# Clinical trial results:
# Randomised, double blind, phase IV study to compare the incidence of ECG changes during elective caesarean section under spinal anaesthesia when using phenylephrine or ephedrine infusion to maintain baseline systolic blood pressure

## Summary

| | |
|---|---|
| EudraCT number | 2009-013293-41 |
| Trial protocol | GB |
| Global end of trial date | 11 January 2016 |

### Results information

| | |
|---|---|
| Result version number | v1 (current) |
| This version publication date | 28 August 2021 |
| First version publication date | 28 August 2021 |

## Trial information

### Trial identification

| | |
|---|---|
| Sponsor protocol code | 08/0182 |

### Additional study identifiers

| | |
|---|---|
| ISRCTN number | - |
| ClinicalTrials.gov id (NCT number) | - |
| WHO universal trial number (UTN) | - |

Notes:

### Sponsors

| | |
|---|---|
| Sponsor organisation name | University College London |
| Sponsor organisation address | Gower Street, London, United Kingdom, WC1E 6BT |
| Public contact | ctimps@ucl.ac.uk, Joint Research Office, UCL,<br>4th Floor, West<br>250 Euston Road<br>London<br>NW1 2PG, ctimps@ucl.ac.uk |
| Scientific contact | ctimps@ucl.ac.uk, Joint Research Office, UCL,<br>4th Floor, West<br>250 Euston Road<br>London<br>NW1 2PG, ctimps@ucl.ac.uk |

Notes:

### Paediatric regulatory details

| | |
|---|---|
| Is trial part of an agreed paediatric investigation plan (PIP) | No |
| Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial? | No |
| Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial? | No |

Notes:

## Results analysis stage

| | |
|---|---|
| Analysis stage | Final |
| Date of interim/final analysis | 11 January 2016 |
| Is this the analysis of the primary completion data? | Yes |
| Primary completion date | 11 January 2016 |
| Global end of trial reached? | Yes |
| Global end of trial date | 11 January 2016 |
| Was the trial ended prematurely? | Yes |

Notes:

## General information about the trial

Main objective of the trial:

We would like to conduct a study to investigate whether, by maintaining a mother's normal systolic blood pressure with phenylephrine, as opposed to ephedrine after spinal anaesthesia for caesarean section, we can improve the heart muscle oxygen supply and demand ratio, and as a result see a difference in ECG changes between the 2 groups.

Protection of trial subjects:

No specific measures

Background therapy: -

Evidence for comparator: -

| | |
|---|---|
| Actual start date of recruitment | 24 April 2012 |
| Long term follow-up planned | No |
| Independent data monitoring committee (IDMC) involvement? | No |

Notes:

## Population of trial subjects

### Subjects enrolled per country

| | |
|---|---|
| Country: Number of subjects enrolled | United Kingdom: 29 |
| Worldwide total number of subjects | 29 |
| EEA total number of subjects | 29 |

Notes:

### Subjects enrolled per age group

| | |
|---|---|
| In utero | 0 |
| Preterm newborn - gestational age < 37 wk | 0 |
| Newborns (0-27 days) | 0 |
| Infants and toddlers (28 days-23 months) | 0 |
| Children (2-11 years) | 0 |
| Adolescents (12-17 years) | 0 |
| Adults (18-64 years) | 29 |
| From 65 to 84 years | 0 |

| | |
|---|---|
| 85 years and over | 0 |

## Subject disposition

### Recruitment

Recruitment details:

Trial planned to recruit 220 women having planned caesarean section under spinal anaesthesia, to complete the study in a 1 year duration. All participants to be recruited from a single UK site.
29 participants were recruited (estimated 15 on phenylephrine arm and 14 on ephedrine). The study was terminated early due to change in clinical practice.

### Pre-assignment

Screening details:

29 participants were randomised.

