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OSTEOPOROSIS:

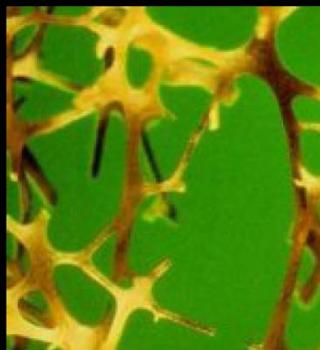
Fragility Fracture Patients Are Rarely Evaluated for Osteoporosis

90% - 95% of patients go home without a bone density test

“Orthopedic surgeons are missing a major opportunity to prevent future fractures by not providing appropriate investigation of fragility fracture patients themselves or initiating appropriate protocols of care to be provided by their colleagues.”

Osteoporosis – Definition

- Literally translates as “porous bones”
- Osteoporosis occurs when the holes between bone become bigger, making it fragile and liable to break easily



A progressive systematic skeletal disease characterized by low bone mass and micro-architectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture

Bone remodelling consists of two distinct stages: bone resorption and bone formation.

During resorption, special cells on the bone's surface dissolve bone tissue and create small cavities. During formation, other cells fill the cavities with new bone tissue.

Usually, bone resorption and bone formation are linked so that they occur in close sequence and remain balanced. An imbalance in the bone remodelling cycle causes bone loss that eventually leads to osteoporosis and fracture risk

NORMAL BONE LOSS

Bone mass peak occurs at 25 years

Men 0.3%/yr after 25 year [both cortical & cancellous]

Women 0.5%/yr after 25 year

Postmenopause 2-3%/yr for 6-10 yrs [more cancellous than cortical]
then 0.5%/yr

DIAGNOSIS

Silent disease

Usually see Orthopods with fragility fracture: Neck of femur, Distal radius, Ankle and shoulder injuries

RISK FACORS

1. Sex: Female
2. Age: Post menopausal
3. Low Body Mass Index [eg. Anorexic]
4. Steroid
5. Family history
6. Alcohol
7. Smoking
8. Inadequate sunlight
9. Decrease activity

PREVENTION:

a. Exercise

Beginning a lifelong commitment to exercise and healthy nutrition while you are still young will reduce your risk of developing osteoporosis.

b. Calcium supplementation is an important.

You should know how much calcium you eat on a daily basis.

c. Alcohol

Alcohol disrupts calcium balance in many ways.

Alcoholic men tend to produce less testosterone, a hormone known for its positive effect on bone density. Low testosterone levels have been linked to decreased activity of osteoblasts, the cells that stimulate bone formation.

While the toxic effects of alcohol abuse are well established, moderate alcohol consumption may actually have a modest favourable effect on bone density in postmenopausal women. This effect may be explained by the fact that after menopause, alcohol enhances the conversion of testosterone into estradiol. On the other hand, there is no evidence to suggest that moderate alcohol intake is beneficial to bone density in premenopausal women or in men.

INVESTIGATION:

DEXA Scan is gold standard

DEXA is indicated in:

All postmenopausal women >65

Under 65 with one or more risk factor or presenting with a fracture

Women who are on Steroid therapy

Steps you can take to prevent it or to slow or stop its progress.

1. Adequate calcium [1200 mg], vitamin D [800 IU], appropriate exercise
2. **Bisphosphonates** If your healthcare professional has talked with you about the options available to prevent or treat osteoporosis, or if you and your physician have discussed the risks and benefits of a particular medication, it is important that you stick with the plan to which you and your healthcare provider have agreed.

Alendronate Sodium (brand name Fosamax)

(5 mg per day or 35 mg once a week; Must be taken on an empty stomach, first thing in the morning, at least 30 minutes before eating or drinking and remain upright for 30 minutes.

Side Effects of Bisphosphonates

Are uncommon but may include gastrointestinal problems, abdominal or musculoskeletal pain, nausea, heartburn, or irritation of the esophagus.

3.Calcitonin

Because calcitonin is a protein, it cannot be taken orally as it would be digested before it could work. Calcitonin is available as an injection (50-100 IU daily) or nasal spray (200 IU daily).

It may cause an allergic reaction and unpleasant side effects including flushing of the face and hands, urinary frequency, nausea and a skin rash

4.Estrogen Therapy (ET) and Hormone Therapy (HT)

The Woman's Health Initiative (WHI) study recently confirmed that one type of HT, Prempro®, reduced the risk of hip and other fractures as well as colon cancer. The WHI also confirmed that this HT is associated with a modest increase in the risk of breast cancer, strokes and heart attacks. This is now less commonly use

5. Parathyroid Hormone

Teriparatide, a form of parathyroid hormone, is approved for the treatment of osteoporosis in postmenopausal women and men who are at high risk for a fracture.