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Exploring efficacy, cost effectiveness and experiences related to adherence of different bisphosphonate regimens for the prevention of osteoporotic fragility fractures (The BLAST OFF Study)

Submission date
09/12/2019

Recruitment status
No longer recruiting

Registration date
04/02/2020

Overall study status
Completed

Last Edited
22/04/2024

Condition category
Musculoskeletal Diseases

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Osteoporosis is a condition where bones become weak and fragile and can easily break. Suffering from one fragility fracture doubles your chance of having another. These fractures can affect a person's life significantly and contribute to significant costs to the UK health service.

Bisphosphonates are used to treat osteoporosis and help prevent fractures. The most commonly used bisphosphonate treatment is Alendronate, but taking it correctly is complicated and side-effects are common. Therefore only 1 in 4 people continue with Alendronate beyond 2 years. There are different forms of bisphosphonates that can be given in different ways and frequencies and may be more acceptable and tolerated by patients.

The study will look at how effective different bisphosphonate regimens are compared to Alendronate at preventing fractures, whether the reduction in fracture risk can be achieved at reasonable financial cost and establish acceptability of different approaches to patients.

Who can participate?
All adults over the age of 18 with the ability to give informed consent who fulfil the criteria for one of these stakeholder groups:
- GPs
- Patients who started on oral bisphosphonates within the last 24 months for prevention of fragility fractures
- Secondary care specialist clinicians (nurses, consultants) involved in the treatment of osteoporosis
- Patients receiving hospital based (intravenous) bisphosphonate treatments for prevention of fragility fractures who began treatment within the last 24 months
- Clinical academics involved in osteoporosis research

- Specialist clinicians (nurses, consultants) from the osteoporosis service in Nottingham and Sheffield with insight into alternate bisphosphonate treatments
- Patients receiving alternate bisphosphonate treatments for prevention of fragility fractures who began treatment within the last 24 months
- Commissioners involved in osteoporosis services

What does the study involve?

The study will be completed in 3 stages.

Stage 1A will update a previous review of published literature (systematic review) to inform which bisphosphonate regimens are most effective at reducing fractures and use a health economic model to analyse which regimen provides the best value for money. Additional studies will be included and data to look at treatment compliance and long-term persistence (adherence) and treatment safety and side-effects. This stage will not involve any study participants.

Stage 1B will consist of qualitative semi-structured interviews from a sample of stakeholders in receipt of or involved in the delivery of different bisphosphonate regimens, in order to identify which regimens are most acceptable to patients. A scoping review will help develop an iterative interview topic guide in order to explore the views, experiences and preferences of different bisphosphonate regimens from patients, clinicians and researchers, and analysed to inform the issues of treatment adherence. This methodology has been chosen in order to collate pragmatic information on this area and explore uncertainties to help inform future research questions that should be addressed in order to improve care in this area.

Stage 2 will engage stakeholders (patients, clinicians, researchers, commissioners) in focus groups and workshops to discuss uncertainties from Stage 1 and identify the most important outstanding questions for future research. These stakeholder meetings will be arranged with support by the Royal Osteoporosis Society and prioritised research questions formed using the James Lind methodology. Stakeholders will not be invited via NHS organisations, and no identifiable information will be collected. Use of the Health Research Authority decision tool identifies that this stage does not require NHS ethical approval.

What are the possible benefits and risks of participating?
There are no specific benefits or risks to participants as there is no treatment interventions associated with the study.

There is a burden to participants in terms of time and inconvenience of taking part in an interview. This will be minimised using an iterative approach to interview guides to maximise efficiency of the semi-structured interview topics, minimise travel by offering several options for the interview setting to participants, and offer an inconvenience allowance.

Rarely there may be a participant disclosure during interview that is a safeguarding concern. The researcher will inform the participant that they have a duty to report their concern of harm to the participant or others to a relevant healthcare professional, initially the Chief Investigator of the study, for referral on as deemed necessary.

