INDOCO REMEDIES LTD.

Prevention of Osteoporosis

Introduction

Osteoporosis is a disease in which bones become very weak and more likely to break (fracture). It often develops unnoticed over many years, with no symptoms or discomfort until a bone breaks. These fractures most often occur in the hip, spine, and wrist. Broken bones are often the result of a fall, although people with osteoporosis can suffer a fracture even when doing simple household tasks.

Prevalence of India

- Over 61 Million Indians have osteoporosis.
- 1 in 3 women over 50 years suffer from osteoporosis.
- 1 in 5 men over 50 years suffer from osteoporosis.
- 15% - 30% men and 30%- 50% women suffer fractures related to osteoporosis in their life time.
- Peak incidence India – 50 – 60 years.

What are risk factors?

A number of factors can increase the likelihood that develop osteoporosis — including your age, race, lifestyle choices, and medical conditions and treatments. **Women are more likely to develop osteoporosis than men. Women have less bone mass than men, tend to live longer, take in less calcium, and need the female hormone oestrogen to keep their bones strong.** If men live long enough, they are also at risk of getting osteoporosis later in life.

What are symptoms?

There typically are no symptoms in the early stages of bone loss. But once your bones have been weakened by osteoporosis, you might have signs and symptoms that include: Back pain,

caused by a fractured or collapsed vertebra, loss of height over time, a stooped posture, a bone that breaks much more easily than expected.

How is osteoporosis diagnosed?

Doctor will do a bone density test to see how strong or weak your bones are. A common test is a central dual-energy x-ray absorptiometry (DXA). A DXA is a special type of x-ray of your bones.

How is osteoporosis treated?

Treatment for osteoporosis starts with changes to your diet. You want to take in more calcium. Your doctor will suggest ways to get more calcium through food, drink, and possibly a calcium supplement. He or she may also suggest you take a vitamin D supplement, which helps your body process calcium.

How can I prevent osteoporosis?

• Exercise & eat a well-balanced diet with at least 1200 mg of calcium a day

• Quit smoking; smoking makes osteoporosis worse

• Talk to your doctor about hormone therapy and other medicines to prevent or treat osteoporosis

Clinical Findings

- Osteoporosis is an age-related skeletal disease characterized by decreased bone mineral density (BMD) and bone structure deterioration resulting in increased risk of fractures.
- Osteoporosis affects mainly postmenopausal women, due the estrogen decline, but many other contributing factors, such as genetic and metabolic disorders, lifestyle, environmental and inflammatory factors could intervene.
- In addition to the search for effective antiosteoporotic drugs, also the identification of new osteoporotic risk factors that can be modified is of paramount importance. Beside the well-

known classic risk factors, **recent studies have suggested that also elevated homocysteine (Hcy) serum levels may represent a risk factor for osteoporosis and skeletal fractures.**

- An alteration in the pathways of metabolism of Hcy determines a condition of hyperhomocysteinemia.
- Both genetic and acquired hyperhomocysteinemia can cause important harmful changes in the body .
- Vitamin D plays a central role in regulating bone homeostasis and represents another important marker of bone health.
- Reduced serum levels of vitamin D may lead to elevated Hcy levels, which in turn may lead to altered bone quality .
- Postmenopausal women with low BMD exhibited higher serum Hcy levels
- Women with higher Hcy levels expressed lower T-score values, as well as an increase in bone resorption markers, compared to women without hyperhomocysteinemia, while markers of new bone formation decreased.
- Deficiency of vitamin D is a well-known risk factor for osteoporosis, and like Hcy, folate, plays important roles in bone remodeling.
- Vitamin D deficiency is associated with hyperhomocysteinemia
- As the primary role of vitamin D is to maintain bone integrity, low levels induce increased bone turnover and reduced bone mineralization.
- An association between Hcy, vitamin D and BMD in postmenopausal females has been demonstrated.
- Hypovitaminosis D is associated with an increase in biomarkers of bone turnover.
- In addition to the well-known bone protective effect of vitamin D and folate are involved in and bone turnover. Interestingly, they are also determinants of Hcy serum concentration.
- In line with our observation of increased Hcy levels in postmenopausal osteoporosis, we also detected significantly decreased serum concentrations of folate in women with low BMD, confirming the results
- Elevated serum Hcy may be the consequence of inadequate folate intake. B vitamins have been shown to associate with decreased BMD and higher osteoporotic fracture risk[1]
- Oral maintenance doses of 2000-4800 IU/day satisfactorily corrected vitamin D deficiency and maintained 25(OH)D levels in postmenopausal women with continuous therapy.

- Doses beyond 2000 IU/day were shown to be universally effective[2]
- Based on this review, using a vitamin D3 dose beyond 2000 IU/day for postmenopausal women who suffer from vitamin D deficiency.
- 2000 IU/day was the minimum effective dose to raise 25(OH)D to 20 ng/ml[3].
- **These recommendations are also in line with the latest guidelines of the United States Endocrine Society, which recommended daily doses of 1500-2000 IU/day for adults aged more than 19 years to keep 25(OH)D within the reference range[4]**

- Adequate calcium intake (in the presence of adequate vitamin D intake) has been shown to prevent bone loss and reduce fracture risk in peri-and postmenopausal women
- it is an essential component of antiresorptive agent therapy for osteoporosis. Calcium has also been associated with beneficial effects in several nonskeletal disorders, primarily hypertension, colorectal cancer, obesity, and nephrolithiasis
- At least 1,200 mg/day of calcium is required for most women; levels greater than 2,500 mg/day are not recommended.

Although the most definitive role for calcium in peri-and postmenopausal women is in bone health, it is clear that adequate calcium intake has implications that encompass a woman's overall health. Based on the available evidence, a strong statement can be made regarding the importance of ensuring adequate calcium intake in all women, particularly those in peri-or postmenopause.

References

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