NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Abaloparatide for treating idiopathic or hypogonadal osteoporosis in men

Draft scope

Draft remit/evaluation objective

To appraise the clinical and cost effectiveness of abaloparatide within its marketing authorisation for treating idiopathic or hypogonadal osteoporosis in men.

Background

Osteoporosis is a progressive skeletal disorder which is characterised by low bone mass and deterioration of the structure of the bone, leading to an increase in bone fragility and risk of fracture.

Osteoporosis is asymptomatic and often remains undiagnosed in the absence of a fracture. In the UK, it is estimated that around 3 million people have osteoporosis, which is defined as having a bone mineral density (BMD) that is 2.5 standard deviations or more below the average value for young healthy adults (usually referred to as a 'T-score' of -2.5 or lower). The prevalence of osteoporosis increases markedly with age. Osteoporosis is rare in men under 50 and can happen for unexplained reasons. Osteoporosis is called idiopathic when it happens in relatively young and healthy men with no obvious reason to have weak bones.[1] Osteoporosis can also be caused by low testosterone levels (hypogonadism), long-term systemic use of corticosteroids and other secondary reasons such as lifestyle and disease. Secondary osteoporosis is more common than idiopathic osteoporosis and affects between 50% and 80% of men.[2,3]

There are approximately 536,000 new fragility fractures in the UK per year.[4] Osteoporotic fragility fractures occur most commonly in the hip, vertebrae and wrist. After a hip fracture, a high proportion of people are permanently unable to walk independently or to perform other activities of daily living and, consequently, many are unable to live independently. Vertebral fractures can be associated with curvature of the spine and height loss, and can result in chronic pain, breathing difficulties, gastrointestinal problems and difficulties in performing activities of daily living. Both hip and vertebral fractures are associated with increased mortality.

Currently, related NICE guidance includes:

- NICE clinical guideline 146, 'Osteoporosis: assessing the risk of fragility fracture', which recommends:
    - considering the assessment of fracture risk in all women aged 65 years and over and all men aged 75 years and over
    - considering the assessment of fracture risk in women aged under 65 years and men aged under 75 years in the presence of risk factors
    - not routinely assessing fracture risk in people aged under 50 years unless they have major risk factors (for example, current or frequent

recent use of systemic corticosteroids, untreated premature menopause or previous fragility fracture)

- estimating absolute fracture risk when assessing risk of fracture (for example, the predicted risk of major osteoporotic or hip fracture over 10 years, expressed as a percentage) using either FRAX or QFracture.[5,6]

- NICE technology appraisal 464, which recommends oral bisphosphonates (alendronic acid, ibandronic acid and risedronate sodium) and intravenous bisphosphonates (ibandronic acid and zoledronic acid) as options for treating osteoporosis in people who are eligible for risk assessment as defined in NICE clinical guideline 146 on osteoporosis, depending on the person's risk of fragility fracture. However, the risk level at which oral bisphosphonates are cost effective is not a clinical intervention threshold. This technology appraisal guidance should be applied clinically in conjunction with the NICE quality standard 149 on osteoporosis that defines the clinical intervention thresholds. These thresholds are based on the NICE-accredited National Osteoporosis Guideline Group guideline.

- NICE technology appraisal 204, which recommends denosumab:

  - for the primary prevention of fragility fractures only in postmenopausal women at specified fracture risks, defined by age, T-score and number of independent clinical risk factors for fracture, who have osteoporosis and who cannot take alendronate and either risedronate or etidronate

  - for the secondary prevention of osteoporotic fragility fractures only in postmenopausal women at increased risk of fractures who cannot take alendronate and either risedronate or etidronate.

- NICE technology appraisal 161, which recommends raloxifene and teriparatide at specified fracture risks defined by age, T-score and either number of independent clinical risk factors for fracture (raloxifene), or number of fractures (teriparatide). These recommendations are for women who have already sustained a fracture and who cannot take alendronate or risedronate.

The technology

Abaloparatide (Tymlos, Radius Health) does not currently have a marketing authorisation in the UK for treating osteoporosis. It is a non-bisphosphonate and has been studied in a clinical trial, as monotherapy, in men aged 40 to 85 with primary osteoporosis or osteoporosis associated with hypogonadism.

