed on the Bromage scale at 20 minutes
5. Administration of hypnotic agent (proportion of cases) measured using medical records at any point of intraoperative course
6. Administration of analgesic agent (proportion of cases) measured using medical records at any point of intraoperative course
7. Maximal discomfort experienced during the procedure measured using mean pain score on the numerical rating score (NRS) at any point of intraoperative course
8. Mean time in minutes from SAB to ambulation measured using medical records at time point of ambulation
9. Mean time in minutes from SAB to micturition measured using medical records at time point of micturition
10. Mean time in minutes from SAB to discharge measured using medical records at time point of discharge
11. Proportion of cases experiencing hypotension (> 10% systolic blood pressure drop from baseline) measured using medical records from time of SAB until end of surgical procedure
12. Proportion of cases experiencing bradycardia (< 45 beats per minute) measured using medical records from time of SAB until end of surgical procedure
13. Proportion of cases experiencing nausea or vomiting measured using medical records from time of SAB until end of surgical procedure
14. Proportion of cases requiring urethral catheterisation measured using medical records from time of admission to recovery until ready for discharge
15. Proportion of cases experiencing transient neurological symptoms (TNS), assessed over the phone at 24 hours
16. Proportion of cases experiencing backache, assessed over the phone at 24 hours
17. Proportion of cases experiencing headache, assessed over the phone at 24 hours
18. Mean level of patient satisfaction as assessed by a Numerical Rating Score (NRS, 0-10) over the phone at 24 hours

Overall study start date
30/07/2017

Completion date
31/08/2025

Eligibility

Key inclusion criteria
Healthy (ASA score 1 or 2) women in the second trimester of pregnancy presenting for elective cervical cerclage under spinal anaesthesia

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Female

Target number of participants
Planned Sample Size: 128; UK Sample Size: 128

Total final enrolment
135

Key exclusion criteria
1. Inability to read or understand the patient information sheet (PIS)
2. Aged <18 years
3. Unable or unwilling to consent to participation
4. Non-elective procedure
5. Serious co-morbidities (ASA score 3 or above)
6. Any contraindication to SAB, e.g. local or generalised infection, active central nervous system disease, coagulation disorders or anti-coagulant medication
7. Any history of allergic reaction to any of the medications in the protocol
8. Concomitant use of class III antiarrhythmics (sulfonamides, antimalarials, sodium nitroprussate, nitroglycerin, other local anaesthetics)
9. Any contraindication to the use of bupivacaine or prilocaine as listed in the SmPCs

Date of first enrolment
01/08/2021

Date of final enrolment
30/04/2022

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
Guy's and St Thomas' NHS Foundation Trust
Trust Offices
Guy's Hospital

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Sponsor information

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Sponsor type
Hospital/treatment centre

Website
http://www.guysandstthomas.nhs.uk/Home.aspx

ROR
https://ror.org/00j161312

Funder(s)

Funder type
Government

Funder Name
National Institute of Academic Anaesthesia

Alternative Name(s)
NIAA

Funding Body Type

Government organisation

Funding Body Subtype
Local government

Location
United Kingdom

Funder Name
Obstetric Anaesthetists' Association

Alternative Name(s)
OAA

Funding Body Type
Private sector organisation

Funding Body Subtype
Associations and societies (private and public)

Location
United Kingdom

Results and Publications

Publication and dissemination plan
1. The study protocol and statistical analysis plan are not available in web format but can be provided on request
2. Planned publication in a high-impact peer-reviewed journal

Intention to publish date
28/02/2025

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during this study will be included in the subsequent results publication.

IPD sharing plan summary
Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			20/09/2023	No	No