key points

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Osteoporosis is a common condition characterised by low bone mineral density (BMD) and an increased risk of fragility fractures. It affects up to 30% of women and 12% of men at some point in their lives. Two of the most important risk factors are increasing age and female gender, although other common and potentially modifiable risk factors include long-term corticosteroid therapy, chronic inflammatory disease, malabsorption and untreated premature menopause.

The diagnosis of osteoporosis can be confirmed by DEXA but this should only be performed in patients who have an increased risk of fracture on the basis of clinical risk factors. DEXA should be considered if the ten-year risk of major osteoporotic fracture is more than 10%. If the BMD T-score values by DEXA at the lumbar spine, femoral neck or total hip are at or below -2.5 then the diagnosis of osteoporosis is confirmed. Vertebral fractures are generally taken as diagnostic of osteoporosis, even if spine BMD values are not in the osteoporotic range.

Oral bisphosphonates are the first-line treatment. The most widely used agent is oral alendronic acid, 70 mg once a week, with calcium and vitamin D supplements. Oral risedronate 35 mg once a week has similar anti-fracture efficacy. If oral bisphosphonates are contraindicated or not tolerated then parenteral therapy should be considered. The first-line treatment is intravenous zoledronic acid 5 mg once a year, although denosumab 60 mg every six months subcutaneously is equally effective. Teriparatide (the 1-34 fragment of parathyroid hormone; TPTD) is highly effective in the treatment of vertebral osteoporosis.

It is unclear how long patients should remain on treatment. This is because drugs such as bisphosphonates and denosumab suppress the normal process of bone renewal and repair. For most drugs there is good evidence of safety and efficacy for up to five years. After that point the need for ongoing therapy should be reviewed.

There is evidence that fractures occur in glucocorticoid- induced osteoporosis at higher levels of BMD than in postmenopausal osteoporosis so therapy should be considered in patients with a BMD T-score of <-1.5. Although it is useful to have a DEXA scan before starting treatment to provide a baseline value to assess response, this investigation is not absolutely necessary to initiate bone protective therapy especially in those aged above 65 since the vast majority of these patients will have a T-score of -1.5 or below. In younger individuals where BMD is likely to be higher DEXA is useful in determining if bone protective treatment is needed immediately or if it could be delayed until the T score falls below -1.5.