Early aortic repair in patients needing endovascular/open surgery for type B aortic dissection (EARNEST)

Submission date	Recruitment status Recruiting	[X] Prospectively registered			
30/01/2025		☐ Protocol			
Registration date	Overall study status Ongoing Condition category Surgery	Statistical analysis plan			
04/02/2025		Results			
Last Edited		Individual participant data			
10/09/2025		[X] Record updated in last year			

Plain English summary of protocol

Background and study aims

Uncomplicated Type B Aortic Dissection (uTBAD) is a serious condition where the inner layer of the aorta tears, which can lead to long-term complications like aneurysms, aortic rupture, or further dissection. The standard treatment focuses on managing blood pressure, but some patients still face life-threatening issues over time. Thoracic Endovascular Aortic Repair (TEVAR) is a minimally invasive procedure that uses a stent to reinforce the aorta, potentially reducing these risks. The EARNEST trial aims to find out if early TEVAR, done within three months of the initial dissection, improves patient outcomes compared to standard medical management alone.

Who can participate?

Patients with uTBAD who are 10 days to 3 months post-hospital admission for the initial event can participate. Participants must be at least 18 years old, have a life expectancy of at least 2 years, and be discharged from high dependency or critical care. They must also be off opiate painkillers or sedatives for at least 48 hours before enrolling and willing to provide written informed consent.

What does the study involve?

This is a randomised controlled trial, meaning participants are randomly assigned to one of two groups by a computer. One group will receive a stent (TEVAR), while the other will receive standard care. All participants will receive standard UK care, including blood pressure monitoring and medication as needed. Those in the stented group will have the procedure between 10 days and 3 months after dissection. Follow-up visits will occur at 6 weeks, 6 months, and annually, with health assessments and questionnaires. Regular CT or MRI scans will monitor the aorta and any stents.

What are the possible benefits and risks of participating?

Participating in this trial may offer potential benefits, such as better overall outcomes from early TEVAR, though this cannot be guaranteed. The study aims to improve treatment for all patients with dissection in the future. Participants will have regular health check-ups and imaging, and any incidental findings will be reported to their GP.

Risks include procedural risks from TEVAR, such as bleeding, artery narrowing, wound infections, heart attack, pneumonia, blood clots, and reduced blood supply leading to stroke or other issues. Serious complications are rare, but they can occur. Both CT scans and TEVAR use ionising radiation, which carries a very small increased lifetime cancer risk.

Where is the study run from? The study is run from Imperial College London (UK).

When is the study starting and how long is it expected to run for? September 2024 to February 2034.

Who is funding the study? NIHR HTA Programme (UK)

Who is the main contact? Please contact the EARNEST study team at earnest@imperial.ac.uk.

Contact information

Type(s)

Scientific, Principal investigator

Contact name

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Contact details

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Type(s)

Public

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

Integrated Research Application System (IRAS)

327350

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

CPMS 66215

Study information

Scientific Title

Early Aortic Repair in patients Needing Endovascular/open Surgery for Type B Aortic Dissection (EARNEST): A randomised trial to assess the clinical and cost-effectiveness of thoracic endovascular aortic repair in the subacute phase after uncomplicated type B aortic dissection.

Acronym

EARNEST

Study objectives

To determine whether early TEVAR in addition to BMT and surveillance compared to BMT and surveillance decreases the composite outcome of aortic-related mortality, severe permanent neurological deficit, or severe permanent cardiorespiratory failure over five years.

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 13/02/2025, Solihull Research Ethics Committee (Equinox House, City Link, East Midlands REC Centre, Birmingham, NG2 4LA, United Kingdom; +44 207 1048191; solihull. rec@hra.nhs.uk), ref: 25/WM/0005

Study design

Parallel arm multicenter open label superiority randomized controlled trial

Primary study design

Interventional

Study type(s)

Quality of life, Treatment, Safety, Efficacy

Health condition(s) or problem(s) studied

Uncomplicated type B aortic dissection

Interventions

Study Design and Randomisation

EARNEST is a multicentre, open-label, superiority randomised controlled trial (RCT) designed to

assess the effectiveness of early intervention with Thoracic Endovascular Aortic Repair (TEVAR) combined with Best Medical Therapy (BMT) and Surveillance (SURV) compared to BMT and SURV alone in patients with uncomplicated Type B Aortic Dissection (uTBAD). Participants are allocated in a 1:1 ratio to one of the two study arms using a minimisation algorithm, which ensures balance across key prognostic factors (centre, age, and sex). Randomisation is conducted using a validated web-based system, Sealed Envelope.

Blinding is not possible due to the nature of the intervention; however, endpoint adjudication will be carried out by an independent expert panel

- Study Arms
- 1. TEVAR + BMT + SURV Group (Intervention Arm)
- Treatment: Participants undergo Thoracic Endovascular Aortic Repair (TEVAR) within 3 months of the index uTBAD event. TEVAR is performed at 25 specialist vascular centres across the UK.
- Follow-up Duration: Minimum of 5 years post-enrolment.
- Surveillance & Assessments:
- o CT/MRI at 6 weeks , 12 months, 1, 2, 3, 4, 5 years
- o Follow-ups at 6 weeks, 6 months, 1 year, and annually up to 5 years.

2. BMT + SURV Group (Control Arm)

- Treatment: Participants receive Best Medical Therapy (BMT) and clinical surveillance without TEVAR, unless clinically indicated per existing guidelines.
- Follow-up Duration: Minimum of 5 years post-enrolment.
- Surveillance & Assessments:
- o CT/MRI at 6 weeks, 12 months, 1, 2, 3, 4, 5 years
- o Follow-ups at 6 weeks, 6 months, 1 year, and annually up to 5 years.
- o Late TEVAR intervention is permitted only if clinically necessary.

Randomisation Process

- 470 participants will be randomised 1:1 using a minimisation algorithm with a random component.
- The algorithm is stratified by age, sex, and centre to ensure balance across the study arms.
- Randomisation is conducted via a web-based system (Sealed Envelope).

Intervention Type

Procedure/Surgery

Primary outcome(s)

Time to first of aortic-related mortality AND/OR severe permanent neurological deficit AND/OR severe permanent cardiorespiratory failure measured using patient records throughout follow up from randomisation until the first composite event. Patients censored if there is a competing event (non-aortic-related death, patient withdrawal or end of the study). Reported when all patients are five years after randomisation

Key secondary outcome(s))

- 1. Aortic-related mortality is measured using patient records at one year for the TEVAR group and five years after randomisation for all patients
- 2. All-cause mortality is measured using patient records at one year for the TEVAR group and five years after randomisation for all patients
- 3. Complications including stroke, paraplegia, and cardiorespiratory failure are measured using patient records throughout follow up and reported at one year for the TEVAR group and five years after randomisation for all patients

- 4. Reinterventions are measured using patient records throughout follow up and reported at one and five years after randomisation
- 5. Quality of Life (QoL) is measured using EQ-5D-5L questionnaires at baseline, 6 weeks, 6 months, 12 months, and then annually from randomisation until the end of follow up
- 6. Aortic remodelling is measured using CT/MRI scans assessed using a specific CT analysis protocol from the core lab at one year after TEVAR in the intervention group and at five years
- 7. Costs are measured using health resource use and cost data at 6 weeks, 6 months, 12 months, and then annually from randomisation and analysed at 5 years
- 8. Cost-effectiveness is measured using health resource use and cost data at 6 weeks, 6 months, 12 months, and then annually from randomisation and analysed at 5 years
- 9. Controlled blood pressure is measured using blood pressure recordings at baseline, 6 weeks, 6 months, 12 months, and then annually from randomisation until the end of follow up and analysed at 5 years

Completion date

01/02/2034

Eligibility

Key inclusion criteria

- 1. Patients with uTBAD, 10 days-3 months after the day of admission with acute uTBAD to hospital (the date of the index event)
- 2. Age ≥18 years
- 3. Life expectancy ≥2 years

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Sex

All

Key exclusion criteria

- 1. Complicated TBAD (ruptured aorta, aortic dilatation >5cm or visceral/limb/spinal malperfusion, persistent pain or uncontrolled BP).
- 2. Previous TBAD.
- 3. Type A dissection
- 4. At significant risk from complications (either from condition related to the dissection or not rephrase) during TEVAR

Date of first enrolment

14/04/2025

Date of final enrolment

01/09/2029

Locations

Countries of recruitment

United Kingdom

England

Northern Ireland

Study participating centre Imperial College Healthcare NHS Trust

The Bays St Marys Hospital South Wharf Road London United Kingdom W2 1BL

Study participating centre Royal Brompton Hospital

Sydney Street London United Kingdom SW3 6NP

Study participating centre

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Freeman Hospital
Freeman Road
High Heaton
Newcastle upon Tyne
United Kingdom
NE7 7DN

Study participating centre University Hospitals of Leicester NHS Trust

Leicester Royal Infirmary Infirmary Square Leicester United Kingdom LE1 5WW

Study participating centre University Hospitals of North Midlands NHS Trust

Newcastle Road Stoke-on-trent United Kingdom ST4 6QG

Study participating centre Barts and the London NHS Trust

Alexandra House The Royal London Hospital Whitechapel London United Kingdom E1 1BB

Study participating centre Belfast Health and Social Care Trust

Trust Headquarters A Floor - Belfast City Hospital Lisburn Road Belfast United Kingdom **BT9 7AB**

Study participating centre

Cambridge University Hospitals NHS Foundation Trust - Oxford Covid19 Trials

Nihr Cambridge Clinical Research Cambridge Biomedical Campus Hills Road Cambridge United Kingdom CB2 0QQ

Study participating centre The Guys and St Thomas' NHS Trust

Guys Hospital

St Thomas Street London United Kingdom SE1 9RT

Study participating centre Hull University Teaching Hospitals NHS Trust

Hull Royal Infirmary Anlaby Road Hull United Kingdom HU3 2JZ

Study participating centre Leeds Teaching Hospitals NHS Trust

St. James's University Hospital Beckett Street Leeds United Kingdom LS9 7TF

Study participating centre Liverpool University Hospitals NHS Foundation Trust

Royal Liverpool University Hospital Prescot Street Liverpool United Kingdom L7 8XP

Study participating centre Manchester University Hospital NHS Ft (hq) Oxford Road Manchester United Kingdom

M13 9WL

Study participating centre Basildon and Thurrock University Hospitals NHS Foundation Trust Basildon Hospital Nethermayne Basildon

United Kingdom SS16 5NL

Study participating centre

Norwich

Norfolk & Norwich University Hosp' Colney Lane Colney Norwich United Kingdom NR4 7UY

Study participating centre

Nottingham University Hospitals NHS Trust - Queen's Medical Centre Campus

Nottingham University Hospital Derby Road Nottingham United Kingdom NG7 2UH

Study participating centre Oxford University Hospitals NHS Trust

Churchill Hospital
Old Road
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Oxford
United Kingdom
OX3 7LE

Study participating centre Royal Free London NHS Foundation Trust

Royal Free Hospital Pond Street London United Kingdom NW3 2QG

Study participating centre University Hospitals Birmingham NHS Foundation Trust Queen Elizabeth Hospital Mindelsohn Way

Edgbaston Birmingham United Kingdom B15 2GW

Study participating centre North Bristol NHS Trust

Southmead Hospital Southmead Road Westbury-on-trym Bristol United Kingdom BS10 5NB

Study participating centre University Hospitals Coventry and Warwickshire NHS Trust

Walsgrave General Hospital Clifford Bridge Road Coventry United Kingdom CV2 2DX

Study participating centre University Hospital Southampton NHS Foundation Trust

Southampton General Hospital Tremona Road Southampton United Kingdom SO16 6YD

Study participating centre

University Hospitals Sussex NHS Foundation Trust

Worthing Hospital Lyndhurst Road Worthing United Kingdom BN11 2DH

Sponsor information

Organisation

Imperial College London

ROR

https://ror.org/041kmwe10

Funder(s)

Funder type

Government

Funder Name

Health Technology Assessment Programme

Alternative Name(s)

NIHR Health Technology Assessment Programme, Health Technology Assessment (HTA), HTA

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

All data generated or analysed during this study will be included in the subsequent results publication

IPD sharing plan summary

Published as a supplement to the results publication

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
Study website	Study website	11/11/2025	11/11/2025	No	Yes