### Period 1

| | |
|---|---|
| Period 1 title | Main study period (overall period) |
| Is this the baseline period? | Yes |
| Allocation method | Randomised - controlled |
| Blinding used | Double blind |
| Roles blinded | Subject, Investigator |

### Arms

| | |
|---|---|
| Are arms mutually exclusive? | Yes |
| **Arm title** | Phenylephrine arm |

Arm description: -

| | |
|---|---|
| Arm type | Experimental |
| Investigational medicinal product name | Phenylephrine |
| Investigational medicinal product code | |
| Other name | |
| Pharmaceutical forms | Solution for infusion |
| Routes of administration | Intravenous use |

Dosage and administration details:

Intravenous infusion of phenylephrine.
Infusion dose 50 mcg / minute (60ml/h)
On/off regimen in response to blood pressure readings every minute
Approx 30 minutes treatment duration.
Total dose 50 mcg – 1500 mcg

| | |
|---|---|
| **Arm title** | Ephedrine arm |

Arm description: -

| | |
|---|---|
| Arm type | Experimental |
| Investigational medicinal product name | Ephedrine |
| Investigational medicinal product code | |
| Other name | |
| Pharmaceutical forms | Solution for infusion |
| Routes of administration | Intravascular use |

Dosage and administration details:

Intravenous infusion of ephedrine.
Infusion dose 4mg / minute (60ml/h)
On/off regimen in response to blood pressure readings every minute
Approx 30 minutes treatment duration.
Total dose 4 mg – 120 mg.

| **Number of subjects in period 1** | Phenylephrine arm | Ephedrine arm |
|---|---|---|
| Started | 15 | 14 |
| Completed | 15 | 14 |

## Baseline characteristics

## End points

### End points reporting groups

| | |
|---|---|
| Reporting group title | Phenylephrine arm |
| Reporting group description: - | |
| Reporting group title | Ephedrine arm |
| Reporting group description: - | |

### Primary: The primary aim is to compare the incidence of ECG changes if maternal blood pressure is maintained with phenylephrine or ephedrine

| | |
|---|---|
| End point title | The primary aim is to compare the incidence of ECG changes if maternal blood pressure is maintained with phenylephrine or ephedrine[1] |

End point description:

Women having planned caesarean section under spinal anaesthesia will be studied. Recruited patients will be connected to a Holter monitor (a 3lead ECG) pre-operatively for continuous ECG monitoring. Following a standardised spinal anaesthetic dose, a vasopressor infusion will be commenced to prevent maternal hypotension. The vasopressor will be ephedrine or phenylephrine depending on randomisation and to maintain the same target systolic blood pressures. The patient and anaesthetists will be blinded. Cardiac output will be studied at baseline and every 5 minutes with a non-invasive suprasternal cardiac output monitor for 20 minutes and at 5 minutes post delivery. The Holter monitor will continue for 4 hours post delivery.

| | |
|---|---|
| End point type | Primary |

End point timeframe:

ST changes on Holter ECG monitoring

Notes:

[1] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: The study was terminated due to change in clinical practice since the start of the trial in 2011 whereby phenylephrine has replaced ephedrine as the vasopressor of choice. Phenylephrine has been associated with superior treatment of hypotension with higher umbilical blood pH values. This development made recruitment difficult for the trial.
The CI for this study has confirmed that unfortunately there is not enough data from the small number of women that was recruited to perform analysis.

| End point values | Phenylephrine arm | Ephedrine arm | | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | | |
| Number of subjects analysed | 15 | 14 | | |
| Units: ECG output | | | | |
| number (not applicable) | 0 | 0 | | |

### Statistical analyses

No statistical analyses for this end point

## Adverse events

| Adverse events information[1] | |
|---|---|
| Timeframe for reporting adverse events:<br>Consent to end of study | |
| Assessment type | Systematic |

| Dictionary used | |
|---|---|
| Dictionary name | MedDRA |
| Dictionary version | 24 |

Frequency threshold for reporting non-serious adverse events: 5 %

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: No serious adverse events were reported.

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported