

Comparing a nail placed within the fibula (calf bone) to plates and screws in surgical stabilisation of unstable ankle fractures in adults

Submission date 13/03/2020	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 14/04/2020	Overall study status Completed	☐ Statistical analysis plan ☐ Results
Last Edited 15/05/2020	Condition category Surgery	☐ Individual participant data ☐ Record updated in last year

Plain English summary of protocol

Unstable ankle fractures are most commonly managed with surgery using plates and screws. There can be complications related principally to wound healing and infection, and prominent metalwork. In patients with poor skin condition, such as those aged over 65, and diabetics, an alternative device, the fibular nail, has been shown to achieve reduction and stability with a lower rate of such complications. The aim of this study was to compare the outcome of fibular nail with plate fixation for unstable fractures of the ankle in a younger cohort of patients.

Background and study aims

Ankle fractures are common injuries. When the fracture is unstable it requires surgery, and the most common way to fix the bones is with plates and screws. There can be problems from the wound and the plate. In this study, the investigators aimed to compare this established technique with a newer alternative: the use of a fibular nail which avoids both potential problems.

Who can participate?

Adult patients with unstable ankle fractures

What does the study involve?

Participants will be randomly allocated to one of two groups. One group will have standard fixation surgery using plates and screws. The other will have fixation surgery using the fibular nail.

What are the possible benefits and risks of participating?

Participants in the fibular nail group may have a lower rate of wound- and metalwork-related complications. They will, however, still have an operation and therefore there will inevitably still be a small risk of surgical and anaesthetic complications.

Where is the study run from?
Royal Infirmary of Edinburgh (UK)

When is the study starting and how long is it expected to run for?
May 2010 to March 2015

Who is funding the study?
Scottish Orthopaedic Research Trust - into trauma (SORT-it) (UK)

Who is the main contact?
Mr Tim White, tim.white@nhslothian.scot.nhs.uk

Contact information

Type(s)
Scientific

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Integrated Research Application System (IRAS)
88616

Study information

Scientific Title
A prospective, randomised, controlled, multicentre, international trial comparing the fibular nail with open reduction and internal fixation for unstable ankle fractures in younger patients

Study objectives
There is no difference in outcome, as measured by Olerud and Mollander Ankle Score at 1 year, between standard open reduction and internal fixation, and fibular nailing, of unstable ankle fractures. This is an extension of a study examining outcomes using the same procedure in elderly patients only (see <https://pubmed.ncbi.nlm.nih.gov/27587528/>).

Ethics approval required

Old ethics approval format

Ethics approval(s)

1. Initial study in elderly subjects approved 07/04/2005, Lothian Local Research Ethics Committee 02 (Deaconess House, 148 Pleasance, Edinburgh, EH8 9RS; +44 (0)131 536 9000; no email), ref: 05/S1102/02
2. Amended 07/11/2006, Lothian Local Research Ethics Committee 02 (Deaconess House, 148 Pleasance, Edinburgh, EH8 9RS; +44 (0)131 536 9000; lyndsay.baird@lhb.scot.nhs.uk), ref: 05/S1102/02
3. Amended to enable recruitment of younger participants 04/03/2010, NHS Lothian R&D Office (Room E1.12, Queen's Medical Research Institute, 47 Little France Crescent, Edinburgh, EH16 4TJ; +44 (0)131 242 3330; R&DOffice@luht.scot.nhs.uk), ref: 05/S1102/02, 2010/R/OP/01
4. Approved, Danish Ethics Committee, ref: H-4-2011-141

Primary study design

Interventional

Study design

Randomized controlled two-centre clinical trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Surgical stabilisation of ankle fractures

Interventions

Participants were randomly allocated to the control or intervention arms using sealed opaque envelope allocation with a ratio of 1:1 in batches of 20.

Control: Open reduction and internal fixation was performed in the standard manner with plates and screws.

Intervention: Fibular nailing was performed according to the manufacturer's instructions and the investigators' previously published technique (<https://www.ncbi.nlm.nih.gov/pubmed/22844054>).

Duration of treatment: Surgical procedure performed within a week of injury and surgery lasts around 1 h. Moon-boot orthosis worn for 6 weeks.

Follow-up: Clinical, functional and radiological assessments were carried out at 6 weeks, 3 months, 6 months, 1 year and 2 years post-randomisation. Complications and the need for further surgery was recorded at each visit. Complications were defined as superficial or deep wound infections, loss of fracture reduction, symptomatic metalwork requiring removal, onset of neurological symptoms and/or signs following surgery, and further surgery for any cause. Superficial infections were defined as an infection that resolved with antibiotics and required no surgical intervention. Deep infections were defined as requiring a return to theatre for surgical debridement with or without subsequent removal of metalwork. Late removal of symptomatic metalwork was performed for prominence, pain and discomfort at the patient's request only.

Intervention Type

Device

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Acumed fibular nail

Primary outcome(s)

Ankle symptoms after ankle fracture assessed using the Olerud-Molander Ankle Score core (OMAS) at 1 year

Key secondary outcome(s)

Complications assessed by follow-up examination at 6 weeks, 3 months, 6 months, 1 year and 2 years post-randomisation

Completion date

10/03/2015

Eligibility

Key inclusion criteria

1. Aged ≥ 18 to < 65 years
2. Unstable fracture of the ankle
3. Within 2 weeks of fracture
4. No ipsilateral injury to the lower limb

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Sex

All

Key exclusion criteria

1. Patients unable to give informed consent or those with cognitive impairment
2. Bilateral injuries or ipsilateral injury to the lower limb
3. Pilon fractures
4. Patients unable to comply with follow-up

Date of first enrolment

18/09/2011

Date of final enrolment

24/02/2013

Locations**Countries of recruitment**

United Kingdom

Scotland

Denmark

Study participating centre

Royal Infirmary of Edinburgh

Little France

Edinburgh

United Kingdom

EH16 4SU

Study participating centre

Hvidovre University Hospital

Copenhagen

Denmark

2650

Sponsor information**Organisation**

NHS Lothian

ROR

<https://ror.org/03q82t418>

Funder(s)**Funder type**

Research organisation

Funder Name

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are not expected to be made available due to conditions pertaining at the ethical approval stage.

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version v4	17/08/2009	15/05/2020	No	Yes