

Reducing the rate of blood clots in patients undergoing varicose vein treatment

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| Submission date 24/02/2023 | Recruitment status Recruiting | <input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol |
| Registration date 15/09/2023 | Overall study status Ongoing | <input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results |
| Last Edited 03/03/2026 | Condition category Circulatory System | <input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year |

Plain English summary of protocol

Background and study aims

Varicose veins are enlarged veins close to the surface of the skin. They are connected to the bigger deeper veins in the leg, known as deep veins. Endovenous interventions are keyhole operations for varicose veins that are carried out from within the vein itself. Because of this, operations to close the varicose veins can increase the chance of a blood clot forming in the deep veins. Blood clots in the deep veins happen in around 1 in 50 people after endovenous operations. A clot in the leg can cause swelling, pain, and other problems. If a clot in the leg travels to the lungs, it may be life-threatening. Medicines to reduce the blood's tendency to form clots are often prescribed to patients at high risk of blood clots. However, it is unclear if these clot-reducing medicines are beneficial in preventing blood clots in people having these varicose vein procedures. Elastic stockings that squeeze the leg and improve the blood flow through the veins are applied after the varicose vein procedure which helps to reduce the risk of blood clots. This study will investigate if it is worthwhile to prescribe medicines to reduce blood clots after varicose vein procedures. People enrolled in the study will undergo an assessment to make sure that they don't have the most important risk factors for clots.

Who can participate?

Patients aged over 18 years scheduled to undergo endovenous treatment of varicose veins under local anaesthetic

What does the study involve?

Participants will receive stockings along with, at random, one of the following three treatments:

1. No clot-reducing medicine, or
2. A single dose of clot-reducing medicine, or
3. An extended course (7-14 days) of clot-reducing medicine

Everyone in the study will get an ultrasound scan 21-28 days after their operation to check if they have not developed a blood clot. This scan is not routinely performed in the NHS and is an additional scan to ensure that all blood clots are detected early. Participants will also receive a phone call 7- and 90-days after their procedure to see if they have developed a blood clot or had any problems with the treatment.

What are the possible benefits and risks of participating?

Patients who would not normally be given blood thinning medication as standard treatment may be assigned to the blood thinning medication group and thus may have a lower risk of developing a blood clot. Similarly, patients who would have normally received blood thinning medication and may have experienced an adverse reaction to this treatment may be assigned to the group receiving only elastic stockings, thus reducing the likelihood of potentially experiencing an adverse reaction to the medication. In addition to this, participants in all arms of the trial will be monitored closely for any complications of blood thinners and stockings, so that any complications can be detected and acted upon. Participants will have an extra non-invasive leg scan about 3 weeks after their procedure to detect any asymptomatic blood clots in the legs. Patients not entered into the study would not normally be offered this scan unless they showed symptoms.

The trial will be continually monitored for safety and stopped at any time on the recommendation of the data monitoring committee if there is marked clinical harm resulting in a lack of equipoise and it being deemed unethical to continue the trial. A study-specific risk assessment will also be performed prior to the start of the study by the study sponsor. The risk assessment will consider all aspects of the study and will be updated as required during the course of the study.

We do not expect participation to result in any additional burden on the participant. Participants will attend hospital for a duplex venous ultrasound scan 21 days after the procedure, and the researchers will offer reimbursement for travel. Participants will then be followed up remotely at 7 and 90 days after the procedure. Data can be provided by online survey, text or telephone depending on patient preference. Minimal data collection will occur at these follow-ups. Incidental findings may be identified during study assessments, such as the duplex ultrasound scan. Such findings will be reported to the local clinical team and to the participant's GP. Blood thinners are offered routinely to people who would be eligible to participate in this study. Possible complications of blood thinners are bleeding, allergy, rash and low numbers of platelets in the blood (platelets help the blood to clot). These are only the complications which could occur; we are not expecting them all to happen to every participant, and the majority of people do not have any complications. The risk of blood clots is higher in pregnant women. Pregnant women therefore should not take part in this study, and neither should women who plan to become pregnant during the 90 days of the study. Women who could become pregnant should use an effective method of contraception during the course of this study. Any woman who finds that she has become pregnant while taking part in the study should inform her research doctor as soon as possible.

Where is the study run from?

Imperial College London (UK)

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

February 2023 to December 2027

Who is funding the study?

Health Technology Assessment Programme (UK)

Who is the main contact?

Sarah Whittle, s.whittle@imperial.ac.uk

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)

2023-000217-40

Integrated Research Application System (IRAS)

1007271

ClinicalTrials.gov (NCT)

NCT05735639

Protocol serial number

22CX7510, CPMS 55506

Study information

Scientific Title

THRomboprophylaxis in Individuals undergoing superficial endoVenous treatment (THRIVE): a multicentre assessor-blind randomized controlled trial

Acronym

THRIVE

Study objectives

Primary objective:

To establish whether patients undergoing endovenous varicose vein interventions benefit from a single dose or an extended course of pharmacological thromboprophylaxis to prevent venous thromboembolism (VTE)

Secondary objectives:

1. Comparisons of quality of life at 7- and 90-days post-procedure using the EQ-5D
2. Mortality rates in each group
3. Cost-effectiveness of providing pharmacological thromboprophylaxis
4. Sub-group analyses of the following risk assessment tools: Department of Health Risk Assessment (DHRA) tool, Caprini score
5. Individual components of the composite outcome

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 06/09/2023, London - Brent Research Ethics Committee (Health Research Authority, 2 Redman Place, Stratford, London, E20 1JQ, UK; +44 (0)20 7104 8128; brent.rec@hra.nhs.uk), ref: 23/LO/0261

Study design

Randomized controlled open parallel-group trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

VTE prevention (in patients undergoing endovenous varicose vein interventions)

Interventions

Participants (n = 6,660) will undergo 1:1:1 web-based randomization to one of three thromboprophylaxis strategies prior to undergoing endovenous treatment. Randomization will be conducted through an automated system linked to the eCRF setup via the Study Data Centre at the Edinburgh Clinical Trials Unit.

Participants will be individually randomized to one of three thromboprophylaxis strategies prior to undergoing endovenous treatment:

1. Compression therapy alone
2. Compression therapy + a single dose of low-molecular-weight heparin (LMWH) at the time of the procedure
3. Compression therapy + a single dose of LMWH at the time of the procedure + extended prophylactic dose of anticoagulation with LMWH or direct-acting oral anticoagulants (DOAC)

Intervention Type

Drug

Phase

Phase IV

Drug/device/biological/vaccine name(s)

Dalteparin sodium, enoxaparin sodium, tinzaparin sodium, apixaban, rivaroxaban, dabigatran etexilate

Primary outcome(s)

Lower limb deep vein thrombosis (DVT) (with or without symptoms), or pulmonary embolism (PE) with symptoms, assessed using duplex ultrasound and VTE outcome questionnaire (self-reported) at 7 days post-procedure, 21 days post-procedure, and 90 days post-procedure

Key secondary outcome(s)

1. Lower limb DVT with or without symptoms (individual component of the composite outcome), assessed using duplex ultrasound and VTE outcome questionnaire (self-reported) at 7 days post-procedure, 21 days post-procedure, and 90 days post-procedure
2. PE with symptoms (individual component of the composite outcome), assessed using VTE outcome questionnaire (self-reported) at 7 days post-procedure, and 90 days post-procedure
3. Quality of life measured using EQ-5D at 7 days post-procedure and 90 days post-procedure
4. Mortality measured using a self-reported questionnaire and serious adverse event (SAE) reporting form (if applicable) at 90 days post-procedure
5. Cost-effectiveness of providing pharmacological thromboprophylaxis measured using Incremental Cost-Effectiveness Ratio (ICER) at 90 days post-procedure
6. VTE risk stratification using current risk assessment tools (Department of Health Risk Assessment [DHRA] tool, Caprini score) at baseline and up to 90 days post-procedure

Completion date

31/12/2027

Eligibility

Key inclusion criteria

1. Adults (>18 years)
2. Scheduled to undergo endovenous intervention of truncal varicose veins under local anaesthesia
3. Treatment technologies including radiofrequency, laser, mechanochemical, foam sclerotherapy and cyanoacrylate glue

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

18 years

Upper age limit

120 years

Sex

All

Total final enrolment

0

Key exclusion criteria

Current exclusion criteria as of 06/03/2025:

1. Clinical indication for therapeutic anticoagulation e.g., atrial fibrillation
 2. Previous personal or first-degree relative history of VTE
 3. Thrombophilia
 4. Female patients of childbearing potential who have a positive pregnancy test
 5. A history of allergy to heparins or direct oral anticoagulants
 6. A history of heparin-induced thrombocytopenia
 7. Inherited and acquired bleeding disorders
 8. Evidence of active bleeding
 9. Concomitant major health problems such as active cancer and chronic renal and/or liver impairment
 10. Known thrombocytopenia (platelets known to be less than $50 \times 10^9/l$)
 11. Major trauma or non-venous surgery that required local risk assessment for VTE in the previous 90 days
 12. Recent ischemic stroke in the previous 90 days
 13. Inability to provide consent
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Previous exclusion criteria as of 12/01/2024:

1. Clinical indication for therapeutic anticoagulation e.g., atrial fibrillation
2. Previous personal or first-degree relative history of VTE
3. Thrombophilia
4. Female patients of childbearing potential who have a positive pregnancy test
5. A history of allergy to heparins or direct oral anticoagulants
6. A history of heparin-induced thrombocytopenia
7. Inherited and acquired bleeding disorders
8. Evidence of active bleeding
9. Concomitant major health problems such as active cancer and chronic renal and/or liver impairment
10. Known thrombocytopenia (platelets known to be less than $50 \times 10^9/l$)
11. Surgery or major trauma in the previous 90 days
12. Recent ischemic stroke in the previous 90 days
13. Inability to provide consent

Previous exclusion criteria:

1. Clinical indication for therapeutic anticoagulation
2. Clinical contraindication to anticoagulation
3. Previous personal or family history of VTE
4. Thrombophilia
5. Inability to provide informed consent or consent by personal/professional legal representative
6. A positive test for SARS-CoV2 <3 months of procedure
7. Female patients of childbearing age who have a positive pregnancy test

Date of first enrolment

15/01/2024

Date of final enrolment

31/03/2027

Locations

Countries of recruitment

United Kingdom

England

Northern Ireland

Wales

Study participating centre

Aneurin Bevan University Health Board

Lodge Road

Caerleon
Newport
Wales
NP18 3XQ

Study participating centre
Brighton and Sussex University Hospitals NHS Trust
Royal Sussex County Hospital
Eastern Road
Brighton
England
BN2 5BE

Study participating centre
Buckinghamshire Healthcare NHS Trust
Amersham Hospital
Whielden Street
Amersham
England
HP7 0JD

Study participating centre
Cambridge University Hospitals NHS Foundation Trust
Cambridge Biomedical Campus
Hills Road
Cambridge
England
CB2 0QQ

Study participating centre
Cardiff & Vale University Lhb
Woodland House
Maes-y-coed Road
Cardiff
Wales
CF14 4HH

Study participating centre
Cwm Taf Morgannwg University Local Health Board
Dewi Sant Hospital
Albert Road

Pontypridd
Wales
CF37 1LB

Study participating centre
East Kent Hospitals University NHS Foundation Trust
Kent & Canterbury Hospital
Ethelbert Road
Canterbury
England
CT1 3NG

Study participating centre
East Lancashire Hospitals NHS Trust
Royal Blackburn Hospital
Haslingden Road
Blackburn
England
BB2 3HH

Study participating centre
Frimley Health NHS Foundation Trust
Portsmouth Road
Frimley
Camberley
England
GU16 7UJ

Study participating centre
Guys and St Thomas' NHS Foundation Trust
249 Westminster Bridge Road
London
England
SE1 7EH

Study participating centre
Hull University Teaching Hospitals NHS Trust
Hull Royal Infirmary
Anlaby Road

Hull
England
HU3 2JZ

Study participating centre
Imperial College Healthcare NHS Trust
The Bays
St Marys Hospital
South Wharf Road
London
England
W2 1BL

Study participating centre
Leeds Teaching Hospitals NHS Trust
St. James's University Hospital
Beckett Street
Leeds
England
LS9 7TF

Study participating centre
Liverpool University Hospitals NHS Foundation Trust
Royal Liverpool University Hospital
Prescot Street
Liverpool
England
L7 8XP

Study participating centre
London North West University Healthcare NHS Trust
Northwick Park Hospital
Watford Road
Harrow
England
HA1 3UJ

Study participating centre
Manchester University NHS Foundation Trust
Cobbett House
Oxford Road

Manchester
England
M13 9WL

Study participating centre
Mid and South Essex NHS Foundation Trust
Prittlewell Chase
Westcliff-on-sea
England
SS0 0RY

Study participating centre
The Newcastle upon Tyne Hospitals NHS Foundation Trust
Freeman Hospital
Freeman Road
High Heaton
Newcastle upon Tyne
England
NE7 7DN

Study participating centre
Norfolk and Norwich University Hospitals NHS Foundation Trust
Colney Lane
Colney
Norwich
England
NR4 7UY

Study participating centre
Nottingham University Hospitals NHS Trust
Trust Headquarters
Queens Medical Centre
Derby Road
Nottingham
England
NG7 2UH

Study participating centre
Oxford University Hospitals
John Radcliffe Hospital
Headley Way

Headington
Oxford
England
OX3 9DU

Study participating centre
The Royal Wolverhampton NHS Trust
New Cross Hospital
Wolverhampton Road
Heath Town
Wolverhampton
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WV10 0QP

Study participating centre
Somerset NHS Foundation Trust
Trust Management
Lydeard House
Musgrove Park Hospital
Taunton
England
TA1 5DA

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St George's University Hospital NHS Foundation Trust
Blackshaw Road
Tooting
London
England
SW17 0QT

Study participating centre
Swansea Bay University Local Health Board
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Seaway Parade Industrial Estate
Baglan
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Wales
SA12 7BR

Study participating centre

University Hospitals Bristol and Weston NHS Foundation Trust

Trust Headquarters
Marlborough Street
Bristol
England
BS1 3NU

Study participating centre

University Hospitals of Leicester NHS Trust

Leicester Royal Infirmary
Infirmary Square
Leicester
England
LE1 5WW

Study participating centre

University Hospitals of North Midlands NHS Trust

Newcastle Road
Stoke-on-trent
England
ST4 6QG

Study participating centre

Veincentre Limited

Ashley Farm
School Lane
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Market Drayton
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TF9 4LF

Study participating centre

Western Health and Social Care Trust

Mdec Building
Altnagelvin Area Hospital Site
Glenshane Road
Londonderry
Northern Ireland
BT47 6SB

Study participating centre

Worcestershire Acute Hospitals NHS Trust

Worcestershire Royal Hospital
Charles Hastings Way
Worcester
England
WR5 1DD

Study participating centre**York and Scarborough Teaching Hospitals NHS Foundation Trust**

York Hospital
Wigginton Road
York
England
YO31 8HE

Study participating centre**The Whiteley Clinic**

1 Chapel Pl
London
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W1G 0BG

Study participating centre**Northampton General Hospital NHS Trust**

Cliftonville
Northampton
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NN1 5BD

Study participating centre**Belfast Health and Social Care Trust**

Trust Headquarters
A Floor - Belfast City Hospital
Lisburn Road
Belfast
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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

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|----------------------------------|-------------|--------------|------------|----------------|-----------------|
| Protocol article | | 17/02/2024 | 19/02/2024 | Yes | No |
| Protocol file | version 2.0 | 18/08/2023 | 15/09/2023 | No | No |