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Tranexamic acid to reduce blood loss at unplanned caesarean delivery

Submission date
17/07/2024

Recruitment status
No longer recruiting

Registration date
29/07/2024

Overall study status
Completed

Last Edited
25/07/2024

Condition category
Pregnancy and Childbirth

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

Plain English summary of protocol

Background and study aims
Caesarean deliveries (births by abdominal operation) are increasing worldwide. Excessive bleeding at caesarean delivery is common and can cause other complications including death. Bleeding is increased at unplanned caesarean deliveries compared to planned. Tranexamic acid was originally used for more than 50 years to treat heavy periods. Tranexamic acid stabilizes blood clots by slowing their breakdown reducing or stopping bleeding. It is effective and safe to use in many situations, such as treatment where major bleeding has occurred or prevention where major bleeding is predicted. Recent studies on tranexamic acid used to prevent major bleeding during caesarean section showed confounding results of benefit or no benefit but it appeared safe. Tranexamic acid given slowly after the baby has been delivered but still within the caesarean may not be effective. There remains a knowledge gap on how long before and also how quickly the tranexamic acid dose should be administered at a caesarean for it to be optimally beneficial. These points on timing and speed of administration are especially important in an unplanned (emergency) caesarean where many care measures need to be performed within a short space of time. The past studies on tranexamic acid are in planned caesarean or a mixture of planned and unplanned caesarean cases. There remains a need for further data to provide support that tranexamic acid given speedily before the operation starts (so is likely to be active in the blood before bleeding begins) reduces bleeding as a result of the surgery.

Who can participate?
Adult patients aged 18 years old and over who are in labour (defined as 2 or more contractions every 10 minutes the neck of the womb opened to at least 3 cm) and have a caesarean delivery decided (emergency or unplanned)

What does the study involve?
After obtaining written informed consent, participants will be randomly allocated to one of the trial interventions by a computer. Neither the patient nor your doctor can choose or is aware of which agent is given. A syringe containing 10 ml colourless solution (containing 1 g tranexamic acid or normal saline) will be given to the care provider for administration within the operating theatre. Standard patient care will be applied throughout the hospital stay from preoperative prophylactic measures to intraoperative and postoperative care for all participants. Within 3

days after the caesarean before hospital discharge, a 3 ml blood sample will be drawn (if one was not already performed for routine post-caesarean care) and sent to the hospital laboratory for a complete blood count. This result will be taken together with the blood count routinely taken for women admitted for birth to calculate blood loss at caesarean. Before discharge participants will be asked to rate their energy level using a 0 to 10 rating scale. In all other respects, routine care will be provided to all participants.

What are the possible benefits and risks of participating?
Participants should not expect any benefit as it is not fully established whether tranexamic acid will reduce, or have no effect on blood loss during an emergency caesarean section. However, it is anticipated that blood loss will be reduced but the reduction may or may not be sufficient to minimise further complications like the need for blood transfusion. The investigators plan to publish the findings of this study in a high-impact research journal to help guide care during caesarean section and; hopefully, to show that tranexamic acid can safely reduce blood loss at an unplanned caesarean delivery. A research publication output is an achievement that may enhance career prospects.

Participants should not expect major harm as tranexamic acid has a good and long safety record in a variety of clinical settings. Hypothetically though, tranexamic acid may increase the risk of complications related to blood clots in leg veins or the lungs though increased risk has been demonstrated after many years of use and extensive research on this type of risk. Significant allergic reactions to tranexamic acid are rare. The investigators do not have a monetary or other material stake involved whatever the outcome of this study.

Where is the study run from?
University Malaya Medical Centre (Malaysia)

When is the study starting and how long is it expected to run for?
September 2023 to January 2025

Who is funding the study?
Department of Obstetrics and Gynaecology, Faculty of Medicine, University Malaya, (Malaysia)

Who is the main contact?
Dr Shnkari Govindasamy, g.shnkari@ummc.edu.my

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Dr Shnkari Govindasamy

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
Nil known

Study information

Scientific Title
Prophylactic tranexamic on blood loss at uplanned caesarean section delivery: a double-blind randomised trial

Study objectives
Tranexamic acid will reduce blood loss at unplanned caesarean delivery

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 26/06/2024, Medical Research Ethics Committee, University of Malaya Medical Centre (Lembah Pantai, Wilayah Persekutuan Kuala Lumpur, 59100, Malaysia; +60379492030; ummc-mrec@ummc.edu.my), ref: 2023922-12898