Where is the study run from?
Nottingham University Hospitals NHS Trust, Nottingham, UK

When is the study starting and how long is it expected to run for?
September 2019 – April 2022 (updated 10/03/2021, previously: October 2021)

Who is funding the study?
National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme; project reference NIHR 127550

Who is the main contact?
Professor Opinder Sahota (Chief Investigator)
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Contact information

Type(s)
Scientific

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT04283786

Integrated Research Application System (IRAS)
271732

Protocol serial number
43961

Study information

Scientific Title
The BLAST OFF (Bisphosphonate aLternAtive regimenS for the prevenTion of Osteoporotic Fragility Fractures) study

Acronym
BLAST OFF

Study objectives
Comparing alternative regimens of bisphosphonates to the standard regimen of oral Alendronate, in preventing osteoporotic fracture in adults, the main research questions are:
- Which bisphosphonate regimen is most effective at preventing osteoporotic fragility fractures with inclusion of reported side-effect profiles?
- Which bisphosphonate regimen provides best value for money in terms of efficiency and cost using a health economic model?
The aims are to:
- Understand patient, clinician and researcher views, experiences and preferences in regards to adherence to different bisphosphonate regimens
- Co-produce prioritised research questions to inform future research in this area

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 23/12/2019, North West - Preston Research Ethics Committee (Barlow House, 3rd floor, 4 Minshull Street, Manchester, M1 3DZ; +44 (0)207 1048197; nrescommittee.northwest-preston@nhs.net), ref: 19/NW/0714

Primary study design
Observational

Study design
Observational qualitative study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Osteoporotic fragility fractures

Interventions
The study will be completed in 3 stages. Stage 1A will update a systematic review to inform which regimens are most effective at reducing fractures and provide the best value for money. Stage 1B will consist of qualitative semi-structured interviews from a sample of stakeholders in receipt of or involved in the delivery of different bisphosphonate regimens, in order to identify which regimens are most acceptable to patients. Stage 2 will use focus groups and workshops to discuss uncertainties from Stage 1 and identify the most important outstanding questions for future research.

This ethical review and information provided relates to Stage 1B. Stage 1A does not involve participants so does not require ethical review. Stage 2 will be conducted by the Royal

Osteoporosis Society. Participants will not be invited via NHS organisations and no identifiable information will be collected. Use of the Health Research Authority decision tool identifies Stage 2 does not require ethical review.

Participants are only involved in Stage 1B of the study, which consists of qualitative interviews only.

Participants will be drawn from several different areas of healthcare, in order to ensure a best range of relevant patients', clinicians', commissioners', service managers' and researchers' experiences. Patient participants will be identified as potentially eligible by their healthcare providers, either via their GP surgery or secondary care clinician.

Patients will receive a Study Information Pack via the post, containing an Invitation (Patient) Letter from their GP or responsible secondary care doctor, a Participant (Patient) Information Sheet, a reply slip and a freepost envelope with the Research Team's return address. This information pack will also include the Research Team's contact details in order that potential participants have an opportunity to ask questions before indicating an interest in taking part in the study. Patients may also contact the Research Team to express interest by response to a Patient Information Poster in certain service areas, and they will be supplied with the same Study Information Pack. Patients who return a reply slip will be contacted by a member of the Research Team to arrange a convenient time and location in which to obtain written informed consent and undertake the semi-structured interview, which is likely to be immediately after written consent is obtained.

Non-patient participants will be identified as potentially eligible via their General Practice Managers or via snowball sampling from their Service Lead in secondary care services. They will be provided with an Invitation (Clinician) Letter/Email and Participant (Clinician) Information Sheet. The information pack will also include the Research Team's contact details in order that potential participants have an opportunity to ask questions before indicating an interest in taking part in the study. If they indicate to the Research Team they would like to participate in the study, a member of the Research Team will contact the participant to obtain written informed consent, before arranging a convenient time and location to undertake the semi-structured interview, which may be immediately after written consent is obtained.

The semi-structured interviews will be conducted face-to-face or by telephone and are expected to take 40-50 minutes to complete. Face-to-face interviews will be conducted in a private setting either within the site of treatment or at their home in the case of a patient participant, or within the place of work for non-patient participants.

The interview guide will be developed iteratively throughout the study to cover issues as identified from the scoping review of published studies assessing experiences of bisphosphonate regimens, as well as wider experiences of service quality and delivery. This will include questions around patient factors (such as values and health beliefs), service factors (location, accessibility, assurance, and empathy), relational factors (provider patient relations) and medication factors (dosing complexity, frequency, side effects). Clinician interviews will also include barriers to maintain a service around alternative bisphosphonates regimens, as well as changes in service over time.

