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Dexmedetomidine Trial of Adjunct Treatment with Morphine

Submission date
22/07/2025

Recruitment status
Recruiting

Registration date
21/10/2025

Overall study status
Ongoing

Last Edited
20/01/2026

Condition category
Other

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

Plain English summary of protocol

Background and study aims
Babies born very early (before 32 weeks of pregnancy) often need help to breathe using a ventilator. This can be painful, so doctors give pain relief like morphine. However, morphine may not work well in premature babies and could affect their brain development and make it harder to come off the ventilator. A newer medicine called dexmedetomidine (or dexmed) is used in older children and adults and may offer better pain relief with fewer side effects. This study aims to find out if using dexmed alongside morphine helps reduce the amount of morphine needed and improves outcomes for premature babies.

Who can participate?
Premature babies born before 32 weeks who need a ventilator to help them breathe may be eligible to take part. Parents will be given full information and must give written consent before their baby can join the study.

What does the study involve?
Babies will be randomly given either morphine alone or morphine with one of two doses of dexmed. To keep the study fair, babies receiving morphine only will also get a dummy medicine (placebo), so carers won't know which treatment each baby is getting. Pain will be regularly checked, and medicines will be adjusted if the baby is comfortable. Blood samples will be taken during routine care to see how the baby's body handles the medicines. Researchers will also look at how quickly babies come off the ventilator and how they are developing at 2 years of age. Parents will be asked to complete questionnaires, which can be done by paper, online, or over the phone.

What are the possible benefits and risks of participating?
Dexmed may help reduce the amount of morphine needed and improve brain development, but it can also lower heart rate and blood pressure. All babies in the study will be closely monitored in intensive care, and doctors can adjust or stop the medicines if needed. The study uses doses that have been tested in other babies and children. Blood samples will be small and taken during routine care to avoid extra discomfort. Parents will not need to attend extra visits and can complete follow-up questionnaires from home.

Where is the study run from?
The study is being run in neonatal intensive care units across the UK, with support from Bliss, the UK's leading charity for parents of premature babies.

When is the study starting and how long is it expected to run for?
July 2025 to April 2030

Who is funding the study?
National Institute for Health and Care Research (NIHR) (UK)

Who is the main contact?
Dexta@nottingham.ac.uk

Contact information

Type(s)
Principal investigator

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Integrated Research Application System (IRAS)
1012134

Protocol serial number
UHDB/2023/031

Central Portfolio Management System (CPMS)
70247

Study information

Scientific Title
Dexmedetomidine Trial of Adjunct Treatment with Morphine

Acronym
DEXTA

Study objectives
Primary objective:
To determine if, in ventilated preterm babies, dexmedetomidine is efficacious in reducing the cumulative dose of morphine given over 120 hours from starting the dexmedetomidine or placebo infusions

Secondary objectives:
1. To investigate the potential benefits and safety of dexmedetomidine, given with morphine infusion, on clinical outcomes in neonatal care
2. To determine whether there is an imbalance in dexmedetomidine or morphine exposure resulting from inter-individual variability in clearance
3. To determine if dexmedetomidine is efficacious in reducing the cumulative AUC of morphine over 120 hours from starting the dexmedetomidine or placebo infusions
4. To compare neurodevelopmental outcomes between groups at 2 years of age, corrected for prematurity

Ethics approval required

Ethics approval required

Ethics approval(s)
approved 06/10/2025, Health and Social Care Research Ethics Committee B (HSC REC B) (Unit 4, Lissue Industrial Estate West, Moira Road, Lisburn, BT28 2RF, United Kingdom; +44 (0)28 9536 1400; recb@hscni.net), ref: 25/NI/0113

Study design
Three-arm multicentre blinded randomized placebo-controlled efficacy trial with a superiority hypothesis testing framework and planned single interim analysis with integral pharmacokinetic-pharmacodynamic (PKPD) analysis

Primary study design
Interventional

Study type(s)
Efficacy

Health condition(s) or problem(s) studied
Pain in ventilated babies

Interventions
Ventilated preterm babies (<32 weeks' gestation) are randomised in a 1:1:1 ratio using a secure online randomisation system hosted by the Nottingham Clinical Trials Unit, with allocation minimised by site, gestational age, sex, postnatal age, and prior morphine exposure. Participants receive a 120-hour continuous intravenous infusion of either high-dose dexmedetomidine (0.5 micrograms/kg/hour), low-dose dexmedetomidine (0.25 micrograms/kg/hour), or placebo, in addition to standard morphine, which is titrated based on 2–4 hourly pain assessments using the Neonatal Pain Assessment and Sedation Scale (N-PASS). All infusions begin at half the target rate for 24 hours and may be adjusted based on clinical assessments. The intervention is blinded, with identical packaging used for all groups. During the infusion, babies are monitored hourly for vital signs and daily for analgesic use and ventilation. Follow-up includes clinical outcomes at discharge and neurodevelopmental assessment at 2 years of age corrected for prematurity, using parent-completed questionnaires and clinical records.

Intervention Type
Drug

Phase
Phase IV

Drug/device/biological/vaccine name(s)
Dexmedetomidine

Primary outcome(s)
Cumulative dose of morphine given over 120 hours from starting the dexmedetomidine or placebo infusion, measured using medication administration records

Key secondary outcome(s))
Measured over 120 hours from the start of infusion:
1. Pain is measured using a standardised preterm pain scale at baseline and every 4 hours over

120 hours from the start of infusion
2. Total duration of morphine infusion is measured in hours using infusion records over 120 hours from the start of infusion
3. Use of additional morphine bolus is measured using medication administration records over 120 hours from the start of infusion
4. Total additional morphine is measured in mg/kg and number of boluses using medication administration records over 120 hours from the start of infusion
5. Morphine and dexmedetomidine exposure is measured using Area Under the Concentration Time Curve (AUC) derived from plasma samples collected over 120 hours from the start of infusion
6. Total dose and duration of other analgesics are measured using medication administration records over 120 hours from the start of infusion
7. Total duration of ventilation is measured in hours using respiratory support records over 120 hours from the start of infusion
8. Number of episodes of bradycardia requiring intervention is measured using clinical observation and intervention records over 120 hours from the start of infusion
9. Heart rate is measured using bedside monitoring data assessed hourly over 120 hours from the start of infusion
10. Blood pressure is measured using bedside monitoring data assessed every two hours over 120 hours from the start of infusion
11. Oxygen saturation is measured using bedside monitoring data assessed hourly over 120 hours from the start of infusion
12. FiO2 is measured using ventilator or oxygen delivery system data assessed hourly over 120 hours from the start of infusion
13. Requirement of additional vasopressor support is measured using medication administration records over 120 hours from the start of infusion

Measured at discharge from neonatal care:
14. Preterm brain injury is measured using cranial ultrasound or MRI at discharge from neonatal care
15. Time to reach at least 140 ml/kg/day full milk feeds is measured in hours using feeding records after randomisation until discharge from neonatal care
16. Bronchopulmonary dysplasia is measured using clinical diagnosis at 36 weeks postmenstrual age or at discharge from neonatal care
17. Length of intensive, high-dependency, and total neonatal care is measured in days using hospital stay records at discharge from neonatal care
18. Parent experience is measured using a self-reported questionnaire at discharge from neonatal care
19. Late-onset infection is measured using microbiological confirmation from clinical samples at any time after 72 hours of life until discharge from neonatal care
20. Necrotising enterocolitis is measured using Bell's staging criteria (Stage 2 or 3) based on clinical and radiological findings until discharge from neonatal care
21. Retinopathy of prematurity is measured using ophthalmologic examination at standard screening intervals until discharge from neonatal care
22. Death before discharge is measured using clinical records at discharge from neonatal care

Completion date
30/04/2030

Eligibility

Key inclusion criteria
1. <32 weeks' gestational age at birthAND at least 160 hours from birth
2. Expected to require at least 48 hours of ventilation from randomisation
3. Receiving/requiring morphine infusion

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Neonate

Lower age limit
6.6 days

Upper age limit
1 months

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Mother has received any opiates during pregnancy (excluding during labour)
2. Baby:
2.1. Has major congenital anomaly
2.2. Is hemodynamically unstable despite receiving two or more inotropes
2.3. Is highly likely to be transferred to another hospital within 5 days of randomisation
2.4. Has no realistic prospect of survival (as judged by the clinical team)

Date of first enrolment
02/02/2026

Date of final enrolment
30/06/2027

Locations

Countries of recruitment
United Kingdom

Study participating centre
Not provided at time of registration
-

-
England
-

Sponsor information

Organisation
University Hospitals of Derby and Burton NHS Foundation Trust

ROR
https://ror.org/04w8sxm43

Funder(s)

Funder type
Government

Funder Name
National Institute for Health and Care Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
De-identified individual participant data will be shared with researchers external to the trial research team in accordance with the NCTU’s data sharing Standard Operating Procedure, wherein the request is considered by a data sharing committee that includes the CI and the sponsor. Our research grant includes costs for future data sharing to cover de-identification and extraction to allow for external research access to data. Participants are made aware that their data is anonymised. In the informed consent form, we have included the following statement so

any participants entering the study will need to agree to the future use of their anonymised data: "I understand that the anonymised information collected about me and my baby may be used to support other research in the future and may be shared with other researchers".

IPD sharing plan summary

Available on request