Management of osteoporosis and the prevention of fragility fractures

Quick reference guide

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This Quick Reference Guide provides a summary of the main recommendations in SIGN 142 Management of osteoporosis and the prevention of fragility fractures.

Treatment options should be discussed with the patient and their views and preferences taken into account.

This should include a discussion of the risks of fracture with and without treatment, using tools such as FRAX and FRAX, the risks and benefits of treatment and the option not to have drug treatment.

This QRG is also available as part of the SIGN Guidelines app.

Details of the evidence supporting these recommendations can be found in the full guideline, available on the SIGN website: www.sign.ac.uk

Risk factors

Risk factors associated with fragility fracture which should prompt consideration of fracture-risk assessment

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Causative factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-modifiable risk factors</td>
<td>previous fracture, history of menopause</td>
</tr>
<tr>
<td>Modifiable risk factors</td>
<td>low BMI (&lt;20 kg/m²), smoking, low bone mineral density, alcohol intake</td>
</tr>
</tbody>
</table>

Coexisting diseases:

- Diabetes
- Inflammatory rheumatic diseases (RA or SLE)
- Inflammatory bowel disease and malabsorption
- Institutionalised patients with polypharmacy
- Human immunodeficiency virus
- Primary hyperparathyroidism and endocrine diseases
- Chronic liver disease
- Neurological diseases (including Alzheimer’s disease, Parkinson’s disease, multiple sclerosis, stroke)
- Moderate to severe chronic kidney disease
- Asthma

Drug therapy:

- Long-term antidepressants
- Antiepileptics
- Aromatase inhibitors
- Long-term DMARD
- Glucocorticoids in men with prostate cancer
- PPIs
- Oral glucocorticoids
- TZDs

Recommendations associated with modifiable risk factors for fragility fractures

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Affected group</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>People who consume more than 3.5 units per day of alcohol</td>
<td>Reduce alcohol intake to nationally recommended levels (&lt;14 units per week)</td>
</tr>
<tr>
<td>Smoking</td>
<td>All smokers</td>
<td>Stop smoking</td>
</tr>
<tr>
<td>Weight</td>
<td>People with low BMI (&lt;20 kg/m²)</td>
<td>Achieve and maintain a BMI of 20-25 kg/m²</td>
</tr>
</tbody>
</table>

Sources of further information

Royal Osteoporosis Society
Camerton, Bath, BA2 0PJ
Helpline: 0808 800 0035
Helpline email: nurses@theros.org.uk
www.theros.org.uk

The Royal Osteoporosis Society is a UK charity dedicated to improving the diagnosis, prevention and treatment of osteoporosis. It runs a dedicated helpline (by phone, email and post) on weekdays between 9am and 5pm to answer medical queries relating to osteoporosis. The website provides a large volume of information and advice on living with the condition, current news and support groups.

Age Scotland
Causeway House, 160 Causewayside, Edinburgh, EH9 1PR
Helpline: 0800 12 44 222
www.ageuk.org.uk/scotland
Email: helpline@agescotland.org.uk

Age Scotland is a charity which represents all older people in Scotland. It campaigns, commissions research and fundraises to support a better quality of life for everyone in later life. Age Scotland provides a wide range of confidential, impartial and simple information and promotes healthy living and active ageing. It also helps people to claim their entitlements and provides access to financial services targeted towards older people.

NHS Inform
www.nhsinform.scot
Tel: 0800 22 44 88

This is the national health and care information service for Scotland. It includes information and links to resources to support people with osteoporosis:
www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/conditions/osteoporosis
Pathway from risk factors to pharmacological treatment selection postmenopausal women

**Secondary fracture prevention**

- **Fragility Fracture** age ≥50
  - Hip Fracture
  - Other Fracture

**Primary fracture prevention**

- Clinical risk factors age ≥50
- Very strong clinical risk factors age <50

- **Fracture risk assessment**
  - 10 year major osteoporotic fracture risk ≥10%?
  - No
    - Lifestyle advice (Reassess if risk profile changes)

**Clinical risk factors**

- Age ≥50

**Very strong clinical risk factors**

- Age <50

**Fracture risk assessment**

- 10-year major osteoporotic fracture risk

**Lifestyle advice**

- Reassess if risk profile changes

**DXA scan**

- **Normal** T > -1.0
- **Osteopenia** T -1.0 to -2.5
- **Osteoporosis** T ≤ -2.5

**Severe osteoporosis**

- Spine‡

**Lifestyle advice**

- Reassess if risk profile changes

**Zoledronic acid annually**

- Give 3 infusions and review after 5 years (section 6.5)

**Alendronate**

- Severe osteoporosis
  - Spine‡

**Risedronate**

- Transition to antiresorptive on completion of therapy

**Denosumab**

- Transition to bisphosphonates

- Continue to 10 years and review

**Teriparatide**

- Continue for 5 years and review (section 6.5)

**Parenteral bisphosphonate appropriate?**

- Yes
  - Parenteral bisphosphonate
  - Continue for 6 years and review (section 6.4.3)
  - Continue for 5 years and review (section 6.5)

- No
  - Zoledronic acid 18 monthly
  - Continue for 6 years and review (section 6.4.3)
  - Continue for 5 years and review (section 6.5)

**Adverse effects, poor response or patient preference for parenteral therapy?**

- Yes
  - Decision to stop denosumab therapy?
  - Yes
    - Transition to bisphosphonates
    - Continue to 10 years and review
  - No
    - Continue for 5 years and review (section 6.5)

- No
  - Alendronate
  - Risedronate

**Yes**

- Zoledronic acid

- Transition to bisphosphonates

- Denosumab

- Decision to stop denosumab therapy?

- Yes
  - Transition to bisphosphonates
  - Continue to 10 years and review
- No
  - Continue for 5 years and review (section 6.5)

**No**

- DXA scan

**Unsuitable for oral therapy?**

- Yes
  - DXA scan

**Yes**

- Hip Fracture

**No**

- Other Fracture

**Yes**

- DXA scan

**No**

- DXA scan

**DXA scan‡

- T -score <-1.5 at any site and two or more grade 2 vertebral fractures on x-ray or spine BMD T score <-4.0

**Pharmacological treatment options for men**

Tools for detection and assessment

**R**

- Risedronate may be considered for the treatment of osteoporosis in men.

**R**

- Zoledronic acid should be considered for the treatment of osteoporosis in men and the prevention of vertebral fractures.

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5 DXA scan advisable to obtain baseline BMD but not necessary to initiate treatment; 1 T -score <-1.5 at any site and two or more grade 2 vertebral fractures on x-ray or spine BMD T score <-4.0