

Take home messages compiled from the Midland Orthopaedic/fracture nurse study day – 24 Sept 11

3 Nurses from Ward 9 and myself attended this worthwhile study day featuring Osteoporosis as the subject. There were excellent speakers – Dr Daniel Tartaglia, a geriatrician, Dr Steven Sawyers, a Rheumatologist/physician, Hannelie Fourie presenting her master's topic, Louise Buckley, Radiographer, Dr Carolyn Providence, an acute physician and Paul Mitchell, a healthcare consultant presenting the UK experience.

Osteoporosis = a systemic skeletal disease characterised by low bone mass and microarchitectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture.

It is seen as the world's ticking time bomb with the global burden of osteoporosis hip fractures.

A few interesting stats –

Osteoporosis affects 33% women and 13% men of the population.

Approximately half of women and one quarter of men will suffer an osteoporosis related fracture within their lifetime.

50 year old women life risk of dying from hip fracture is the same as dying from **breast cancer** – hip fracture : 2.8% and breast cancer 2.8%..

25%-30% patients die within 1 year of a hip fracture.

Hip fractures are 1 third of all osteoporotic fractures. The number of these is set to double in the next 20 years. Male and female incidence of hip fractures is equal, but Maori/Pacific island rates are a quarter of European.

Cost in NZ of osteoporosis is estimated to be about \$1.15 **billion** a year and this is set to rise by 30% between 2007 and 2020. (therefore prevention of osteoporosis is of critical importance and the best way to address osteoporosis.)

Mortality from hip fractures:

8% die within 1 month.

25%-30% die within one year

50% lose independence

Fatality rate in men = 2 x that of women

Wrist Fractures:

Colles # in women 70yr + is associated with a 1.5 – 2x increased risk for subsequent hip fracture.

Women who should have a Bone density test = all women aged 65 or older regardless of risk factors, younger postmenopausal women with 1 or more risk factor (other than being white, postmenopausal and female), men and postmenopausal women who present with fractures.

RISK FACTORS**Women**

Advanced age

History of a fracture as an adult

Use of oral corticosteroid therapy > 3 months

Impaired vision

Dementia

Recent falls

Poor mobility

Slight build and low body weight

Heavy drinking (>2 drinks per day)

Smoking

Premature menopause - <45 years

Life long low calcium or dairy product intake

Immobilisation or sedentary lifestyle

Excessive athletic activity

Family history of osteoporosis

Anorexia nervosa

MEN

Age over 70

Previous low trauma # after age 40

Maternal hx of # after age 50

Hypogonadism (on hormonal rx post prostate ca)

Alcohol excess (>2 drinks a day)

Low BMI

Low calcium intake

Postural instability

Weakness in quadriceps
Falls in preceding 12 months
Caucasian
Smoking
Poor visual acuity

MEDICATIONS PREDISPOSING PATIENTS TO BONE LOSS

- Glucocorticoids and adrenocorticotropin
- Aromatase inhibitors
- Gonadotropin-releasing hormone antagonists
- Anticonvulsants
- Cytotoxic drugs
- Immunosuppressants
- Long-term heparin
- Lithium
- Long acting progestin

Prevention and treatment of osteoporosis

By addressing modifiable risk factors such as a healthy lifestyle minimises the risk of developing OP. For patients who have been diagnosed with OP, a healthy lifestyle and diet will help reduce the risk of secondary fractures.

Aim of treatment is to reduce the likelihood of fractures, decrease bone loss, restore bone turnover to premenopausal levels and preserve or increase bone strength.

Methods of educating patients on osteoporosis may include a simple programme of increasing awareness of calcium and vitamin D intake, daily exercises and lifestyle modifications. Nurses should be offering patients risk assessments and encouraging screening for osteoporosis.

Prevention of OP should start early in childhood.

Vitamin D primarily increases intestinal calcium uptake and ensures the correct renewal and mineralisation of bone tissue. Low levels lead to muscle weakness and atrophy, an increase in postural sway and impaired psychomotor function. It also leads to increased bone turnover which leads to osteoporosis.

Small quantities are in food, but sun exposure – arms and face – 6 – 10 min a day would be enough to give 1000iu of vitamin. We need 400-800 IU per day. Elderly are advised to take supplements. Loading dose of

2x50000 iu vitamin D3 per month and maintenance of 1 tablet per month after that.

Calcium

Recommended calcium intake

Men

20-65 1000mg per day

>65 1500mg per day

Women

25-50 years 800-1000mg per day

On estrogens 1000-1200mg per day

Over 65 1200 – 1500 per day

Pregnant/lactating 1200-1500mg per day

Over 50 years postmenopausal 1500mg per day

To ensure sufficient daily calcium, include 3 serves per day of high-calcium foods like milk, cheese or yogurt.

Calcium supplementation of between 500 and 1500mg/day is generally safe although constipation may occur.

Calcium supplementation is associated with renal calculus disease in patients with high baseline dietary calcium intakes.

Supplements containing calcium carbonate require gastric acidity for optimal absorption and should therefore be taken with meals. Those containing calcium in other forms do not require gastric acidity.

EXERCISE

To have an affect on bone, exercise needs to be regular, progressive and fairly vigorous and must be weight bearing – brisk walking, jogging, dancing, tennis and volleyball