Intervention(s)	Abaloparatide
Population(s)	Men with idiopathic or hypogonadal osteoporosis

Subgroups	If the evidence allows the following subgroups will be considered: • subgroups based on patient characteristics that increase the risk of fracture (that is, those specified in NICE clinical guideline 146) • subgroups based on patient characteristics that affect the impact of fracture on lifetime costs and outcomes

Comparators	• Bisphosphonates
	  ○ alendronic acid
	  ○ ibandronic acid (does not currently have a marketing authorisation in the UK for this indication)
	  ○ risedronate sodium
	  ○ strontium ranelate
	  ○ zoledronic acid
	• Non-bisphosphonates
	  ○ denosumab
	  ○ raloxifene (does not currently have a marketing authorisation in the UK for this indication)
	  ○ romosozumab (does not currently have a marketing authorisation in the UK for this indication)
	  ○ teriparatide
	• No active treatment

Outcomes	The outcome measures to be considered include: • osteoporotic fragility fracture • bone mineral density • mortality • adverse effects of treatment • health-related quality of life.

Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost comparison may be carried out. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any commercial arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account. The availability and cost of biosimilar and generic products should be taken into account.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations	**Related Technology Appraisals:** Bisphosphonates for treating osteoporosis (2019). NICE Technology appraisal guidance 464. Published: 09 August 2017 Last updated: 08 July 2019. **Related Guidelines:** Osteoporosis: assessing the risk of fragility fracture (2019). NICE guideline 146. 08 August 2012 Last updated: 07 February 2017. **Related Quality Standards:** Osteoporosis (2017). NICE quality standard 149.
Related National Policy	The NHS Long Term Plan, 2019. NHS Long Term Plan NHS England (2018/2019) NHS manual for prescribed specialist services (2018/2019) Chapter 5. Adult highly specialist rheumatology services Chapter 9. Adult specialist endocrinology services NHS England (2018) Interim Clinical Commissioning Policy Statement: Teriparatide for Osteoporosis in Men (Adults)

Questions for consultation

Where do you consider abaloparatide will fit into the existing care pathway for osteoporosis?

Have all relevant comparators for abaloparatide been included in the scope?

Which treatments are considered to be established clinical practice in the NHS for osteoporosis in men aged 40 to 85?

Are the subgroups suggested appropriate?

Would abaloparatide be a candidate for managed access?

Do you consider abaloparatide to be innovative in its potential to make a significant and substantial impact on health-related benefits and how it might improve the way that current need is met (is this a 'step-change' in the management of the condition)?

Do you consider that the use of abaloparatide can result in any potential substantial health-related benefits that are unlikely to be included in the QALY calculation?

Please identify the nature of the data which you understand to be available to enable the committee to take account of these benefits.

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others. Please let us know if you think that the proposed remit and scope may need changing in order to meet these aims. In particular, please tell us if the proposed remit and scope:

- could exclude from full consideration any people protected by the equality legislation who fall within the patient population for which abaloparatide will be licensed;

- could lead to recommendations that have a different impact on people protected by the equality legislation than on the wider population, e.g. by making it more difficult in practice for a specific group to access the technology;

- could have any adverse impact on people with a particular disability or disabilities.

Please tell us what evidence should be obtained to enable the committee to identify and consider such impacts.

NICE intends to evaluate this technology through its Single Technology Appraisal process. We welcome comments on the appropriateness of appraising this topic through this process. (Information on NICE's health technology evaluation processes is available at https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/changes-to-health-technology-evaluation).

NICE's health technology evaluations: the manual states the methods to be used where a cost comparison case is made.

- Would it be appropriate to use the cost-comparison methodology for this topic?

- Is the new technology likely to be similar in its clinical efficacy and resource use to any of the comparators?

- Is the primary outcome that was measured in the trial or used to drive the model for the comparator(s) still clinically relevant?

- Is there any substantial new evidence for the comparator technology/ies that has not been considered? Are there any important ongoing trials reporting in the next year?

References

1. MSD Manual (2021) Osteoporosis. Accessed April 2022.

2. Ebeling PR et al. (2022) Secondary Osteoporosis. Endocrine Reviews 43 (2): 240–313.

3. Bello MO et al. (2022) Osteoporosis In Males. StatPearls Publishing.

4. Compston J et al. (2017) UK clinical guideline for the prevention and treatment of osteoporosis. Archives of Osteoporosis 12(1): 43.

5. FRAX, the World Health Organisation (WHO) fracture assessment tool, is available from https://www.sheffield.ac.uk/FRAX/. It can be used for people aged between 40 and 90 years, either with or without BMD values, as specified.

6. QFracture is available from https://qfracture.org/. It can be used for people aged between 30 and 84 years. BMD values cannot be incorporated into the risk algorithm.