Interviews will be undertaken by qualitative researchers (employed by University of Nottingham). Interviews will be audio-recorded and then transcribed by Clayton Research Support, a Nottingham University Hospitals and University of Nottingham approved transcription service.

There is no intervention involved in this study. Once the interview is completed, a participant's involvement in the study is ended. There is no further follow-up.

Thematic analysis of interview data will be conducted. This will involve familiarisation, identification of a framework, and interpretation, paying particular attention to themes clustered around service variables. The analysis will involve a preliminary phase of more general qualitative data analysis (close reading of transcripts, open coding, identification of themes). Analysis will be undertaken in the first instance by the Research Fellow alongside and overseen by the Stage 1B Lead. Emerging themes (with all identifying information removed) will be discussed at appropriate intervals with the wider study management group. The approach will allow for both a-priori and emergent codes to be identified. NVivo software will be used to develop an appropriate coding strategy and framework.

Intervention Type
Other

Primary outcome(s)
Views, experiences and preferences of patients, clinicians and researchers regarding different bisphosphonate treatment regimens collected through conduction and analysis of semi-structured interviews.

Key secondary outcome(s)
1. Effectiveness of different bisphosphonate regimens in preventing fragility fractures in adults by analysis of published literature by systematic review
2. Cost-effectiveness of different bisphosphonate regimens in preventing fragility fractures in adults using a health economic model on data of published literature identified by systematic review
3. Prioritised future research questions regarding the effectiveness and adherence profile of different bisphosphonate regimens in preventing fragility fractures in adults by stakeholder engagement workshops using the James Lind methodology

Completion date
30/04/2022

Eligibility

Key inclusion criteria
1. Adults over the age of 18 with the ability to give informed consent
Participants will need to come from one of the following stakeholder groups:
2. GPs
3. Patients who started on oral bisphosphonates within the last 24 months for prevention of fragility fractures
4. Secondary care specialist clinicians (nurses, consultants) involved in the treatment of osteoporosis
5. Patients receiving hospital based (intravenous) bisphosphonate treatments for prevention of fragility fractures who began treatment within the last 24 months
6. Clinical academics involved in osteoporosis research
7. Specialist clinicians (nurses, consultants) from the osteoporosis service in Nottingham and Sheffield with insight into alternate bisphosphonate treatments
8. Patients receiving alternate bisphosphonate treatments for prevention of fragility fractures

who began treatment within the last 24 months
9. Commissioners involved in osteoporosis services

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
100

Key exclusion criteria
1. Patients who take bisphosphonate medicines for reasons other than osteoporosis or osteopenia, including patients with an active cancer, primary hyperparathyroidism and Paget's disease
2. Considered to be near to end of life

Date of first enrolment
01/03/2020

Date of final enrolment
01/09/2021

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Queen's Medical Centre (lead centre)
Nottingham University Hospitals NHS Trust
Nottingham
United Kingdom
NG7 2UH

Study participating centre
Northern General Hospital
Sheffield Teaching Hospitals NHS Foundation Trust
Herries Road
Sheffield
United Kingdom
S5 7AU

Study participating centre
Royal Derby Hospital
Uttoxeter Road
Derby
United Kingdom
DE22 3NE

Study participating centre
Queen Elizabeth Hospital Birmingham
University Hospitals Birmingham NHS Foundation Trust
Mindelsohn Way
Birmingham
United Kingdom
B15 2TH

Study participating centre
Lincoln County Hospital
Greetwell Road
Lincoln
United Kingdom
LN2 4AX

Study participating centre
Royal Stoke University Hospital
Newcastle Road
Stoke-on-Trent
United Kingdom
ST4 6QG

Study participating centre
Royal Osteoporosis Society Network
Camerton
Somerset

United Kingdom
BA2 0PJ

Sponsor information

Organisation
Nottingham University Hospitals NHS Trust

ROR
https://ror.org/05y3qh794

Funder(s)

Funder type
Government

Funder Name
NIHR Evaluation, Trials and Studies Co-ordinating Centre (NETSCC); Grant Codes: NIHR127550

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

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 participant confidentiality.

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		02/04/2022	26/04/2022	Yes	No
Results article		02/11/2022	21/04/2023	Yes	No
Results article	Acceptability and effectiveness	01/04/2024	22/04/2024	Yes	No
HRA research summary			28/06/2023	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes