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EPIFEVER: elucidating molecular mechanisms underlying epidural-related maternal fever

Submission date
24/11/2014

Recruitment status
No longer recruiting

Registration date
28/01/2015

Overall study status
Completed

Last Edited
03/07/2020

Condition category
Pregnancy and Childbirth

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
About a third of women in labour receive pain relief via an epidural. When an epidural is performed by an anaesthetic doctor, the anaesthetist places a small plastic tube into a space in the back through which local anaesthetic is infused. A quarter of women who have an epidural in labour develop a high temperature or fever, known as epidural-related maternal fever, but doctors currently do not understand why the fever occurs. Fever during labour can be a real problem. The high temperature results in a more stressful labour for mother and baby. Midwives and obstetricians looking after mothers in labour with a high temperature are concerned that the fever might be due to infection, and these mothers commonly receive antibiotics. It is clear that many women who have an epidural-related maternal fever do not have infection and so the antibiotic treatment is unnecessary. Finally a fever in labour can sometimes lead to women having a Caesarean section or instrumental deliveries because of concerns about the baby. The aim of this study is to find the cause of epidural-related maternal fever. If we can find the cause, we hope to then be able to develop a way to prevent it from happening, and also avoid the use of unnecessary antibiotics.

Who can participate?
We are approaching pregnant women who may receive an epidural for pain relief in labour or for delivery, and non-pregnant women having an epidural for surgery.

What does the study involve?
It is well known that local anaesthetics not only reduce pain, but may also cause immune cells to release substances into the mother's bloodstream. We believe that these substances may be the cause of the fever. We will investigate whether the local anaesthetic causes fever by testing its effects on immune cells collected in blood samples. We would like to collect blood from two groups of women in labour: those receiving an epidural for pain relief and those who do not receive an epidural. We will also collect blood samples from non-pregnant women having surgery who also receive an epidural, so we can find out how epidurals may affect immune cells in women who are not pregnant.

What are the possible benefits and risks of participating?
The information we get from this study may help us to better treat future patients undergoing

epidurals for pain relief and anaesthesia and to prevent epidural-related maternal fever. Every procedure described is a routine part of your care, so there are no additional risks of taking part. We will try as far as possible to collect the blood samples from your existing drip access, which does not carry any risk. If this not possible and we need to collect a blood sample from a vein in your arm.

Where is the study run from?
University College London Hospitals NHS Trust (UK)

When is the study starting and how long is it expected to run for?
October 2014 to March 2016

Who is funding the study?
Obstetrics Anaesthetists' Association (OAA)

Who is the main contact?
Dr Gareth Ackland
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
Protocol v1.2

Study information

Scientific Title
EPIFEVER: elucidating molecular mechanisms underlying EPIdural-related maternal FEVER - an observational single-centre study

Acronym
EPIFEVER

Study objectives
Inflammatory mechanisms associated with the development of fever following epidural analgesia started in established labour.

Ethics approval required
Old ethics approval format

Ethics approval(s)
NRES Committee South Central - Oxford A Bristol Research Ethics Committee Centre, 18/08/2014, REC ref: 14/SC/1160

Study design
Observational single-centre study

Primary study design
Observational

Secondary study design
Cohort study

Study setting(s)
Hospital

Study type(s)
Other

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

Health condition(s) or problem(s) studied
Epidural-related maternal fever (ERMF)

Interventions
Local anaesthetics not only reduce pain but may also damage immune cells, resulting in substances being released into the mother’s bloodstream and causing fever. We will investigate whether the local anaesthetic causes fever through the release of fever-inducing substances by undertaking tests on immune cells obtained from two groups of women: those receiving an epidural for pain relief and those who do not use epidural analgesia. We will also use samples from surgical patients who also receive epidural analgesia. We will insert an IV drip into women/patients which is used routinely as part of their hospital stay, thereby minimizing unnecessary

discomfort. While inserting the IV drip a tablespoon of blood will be taken for laboratory tests. 4 hours later another tablespoon of blood will be taken. We will then compare function of immune cells before and after epidural local anaesthetic has been administered. If local anaesthetic is found to affect immune function and be a cause of fever, these results will enable us to identify the cause of fever in individual women in labour and help avoid unnecessary clinical interventions and antibiotic administration in the future.

Intervention Type
Other

Primary outcome measure
Development of maternal fever; temperature measured pre and 4 hours after onset of epidural analgesia.

Secondary outcome measures
Laboratory-based assays of immune function pre- and 4 hours post-epidural (or otherwise)

Overall study start date
01/10/2014

Completion date
31/03/2016

Eligibility

Key inclusion criteria
>37 weeks gestation, established labour (≥ 2 cm dilated with contractions) and all babies delivered from these women will have outcomes follow up

For female surgical patients >18 years old, all those who have agreed to receive epidural analgesia decided in conjunction with their attending anaesthetist will be eligible

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Female

Target number of participants
144

Total final enrolment
53

Key exclusion criteria
Obstetric patients:
1. No pre-eclampsia or hypertensive disorder
2. No pre-existing immune dysfunction
3. No known infection
4. Not currently on antibiotics
5. Not received NSAID

Female surgical patients:
1. No known infection
2. Not currently on antibiotics
3. Not received NSAID
4. Not pregnant

Date of first enrolment
01/10/2014

Date of final enrolment
31/03/2016

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
UCLH NHS Trust
235 Euston Road
London
United Kingdom
NW1 2BU

Sponsor information

Organisation
UCLH NHS Trust

Sponsor details
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Sponsor type
Hospital/treatment centre

Website
www.ucl.ac.uk/jro

ROR
https://ror.org/042fqyp44

Funder(s)

Funder type
Charity

Funder Name
Obstetrics Anaesthetists' Association (OAA)

Results and Publications

Publication and dissemination plan
To be confirmed at a later date

Intention to publish date
30/06/2016

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/01/2019	03/07/2020	Yes	No
HRA research summary			26/07/2023	No	No