OSTEOPOROSIS

Key Points

WHO definition  T score <2.5 SD
Life-time risk fracture  40% women, 13% men (US Caucasians)
1. SD decrease in BMD  2 x relative risk of fracture
One existing fracture  3 - 5 times increased risk of further fractures for
given BMD
Three existing fractures  >20 times increased risk of further fractures for
given BMD

Whom to Scan?

Absolute indication

- Existing low trauma (gravity or less) fracture of wrist, hip, vertebrae, humerus or ribs.

Relative indications

- Primary hyperparathyroidism (especially if there is doubt regarding the need for surgery).
- Strong first degree family history (>1 parent, grand parent, sib) of low trauma fractures.
- Early menopause <45.
- Low oestrogen secondary amenorrhoea (anorexia nervosa, athletes, hyperprolactinaemia).
- Glucocorticoid treatment (>7.5mg prednisolone/day or equivalent, >6m, or planned >6m).
- Cushing's disease/syndrome.
- Prolonged thyrotoxicosis (postmenopausal only).
- Malabsorption syndromes.

Initial scan

DEXA of hip and spine (for subsequent audit)
Further Investigations of DEXA confirmed osteoporosis

1. Lateral x-ray: lumbar and thoracic spine, if indicated:
   - height loss >2 inches
   - kyphosis
   - thoracic (not lumbar) backache

2. Blood tests
   - immunoglobulins
   - calcium, phosphate, alkaline phosphatase, albumin
   - TSH
   - testosterone (a.m.) in men.

Diagnosis

BMD less than 2.5 standard deviations of the young adult mean (T score).

Management

Primary Prevention of Fractures

1. Post-menopausal women >50 years

   Lifestyle advice -
   - increase weight bearing exercise
   - stop smoking
   - moderate alcohol intake
   - calcium intake around 1,000mg per day (1 pint of milk or equivalent) – Adcal-D3 one tablet daily if unable to increase calcium intake by dietary means

2. Post-menopausal women <50 years

   - Lifestyle advice as above
   - HRT until age 50
Secondary Prevention of Fractures

1. Post-menopausal women >50 years
   - Lifestyle advice as above
   - Bisphosphonates (alendronate LA 70 mg once weekly is most convenient, but risedronate LA 35 mg once weekly is an equivalently effective alternative)
   - Raloxifene 60mg od, if bisphosphonates contra-indicated or patient intolerance (note can cause vasomotor symptoms and is associated with a comparable risk of DVT as HRT).
   - Calcium and Vitamin D supplementation (Adcal-D3, one tablet daily) in women >80 years, particularly if house-bound

Recent data from randomised controlled trials indicate that the long term risks of HRT (breast cancer, thrombo-embolism and cardiovascular disease) outweigh the advantages in terms of osteoporosis treatment and prevention. HRT is, therefore, not recommended for the management of osteoporosis in post-menopausal women > 50 years, who are not experiencing menopausal symptoms.

2. Post-menopausal women <50 years
   - Lifestyle advice as above
   - Consider HRT or a bisphosphonate – discuss with consultant

3. Glucocorticoid-associated osteoporosis
   - Treat with bisphosphonate if T< –1.5; either alendronate 70mg/wk or risedronate 35 mg/wk
   - initiation of long term glucocorticoid pharmacotherapy (>7.5mg prednisolone/day or equivalent, >6/12 months): DEXA scan - if BMD >T=0 or perhaps –0.5, then assume will fall precipitously and give prophylaxis with bisphosphonate

4. Other Special cases – discuss with consultant - .eg.:
   - anorexia nervosa (women< 50 years, HRT or OCP [if require contraception and are suitable]; older women as above)
• men (can define cause in 50%, replace androgens if deficient and if no prostatic pathology; if idiopathic, bisphosphonate)
• children, pre-menopausal women (consultant advice)
• osteogenesis imperfecta type 1 (bisphosphonates, genetic counselling)

Monitoring
• Repeat DEXA normally at 18 months.
• If increase BMD >2% with no other issues - discharge.
• If no increase or further fractures - consider alternative medication (i.e. raloxifene instead of bisphosphonate, or vice versa) or combination therapy.

January, 2004
For revision January, 2006