The Royal Australian College of General Practitioners

Detection, prevention and treatment of osteoporosis

Ideally, decisions about intervention should be based on estimates of absolute risk fracture, but this can only be crudely estimated from current data (refer to the Absolute fracture risk nomograms at **www.racgp.org.au/guidelines/osteoporosis** and at **www.garvan.org.au/promotions/bone-fracture-risk/**). Optimal treatment may reduce that risk by 50%. Additional risk factors, eg. low body weight, included in the algorithm cannot be accurately built into the nomogram. Use clinical judgment to modify your risk estimate. It is important to differentiate between evidence for fracture prevention versus bone density change. As fracture prevention is more important, this algorithm focuses on fracture prevention.

This algorithm refers to adults presenting with suspected osteoporosis. Refer to RACGP *Clinical guidelines for musculoskeletal diseases* for more information on recommendations and grading of evidence **www.racgp.org.au/guidelines/musculoskeletaldiseases**

NO FRACTURE

Presence of major risk factors – consider any of the following:

Age

- Age more than 70 years

Age >60 years for men and >50 years for women plus any of:

- Family history of minimal trauma fractures
- Smoking
- High alcohol intake (>2–4 standard drinks per day for men, less for women)
- Diet lacking in calcium
- Low body weight
- Recurrent falls
- Sedentary lifestyle over many years

Medical conditions and medications – any adult with these chronic conditions or medications

- Endocrine (eg. hypogonadism, Cushing syndrome, hyperparathyroidism, hyperthyroidism)
- Inflammatory conditions (eg. RA)
- Malabsorption
- Organ or bone marrow transplant
- Chronic kidney disease, chronic liver disease
- Drugs (eg. anti-epileptic, anti-oestrogen, anti-androgen, corticosteriods, excessive thyroxine, SSRIs)
- Multiple myeloma

POSSIBLE VERTEBRAL FRACTURE
Back pain, height loss and kyphosis

LATERAL SPINE
X-ray shows vertebral fracture

No

Yes

ANY FRACTURE FOLLOWING MINIMAL TRAUMA

BMD BY DXA RECOMMENDED

BMD T-score >–2.5 and <–1.0 osteopenia

BMD TEST RECOMMENDED, NOT ESSENTIAL TO START TREATMENT

BMD T-score ≥–1.0 normal

Has minimal trauma fracture

No

Yes

BMD T-score ≤–2.5 osteoporosis

Dietary and lifestyle interventions for prevention and treatment
Ensure adequate daily calcium intake – dietary calcium **(A for prevention of bone loss)**
Encourage healthy lifestyle **(D)**
Education and psychosocial support **(D)**
Falls reduction strategies **(D consensus, for fracture risk reduction)**
Encourage exercise **(A for prevention of bone loss, D for fracture risk reduction)**
Sunlight as a source of vitamin D – consider supplements
DISCUSS ABSOLUTE FRACTURE RISK

EXCLUDE AND TREAT CAUSES OF SECONDARY OSTEOPOROSIS

Plus

Calcium and vitamin D supplements when dietary intake is inadequate (C)

Start specific anti-osteoporotic therapy to reduce fracture risk
Calcium and vitamin D supplements when dietary intake is inadequate **(C)**
Plus one of:

- Bisphosphates **(A)**
- Hormone therapy (**A** for women, **D** consensus for men)
- Parthyroid hormones (teriparatide) (**A** for women, **B** for men)
- Selective oestrogen receptor modulators (SERM) (raloxifene, women only **A)**
- Strontium ranelate (women only **A)**

Ongoing monitoring (B) Recommend after 3–6 months to review side effects and adherence

Repeat BMD (B) Consider at 1 year if there is a change in anti-osteoporotic treatment or the patient is on steroids (>7.5 mg/day x 3 months) or has other secondary OP. Repeat BMD when likely to be approaching T=–2.5. Average decline in T-score is 0.1/year

osteoporosis australia

SELECTED PRACTICE TIPS (SEE THE FULL GUIDELINE FOR MORE TIPS AND FURTHER DETAILS)

www.racgp.org.au/guidelines/osteoporosis

Intervention	Recommendation
Diagnosis	
BMD measurement	BMD should be measured by DXA scanning performed on two sites, preferably anteroposterior spine and hip **(Recommendation 3 A)**
Prevention	
Vitamin D supplementation	Vitamin D from sunlight exposure (avoiding the middle of the day) and supplements should ensure 25-hydroxyvitamin D (25-OH D) levels >60 nmol/L. If vitamin D supplements are required, doses of at least 800 IU/day are usually needed **(Recommendation 18 C)**
Calcium supplementation	Calcium citrate does not need to be taken after meals unlike calcium carbonate, as it does not require an acid environment to be optimally absorbed **(Recommendation 11 C)**
Ongoing monitoring	
Repeat BMD	Usually a decrease in bone density greater than the measurement error is not seen before 2 years; hence, follow up bone densitometry is not recommended at intervals of less than 2 years in most patients **(Recommendation 27 B)** In patients with confirmed OP, repeat BMD is generally not required, however it may be conducted before initiating a change in, or cessation of, anti-osteoporotic therapy
Pharmacological management	
Bisphosphonates	Active upper GIT disorders, including strictures and dysphagia are contraindications to oral bisphosphonate use Taking oral therapy after fasting for several hours (usually overnight) and then remaining upright and avoiding food or other medications for at least 30 minutes will maximise medication absorption Combined use of bisphosphonates with other anti-resorptive (eg. raloxifene, hormone therapy) or anabolic drugs is not recommended
Duration of bisphosphonate therapy	Reconsider bisphosphonate therapy after 5–10 years in patients who have had a good response to treatment, determined through re-evaluation of BMD and fracture risk (ie. BMD above T-score -2.5 and no recent fractures) **(Recommendation 20 D)**
Side effects of bisphosphonates	The risk of osteonecrosis of the jaw (ONJ) is not great enough (<1:1000) to recommend routine dental examinations before starting treatment. Risk is higher for higher IV doses used in cancer care. Reinforce need for good oral hygiene. Complete any obviously needed dental surgery before starting treatment. Where unavoidable, extractions should be performed under antibiotic prophylaxis with minimal trauma and suture socket. Maintain communication with dentist about doses and risk factors for ONJ. Cease bisphosphonate if confirmed ONJ
Hormone therapy	HT is effective in reducing the risk of fractures in postmenopausal women with OP. The increase in risk of adverse events, especially breast cancer and CV effects associated with treatment, should be weighed carefully against benefits and long term use is not recommended **(Recommendation 21 A)**
Nonpharmacological management	
Exercise	Individually tailored exercise considering gait and balance, strength, flexibility **(Recommendation 17 D)**
Falls reduction	To be successful, a falls reduction program needs to be tailored to the individual's needs and include a range of strategies. A falls reduction program may include: education on the risk of falling and prevention strategies; medication review and modification; exercise programs tailored to the individual's specific needs and abilities; use of appropriate assistive devices; treatment of postural hypotension and cardiovascular disorders; reduction of environmental hazards; correction of vitamin D deficiency Falls clinics are offered at most major public hospitals and many community health centres throughout Australia. Clinics can be located by contacting Osteoporosis Australia **(Recommendation 9 D)**

FOR DETAILED PRESCRIBING INFORMATION

National Prescribing Service **www.nps.org.au**

Therapeutic Guidelines **www.tg.com.au**

Australian Medicines Handbook **www.amh.net.au**

PATIENT SERVICES

Osteoporosis Australia **www.osteoporosis.org.au**

Australian Rheumatology Association **www.rheumatology.org.au**

NHMRC grades of recommendations

A Body of evidence can be trusted to guide practice

B Body of evidence can be trusted to guide practice in most situations

C Body of evidence provides some support for recommendation(s) but care should be taken in its application

D Body of evidence is weak and recommendation must be applied with caution

Note: A recommendation cannot be graded A or B unless the volume and consistency of evidence components are both graded either A or B

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