

Greenwich and Bexley GUIDELINES FOR IDENTIFICATION, ASSESSMENT AND MANAGEMENT OF OSTEOPOROSIS

Compiled by physicians in Departments of Rheumatology and Older Age Medicine in Queen Elizabeth Hospital, Woolwich and Queen Mary's Hospital, Sidcup and the Greenwich and Bexley General Practice Prescribing Groups.

Indications for bone densitometry

- 1) **Premature menopause** before age 45 or persistent hypo-gonadal state.
- 2) **Osteopenia or vertebral deformity** on X-ray.
- 3) **Low impact fractures** (colles, vertebrae, hip).
- 4) **Steroid therapy**
- 5) Medical conditions known to cause **secondary osteoporosis**.
- 6) **Monitoring** response to treatment.

Measurement of bone density in high-risk individuals is important in the diagnosis of osteoporosis, in monitoring responses to treatment and in aiding compliance. **It should only be performed if it will alter management.** In the very elderly the presence of degenerative changes may make interpretation difficult and should not be done in-patients over 80. Repeat scans should not be performed in less than 18 months. Serial scans are not required for monitoring, providing a response to treatment has been demonstrated.

Referral for bone densitometry

Please return the completed form to **Queen Elizabeth Hospital Imaging department**. Requests outside the guidelines may not be accepted. Dr Dolan will report the scans and advice on management will be sent to you.

Referral to osteoporosis clinic (Dr Dolan, Rheumatology Dept, QEH.)

- Those with severe osteoporosis (T score – 3 or less)
- Young patients with osteoporosis
- Male patients with osteoporosis
- Those who have not responded to treatment or in whom first line treatment has failed.
- Those with multiple vertebral fractures.

Interpretation of bone density results

Bone density results are reported as 'T scores' (comparison with young adult mean) and 'z scores' (comparison with reference values of the same age). The 'T score' relates to absolute fracture risk whereas the 'z score' relates to the individual's relative risk for their age. A 'z score' of greater than -1 standard deviation below normal is the equivalent to a doubling of the fracture risk. The W H O definition of osteoporosis is a T score below -2.5. Spinal degeneration and fracture may falsely elevate spinal readings.

Identifying patients at risk of fractures due to Osteoporosis

- 1) **Previous fragility fractures:** Wrist or hip fractures after low impact are red flags
- 2) **Premature menopause:** Women with early menopause before 45yr are at high risk of osteoporosis without HRT. If in doubt check FSH and LH. No need to scan if HRT is initiated at the time of the early menopause. Protect bones in drug induced menopause (e.g Gosrelin or aromatase inhibitors).
- 3) **Corticosteroid users :** Any dose is associated with bone loss. Long term treatment should be kept to a minimum and attempts made to reduce the dose.
- 4) **Prolonged amenorrhoea:** Women with anorexia nervosa and athletes with irregular periods; also IM depoprovera users are at risk of osteoporosis and fractures
- 5) **Predisposing Conditions:** rheumatoid arthritis, hyperparathyroidism, alcoholism, malabsorption, hyperthyroidism, inflammatory bowel disease, hypogonadism in men.
- 6) **Family history** of osteoporosis
- 7) **Loss of height or kyphosis** may suggest vertebral osteoporosis and fracture.
- 8) **Low Weight :** BMI < 19

Exclude causes of secondary osteoporosis and other conditions

Before starting treatment it is important to confirm the diagnosis with a bone density scan. Identify causes of secondary osteoporosis such as hyperparathyroidism, alcohol abuse and hyperthyroidism. Exclude other diseases, which mimic osteoporosis such as osteomalacia, malignancy or myeloma.

Investigations:

- X-Ray the thoracic or lumbar spine in order to confirm vertebral fracture.
- Urea and electrolytes to exclude renal osteodystrophy.
- If ESR is elevated perform plasma electrophoresis to exclude myeloma.
- Calcium and alkaline phosphatase may be abnormal in osteomalacia and bony secondaries.
- Thyroid function tests to exclude hyperthyroidism or excessive replacement.
- Vitamin D levels in elderly, housebound, veiled or those at risk of dietary deficiencies.

Life style measures

-Stop smoking

-Avoid excessive alcohol intake

-Regular weight bearing **exercise**. Avoid immobility

-Avoid excessive dieting and exercise resulting in amenorrhoea

-Maintain adequate **calcium and vitamin D intake** and supplement if necessary.

Calcium	males	11 to 18 years	1 gram daily
	female	11 to 18 years	800 mgs daily
	adults	19 years plus	700 mgs daily

Vitamin D Post-menopausal females 400 international units daily

-1 pint of semi-skimmed milk or four ounces of cheddar cheese contains 800 milligrams of calcium. Vitamin D is provided by oily fish, eggs and cheese. Margarine and breakfast cereals are enriched with vitamin D.

Treatment of osteoporosis

1 Bisphosphonates

-Anti-resorptive agents, such as Risedronate (Actonel). Alendronate (Fosamax) (both weekly) or Ibandronate (Bonviva – given monthly) reduce fracture at spine, hip and peripheral sites by approximately 50%. This effect may occur within 1 year of use.

-Didronel PMO (etidronate) is a less potent bisphosphonate. No longer a preferred treatment.

-Bisphosphonates should not be used under 45 yrs as long-term skeletal effects are not known.

-There is a small non-response rate, so checking BMD before use and after 18 months is useful. If a response is shown further repeat BMD is not required.

-Bisphosphonates must be taken fasted and not close to a calcium preparation to achieve optimal absorption.

2 SERMS

The selective estrogen receptor moderator, Raloxifene (Evista) increases bone density and reduces vertebral fractures and has advantageous effect on lipids, without any effect on the endometrium. It reduces the occurrence of carcinoma of the breast by factor of 3.

3 Strontium Ranelate

Strontium Ranelate (Protelos) is licenced for post menopausal women and reduces spine and hip fractures. A daily sachet is taken at night, after 2 hours fast. Any co-prescribed calcium should be taken at another time. It is a dense molecule, which elevates BMD, so to evaluate impact on bone density, observed changes should be halved.

4 Vitamin D and calcium

Oral Vitamin D and calcium are indicated for frail elderly and nursing home patients to help prevent hip fractures. Eg. **Calcichew D3 forte** or **Adcal D3**.

Calcium and vitamin D should be used for osteoporosis prophylaxis in all steroid users. If adequate dietary calcium is not achieved (1200 mg a day), they may be used as a supplement along side other treatments.

5 Teraparotide(PTH)

Teraparotide (Forsteo) is indicated for women >65 who are intolerant of, or fail to increase BMD on other treatments. T score should be <-4 or <-3 with vertebral fractures. This subcutaneous injectable protein elevates BMD and reduces spine and hip fractures by reducing re-absorption and increasing formation.

* The patient will be trained by visiting nurses to give their own daily subcutaneous for 18 months.

* See NICE guidance for use. Refer to Dr Dolan for assessment if appropriate.

6 HRT

HRT is no longer recommended for osteoporosis prevention as it may increase risk of Ca breast and CVD. It is still appropriate for those with premature menopause or symptomatic.

Acute vertebral fractures

Provide adequate analgesia. Consider use of TNS.

Salmon calcitonin injections (100U s.c 3x /week for 4- 6 weeks) may be helpful.

Prevention and Treatment of Osteoporosis

Identify those at possible increased risk especially low impact fractures and steroid users



Counsel on lifestyle modifications



DEXA if indicated or will alter management



<p>Normal</p> <p>⇓</p> <p>Life style advice</p>	<p>Low bone Mass</p> <p>(T-1 to -2.5)</p> <p>Ca/ Vit D Supplementation</p>	<p>Osteoporosis</p> <p>(T <- 2.5)</p> <p>Consider treatments 1-5 of this guideline</p>
--	---	--

Adapted from Dept. of Health Guidelines 1999

NICE Guidance – secondary prevention Jan 2005

Patients with previous low impact fractures should be identified at primary and secondary care level. Queen Elizabeth Hospital operates a fracture intervention service for new cases and will offer DEXA scans as appropriate.

Bisphosphonates are indicated to prevent further fractures.

In all age groups bone density scan may be indicated before treatment. (Nice recommended treatment without scan in >75 year olds but local data suggests that many do not have osteoporosis. Scanning is readily available at QEH and may prevent polypharmacy).

Raloxifene is a second line of treatment

Osteoporosis support Groups

The National Osteoporosis society can provide information on all aspects of coping with the disease for both patients and Health care professionals. Help line number is 01761 472721 or at www.nos.org.uk