OSTEOPOROSIS IN MEN - UPDATE

Osteoporosis in men is often underdiagnosed and undertreated. One in 3 men over 60 years of age in Australia will experience an osteoporotic fracture. Almost 30% of all hip fractures occur in men and the incidence of hip fracture in men increases substantially after the age of 70 years.

Men are less likely to receive treatment for osteoporosis, despite osteoporotic fractures in older men causing greater functional decline, higher death rates and increased morbidity. After a hip fracture men are less likely to mobilise independently and are twice as likely to die. Unlike postmenopausal women, men have slower bone loss with a smaller overall decrease in bone mineral density (BMD).

In August 2010, a position statement on treatment for osteoporosis in Australian residential aged care facilities was published in the Medical Journal of Australia.

In the recent CHAMP study, almost one quarter of Australian men living in the community over the age of 70 years had osteoporosis and 90% did not know they had the condition. Of the men eligible for PBS-subsidised treatment, 10% reported use of bisphosphonates, 14% had taken calcium supplements and only 7% had taken vitamin D supplements. Only 3 men had taken calcium, vitamin D and bisphosphonates in combination, which is considered optimal treatment.

Symptoms
Osteoporosis in the absence of a fracture is usually asymptomatic. The most common fracture sites in men are the hip, vertebrae, forearm, and humerus.

Risk assessment
The FRAX tool (available at www.shef.ac.uk/FRAX) estimates the 10-year risk of major osteoporotic fracture and hip fracture. This tool takes in to account BMD score and other clinical risk factors including personal and family history of fracture, age, weight, race, sex, corticosteroid use, smoking and alcohol consumption. Treatment is recommended for men 50 years and older who present with a hip or vertebral fracture; T-score of -2.5 or less; or a low bone mass and a 10-year hip fracture risk of at least 3% or a 10-year major fracture risk of at least 20% (as calculated using the FRAX).

Male gender is a risk factor for osteoporotic fractures in aged care facilities; whereas women have a greater risk in the community. Other risk factors for men in aged care facilities include:
- Low serum vitamin D
- Bladder or bowel incontinence
- Cognitive impairment
- Use of benzodiazepines
- Poor balance

Causes
All men diagnosed with osteoporosis should be evaluated for secondary causes of bone loss. Common causes for osteoporosis in men include:
- Cushing’s syndrome or corticosteroid therapy (> 7.5mg/day for > 3 months)
- Excessive alcohol use
- Primary or secondary hypogonadism
- Androgen deprivation (e.g. for prostate cancer)
- Low calcium intake and vitamin D deficiency or insufficiency (25-hydroxyvitamin D < 60nmol/L)
- Smoking
- Family history of minimal-trauma fracture

Other less common causes include low BMI, lack of exercise or excessive exercise, chronic liver or kidney disease, coeliac disease, rheumatoid arthritis or ankylosing spondylitis, and type 1 or 2 diabetes mellitus.

Long term use of some antiepileptic drugs such as phenytoin, carbamazepine can cause vitamin D deficiency.

Prevention
General preventive and lifestyle measures include:
- 30 minutes of weight-bearing exercise at least 3 times per week
- Adequate calcium intake through diet and supplements
- Adequate vitamin D intake or sun exposure
- Smoking cessation
- Avoidance of excessive alcohol use
- Fall prevention strategies including balance exercises and muscle strengthening

Excessive alcohol use is defined as daily intake of more than 2 standard drinks per day. Psychotropic medications should be reviewed regularly as they contribute to falls risk.

Treatment
The Osteoporosis Australia has a Treatment Plan for Men
with Osteoporosis available on the following website: (www.osteoporosis.org.au)

Bisphosphonates (alendronate, risedronate) are the first-choice pharmacological agents for fracture prevention in older persons at high risk. Bisphosphonates may reduce the risk of vertebral fractures and increase BMD in older men at risk of osteoporosis.

Intravenous administration with zoledronic acid (Aclasta, Zometa) is as efficient as oral and has the significant advantage of better adherence.

Strontium ranelate (Protos) can be considered as an alternative first-line treatment.

Testosterone therapy in the presence of hypogonadal symptoms (erectile dysfunction, decrease in muscle mass, beard and body hair growth, fatigue) is recommended.

Teriparatide (Forteo) is an option for men with a high fracture risk. Teriparatide is very expensive and can only be used for 18 month duration in a lifetime.

A drug holiday is suggested after 5 to 10 years of bisphosphonate use. For residents with a high fracture risk, bisphosphonates can be ceased for 1 to 2 years and teriparatide treatment introduced. For residents at a lower risk, bisphosphonate treatment can be stopped for 2 to 3 years or less if a fracture occurs or BMD decreases.

Calcium and vitamin D
Calcium and vitamin D in combination reduces fracture risk by 12% in men 50 years and older.

Vitamin D supplementation is recommended for all patients in RACFs. Vitamin D3 (colecalciferol) should be administered at a dose of 800IU daily or higher. Doses of 3000-5000IU daily for 6 to 12 weeks may be necessary to correct a known deficiency. Guidelines currently recommend a serum 25-hydroxyvitamin D levels above 60nmol/L.

Dietary calcium intake should be optimised (1200 per day is recommended) and supplementation offered to those with inadequate intake from dietary sources.

Some calcium supplements are better taken with a meal as stomach acid can help absorption. Calcium carbonate (Caltrate) requires an acidic environment to be dissolved in the intestine and absorbed into the blood. There is some evidence to suggest that calcium may be more effective if administered at night after a meal. Calcium carbonate is less absorbed when combined with a protein meal.

Supplements containing calcium citrate (Citracal) do not require gastric acidity and does not need to be taken after meals.

Emerging data has raised concern about the cardiovascular safety of high dose calcium supplements (especially at doses greater than 805mg per day) without vitamin D supplementation. A current meta-analysis found a higher risk for heart attack (myocardial infarction) associated with the use of calcium supplements without vitamin D. Calcium supplements did not significantly affect the risk for stroke, a composite cardiovascular outcome, or death. More than 80% of the 20,000 patients in this study were women.

There is no evidence that calcium in combination with vitamin D increases the risk of cardiovascular events.

Summary
Osteoporosis is common in older men. Minimal trauma fractures and vertebral deformities are indicators of increased risk for future fractures. Treatment with falls prevention, physical activity, calcium and vitamin D supplementation, and prescription medications is recommended to reduce fracture rates and loss of quality of life.

References