Study design
Single-center interventional randomized double-blind controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Unplanned caesarean delivery

Interventions
1. The interventions are:
a) 1 g tranexamic acid (10 ml solution) to be given by slow intravenous injection over 30-60 seconds
OR
b) 10 ml of normal saline to be given by slow intravenous injection over 30-60 seconds
To be administered as soon as possible after entry to the operating theatre

After obtaining written informed consent, participants will be randomized to the one of the trial interventions by the opening of a numbered, sealed and opaque envelope (lowest numbered envelope remaining to the newest recruit). A syringe containing 10 ml colourless solution (containing 1 g tranexamic acid or normal saline) will be given to the care provider for administration within the operating theatre. Participants and care providers are masked to the agent allocated. Standard patient care will be applied throughout the hospital stay from preoperative prophylactic measures to intraoperative and postoperative care to all participants. Within 3 days of the caesarean before hospital discharge, a 3 ml blood sample will be drawn (if one was not already performed for the purpose of routine post- caesarean care) and sent to the hospital laboratory for a complete blood count. This result will be taken together with the blood count routinely taken for women admitted for birth to calculate blood loss at caesarean. Prior to discharge participants will be asked to rate their energy level using a 0 to 10 rating scale. In all other respects, routine care will be provided to all participants.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Tranexamic acid

Primary outcome(s)
Calculated total blood loss measured using data collected from hospital laboratory records on preoperative (most recently within 8 days before surgery) and postoperative (closest to day 2 after delivery) haematocrit values

Key secondary outcome(s))
The following secondary outcome measures are assessed using the stated data at one time point:
1. Blood loss ≥ 1000 ml measured using recorded calculated total blood loss
2. Blood transfusion measured using data from hospital records
3. Transfusion of other blood products up to hospital discharge measured using data from hospital records
4. Uterotonic agent other than oxytocin up to hospital discharge measured using data from hospital records
5. Surgical or radiologic intervention up to hospital discharge measured using data from hospital records
6. Open-label use of tranexamic acid up to hospital discharge measured using data from hospital records
7. Acute kidney injury up to hospital discharge measured using data from hospital records
9. Postoperation duration of hospital stay measured using data from hospital records
9. Thromboembolic event, ischemic stroke, or myocardial infarction up to hospital discharge measured using data from hospital records
10. New-onset seizure up to hospital discharge measured using data from hospital records
11. Admission to ICU and indication up to hospital discharge measured using data from hospital records
12. Participant energy level measured using an 11- point 0-10 Numerical Rating Scale at hospital discharge

13. Participant side effects cumulative up to hospital discharge measured using data from the participants on:
13.1. Nausea
13.2. Vomiting
13.3. Dizziness
14. Apgar score at 1 and 5 min measured using data from hospital records
15. Umbilical cord artery blood pH measured using data from hospital records
16. Neonatal intensive care admission and indication up to hospital discharge measured using data from hospital records
17. Neonatal thromboembolism up to hospital discharge measured using data from hospital records

Completion date
01/01/2025

Eligibility

Key inclusion criteria
1. Age ≥18 years old
2. At term (≥ 37 weeks)
3. Able to fully understand Malay or English
4. Live fetus
5. Emergency/unplanned CS in labour (contractions ≥ 2 in 10 min, cervix ≥ 3 cm)

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
50 years

Sex
Female

Key exclusion criteria
1. Clinical indication for tranexamic acid
2. Contraindication to tranexamic acid
3. Known hypersensitivity to tranexamic acid
4. Known placenta previa/placenta accreta spectrum
5. Contraindications to tranexamic acid

6. Suspected current thromboembolic events
7. Known thrombophilia, coagulopathy or severe renal disease
8. History of venous thromboembolism

Date of first enrolment
01/09/2024

Date of final enrolment
31/10/2024

Locations

Countries of recruitment
Malaysia

Study participating centre
University Malaya Medical Centre
Lembah Pantai
Kuala Lumpur
Malaysia
59100

Sponsor information

Organisation
University Malaya Medical Centre

ROR
https://ror.org/00vkrxq08

Funder(s)

Funder type
University/education

Funder Name
Universiti Malaya

Alternative Name(s)
University of Malaya, University Malaya, Malayan University, King Edward VII College of Medicine, Raffles College, University of Malaya in Singapore, , , , UM

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Malaysia

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and /or analysed during the current study are/will be available upon request from Dr Shnkari Govindasamy, g.shnkari@ummc.edu.my

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes