

World Hip Trauma Evaluation - LIT: an investigation in people 60 years and over with a hip fracture to determine whether an infusion of a local anaesthetic (lidocaine) can reduce symptoms of delirium in the first five days after hip fracture surgery

Submission date 11/06/2021	Recruitment status Recruiting	☒ Prospectively registered ☒ Protocol
Registration date 19/01/2022	Overall study status Ongoing	☐ Statistical analysis plan ☐ Results
Last Edited 07/05/2026	Condition category Musculoskeletal Diseases	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

Background and study aims

This study has been designed following a James Lind Alliance Patient and Public Research Priority Setting Partnership, which identified the following question as a top research priority: "What are the best treatments to prevent and treat confusion and delirium after surgery in adults with a broken bone in the leg?" The study has been co-produced with the UK Musculoskeletal Trauma Patient and Public Involvement Group.

A broken hip (hip fracture) is a very serious injury that requires surgery to repair or replace the broken bone followed by a long period in hospital to recover. Around a quarter of patients with hip fracture die within a year and those that survive have a permanent loss of their quality of life. Worldwide there are 1.3 million hip fractures each year, with more than 70,000 in the UK.

Around a quarter of patients who have a hip fracture have an episode of 'delirium' after their surgery. Delirium is a condition where the patient loses awareness of themselves and their environment, and has difficulty thinking clearly. For relatives and friends, as well as the patient, delirium is very disturbing. The symptoms of delirium are similar to those of patients with dementia but develop over a short period and tend to vary over time. The great majority of patients suffering with delirium recover quite quickly, but delirium leads to longer hospital stays and a greater risk of complications. Delirium is also associated with an increased risk of developing dementia in later life.

Inflammation, caused by the hip fracture and by the surgery to repair the hip, is thought to be the root cause of delirium. This study will investigate the use of a drug called 'lidocaine' to see if it reduces the risk of delirium after surgery for a hip fracture. Lidocaine is already used very

widely in the NHS as a local anaesthetic, but it also has a strong anti-inflammatory effect. If lidocaine is given to a patient during surgery to reduce inflammation, it may reduce the severity of delirium after surgery.

Who can participate?

This study falls under the WHITE Platform framework and is open to all patients aged over 60 years with a hip fracture, apart from the very small number of patients who have an allergy or another reason not to have lidocaine. Eligible patients will be approached about the study before their treatment where possible. Patients who are unable to consent for themselves may take part in the trial with the agreement of their relatives or an independent doctor, who will be known as legal representatives.

What does the study involve?

Patients from at least 12 hospitals in the UK will be approached to take part in the study. 416 participants will take part. Half will be allocated by chance to a slow injection of lidocaine during their surgery, and half to a placebo injection containing no lidocaine. Neither the patients nor their doctors will know which treatment they had to make the study fair. All other elements of the patients' treatment will follow the normal care pathway for all hip fracture patients at the hospital.

We will use a series of simple questions to measure symptoms of delirium in the first five days after surgery. We will also assess the patients' mobility, quality of life and complications and review if they develop symptoms of dementia in the 12 months after surgery. We will also work out the cost of the treatment – for the individual, for the health service and in terms of social support in the year following the fracture. We will also ask people for their permission to monitor their long-term health outcome from national databases that are already being routinely collected. Any information collected from these databases will not contain any details which could identify the patient.

What are the possible benefits and risks of participating?

The risks of hip surgery include infection, blood clots, chest or urine infection - these risks are the same as for people who are not part of this research project.

The risks associated with intravenous lidocaine include minor symptoms such as tingling of the lips. More serious effects such as disturbances of heart rhythm can occur but are very unlikely at the doses used in this treatment comparison. Patients will have continuous monitoring whilst the lidocaine is being given, and an emergency treatment to reverse these effects is available. Lidocaine has been used safely like this in other types of surgery for many years.

Where is the study run from?

University of Oxford (UK)

When is the study starting and how long is it expected to run for?

May 2020 to December 2026

Who is funding the study?

National Institute for Health Research (UK)

Who is the main contact?

Katy Mironov

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Contact information

Type(s)

Scientific

Contact name

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Type(s)

Public

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Additional identifiers

Clinical Trials Information System (CTIS)

2020-003719-83

Integrated Research Application System (IRAS)

287755

Central Portfolio Management System (CPMS)

49156

National Institute for Health and Care Research (NIHR)

201943

Study information

Scientific Title

World Hip Trauma Evaluation - LIT: Lidocaine Intravenous Trial

Acronym

WHITE 10-LIT

Study objectives

To establish if there are differences in peak delirium in the 5 days following hip fracture surgery between hip fracture patients receiving a peri-operative lidocaine infusion or a saline placebo infusion.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 14/01/2021, Berkshire Research Ethics Committee (Berkshire South Central REC, Easthampstead Baptist Church, Southill Road, Bracknell, RG12 7NS, UK; +44 (0)2071048138; berkshire.rec@hra.nhs.uk), ref: 20/SC/0452

Primary study design

Interventional

Study design

Pragmatic multicentre two-arm randomized superiority comparison with parallel economic analyses follow-up

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Hip fracture

Interventions

WHiTE 10-LIT is a randomised comparison appended to the World Hip Trauma Evaluation (WHiTE) Platform. WHiTE is a platform trials framework, designed to efficiently deliver multiple randomised comparisons of interventions for patients aged 60 years and over with a hip fracture. The platform and its appended randomised comparisons are governed by one single set of ethical and regulatory approvals and an explicit legal basis and processing purpose for the use of patient-level data. The Platform affords a common core dataset and documentation.

Individual randomised comparisons are not dependent on each other and each will have its unique start and stop dates and publication of results without compromising the integrity of the platform.

Participants will be randomised on a 1:1 basis to lidocaine or placebo infusion, stratified by presence of cognitive impairment at presentation and recruitment centre:

1. Intervention: Intravenous lidocaine 1.5 mg.kg⁻¹ bolus followed by infusion of 1.5 mg.kg⁻¹.h⁻¹ for the duration of surgery
2. Placebo control: Identical volumes of 0.9% saline

The allowed maximum absolute dose will be 120 mg and 120 mg h⁻¹ regardless of weight.

Randomisation will be on a 1:1 basis to lidocaine or placebo, stratified by the presence/absence of permanent cognitive impairment at presentation and recruitment centre. The allocation sequence will be generated by the trial statistician using variable block sizes and stored securely in a web-based encrypted system provided by the CTU.

An appropriately trained individual other than the treating clinician or anyone involved in the assessment of any trial outcomes will carry out the online randomisation and prepare a syringe with the allocated intervention, in an area away from the clinical team. The prepared syringe will then be labelled 'lidocaine 1% or saline 0.9%' so as not to reveal the treatment allocation to the treating anaesthetist when they administer it to the participant in order to ensure that the patient is not treated differently during the surgery. Lidocaine and saline are clear colourless solutions, indistinguishable to the human eye.

Intervention Type

Drug

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

lidocaine hydrochloride injection BP 1% w/v.

Primary outcome(s)

Peak post-operative delirium as measured by the Memorial Delirium Assessment Scale (MDAS) at days 1-5 after surgery.

Key secondary outcome(s)

1. Pain measured using the standard Functional Pain Scale (FPS)/Pain Assessment in People with Advanced Dementia (PAINAD), for participants with and without mental capacity respectively, before surgery and days 1-5 after surgery.
2. Delirium screening using the 4AT test before surgery and days 1-5 after surgery.
3. Health-related quality of life using the Euroqol-5D-5L pre-injury, at 4 and 12 months post-diagnosis of a hip fracture.
4. Cognitive impairment using the Telephone Interview for Cognitive Status (TICS) at 4 and 12 months post-diagnosis of a hip fracture.
5. Subjective mobility status measured using the UK National Hip Fracture Database Mobility Scale at 4 and 12 months post-diagnosis of a hip fracture
6. Residential status measured using the UK National Hip Fracture Database Residential Status at 4 and 12 months post-diagnosis of a hip fracture
7. Mortality risk using death notification up to 12 months post-diagnosis of a hip fracture
8. Risk and pattern of complications measured using bespoke reporting forms up to 12 months post-diagnosis of a hip fracture.
9. Resource use from an NHS and personal social services perspective calculated using bespoke reporting forms up to 12 months post-diagnosis of a hip fracture.

Completion date

31/12/2027

Eligibility

Key inclusion criteria

Platform inclusion criteria:

1. Aged ≥ 60 years
2. Diagnosed with a hip fracture that in the opinion of the treating surgeon may benefit from surgical treatment

No additional specific inclusion criteria for LIT.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Senior

Sex

All

Total final enrolment

0

Key exclusion criteria

Platform exclusion criteria.

1. Previous participation in the same randomised comparison
2. A second hip fracture (other side) while the patient is still enrolled in the Platform following their first hip fracture

Additional specific exclusion criteria for LIT:

1. Body weight estimated to be <40 kg or >100 kg
2. Known subdural haematoma
3. Known allergy to local anaesthetics
4. Severely impaired renal ($\text{eGFR} < 30 \text{ mL} \cdot \text{min}^{-1}$) or hepatic (based on clinical history) function
5. Patient has specific contraindications to lidocaine:
 - 5.1. All grades of atrioventricular block; severe myocardial depression; sino-atrial disorders
 - 5.2. Acute porphyria
5. 3. Current congestive cardiac failure
6. Concurrent participation in a clinical trial of a medicinal product or recent participation within 5 half-lives of the last dose of medicinal product
7. Local anaesthetic nerve block administered within the previous 6 hours
8. Known serum albumin $< 30 \text{ g/L}$

Date of first enrolment

31/01/2022

Date of final enrolment

31/01/2027

Locations

Countries of recruitment

United Kingdom

England

Northern Ireland

Wales

Study participating centre**John Radcliffe Hospital**

Headley Way

Oxford

England

OX3 9DU

Study participating centre**Queen's Medical Centre**

Derby Road

Nottingham

England

NG7 2UH

Study participating centre**Cardiff ECMC**

Cardiff University

University Hospital of Wales

Heath Park

Cardiff

Wales

CF14 4XN

Study participating centre**Southmead Hospital**

Southmead Road

Westbury-on-trym

Bristol
England
BS10 5NB

Study participating centre
Calderdale and Huddersfield NHS Foundation Trust
Trust Headquarters
Acre Street
Lindley
Huddersfield
England
HD3 3EA

Study participating centre
Warwickshire North Cdc
George Eliot Hospital NHS Trust
College Street
Nuneaton
England
CV10 7DJ

Study participating centre
Pinderfields Hospitals NHS Trust
Trust Hq, Rowan House
Pinderfields General Hospital
Aberford Road
Wakefield
England
WF1 4EE

Study participating centre
St Thomas' Hospital
Westminster Bridge Road
London
England
SE1 7EH

Study participating centre
Heartlands Hospital
Bordesley Green East
Bordesley Green

Birmingham
England
B9 5ST

Study participating centre

NIHR Cambridge Biomedical Research Centre

Cambridge University Hospitals NHS Foundation Trust
Addenbrookes Hospital
Hills Road
Cambridge
England
CB2 0QQ

Study participating centre

Royal Liverpool University Hospital

Prescot Street
Liverpool
England
L7 8XP

Study participating centre

Belfast Health and Social Care Trust

Trust Headquarters
A Floor - Belfast City Hospital
Lisburn Road
Belfast
Northern Ireland
BT9 7AB

Study participating centre

Horton General Hospital

Oxford Rd
Banbury
England
OX16 9AL

Study participating centre

Morriston Hospital

Heol Maes Eglwys
Cwmrhydyceirw
Swansea

Wales
SA6 6NL

Sponsor information

Organisation

University of Oxford

ROR

<https://ror.org/052gg0110>

Funder(s)

Funder type

Government

Funder Name

National Institute for Health 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

Funder Name

NIHR Oxford Biomedical Research Centre

Alternative Name(s)

NIHR Biomedical Research Centre, Oxford, OxfordBRC, OxBRC

Funding Body Type

Private sector organisation

Funding Body Subtype

Research institutes and centers

Location

United Kingdom

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 the Lead Investigator (Prof Matt Costa matthew.costa@ndorms.ox.ac.uk). Each request will be reviewed and decided upon on a case-by-case basis. Participants will be informed via the Participant Information Sheet (and will consent to the contents of this PIS) of the possibility of de-identified datasets being made available following appropriate requests.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Protocol file	version V8.0		07/05/2026	No	No