Secondary Osteoporosis vs. Primary Osteoporosis

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Causes of Secondary Osteoporosis

Primary osteoporosis is a occurs due to aging and a genetic predisposition towards the disease. It occasionally happens in young people, due to poor bone formation or an impairment in the cycle of bone growth and resorption. Secondary osteoporosis refers to osteoporosis caused by factors like another illness, medications, and dietary practices. It may occur separately from or in combination with primary osteoporosis.

Let’s look at some of the causes of secondary osteoporosis.

Hormonal Changes

Women who suffer from anorexia or bulimia often have abnormal menstrual cycles. This coupled with poor nutrition may result in bone loss. Thin female athletes who have irregular or absent menses are at risk, too.

Women whose menstrual periods begin in their mid to late teens have a higher risk of osteoporosis when they are adults, compared with women whose menses began in their early teens.

Women lose the most bone mass in the first years after menopause. This is especially apparent if menopause occurs early, is due to surgical removal of the ovaries, or related to chemotherapy for cancer treatment.

In men, low testosterone levels may result in osteoporosis. Additionally, individuals who have abnormally formed testes or ovaries may not produce adequate amounts of bone-protecting hormones.

People who have a diagnosis of Turner’s or Klinefelter’s syndromes are also at risk for developing osteoporosis.

Dietary Impacts on Osteoporosis

A low calcium or caloric intake may not provide enough calcium and nutrients bones need to remain healthy. Even small deficits of calcium can produce bone-harming effects if the lack occurs for a long period of time.

Inadequate intake of vitamin D may prevent calcium from being absorbed. It may lead to other health problems that promote bone loss in addition to increasing the rate of bone destruction.

On the other hand, too much vitamin A can cause bone loss.

Next page: habits and medical conditions.

Dietary Impacts on Osteoporosis

People who have malabsorption problems may not absorb and use the minerals that bones need. Crohn's disease, irritable bowel syndrome, and any illnesses that reduce the transit time of nutrients within the body may result in weight loss and resulting nutrient lack.

Undernourished children have higher rates of osteoporosis later in life, and women who weigh less than 130 pounds are particularly at risk for developing secondary osteoporosis.

People who have had portions of the small intestine or stomach removed due to cancer and other illness or injuries may not absorb adequate amounts of nutrients.

Supplementation may help to prevent bone loss if nutrition is inadequate.

Women who breast feed may experience a temporary loss of bone density. It usually resolves after breastfeeding ceases. Some experts propose that prolonged breastfeeding may result in permanent bone loss.

However, if calcium rich foods and supplements are taken while breastfeeding, bone loss is likely to be negligible.

Habits

Smoking injures the bone-forming cells of the body, reducing the hardness of bones. While men and women of all ages are affected, smoking is particularly deleterious for post-menopausal women.

Excessive alcohol consumption also reduces bone density. This may be due to harmful effects of the substance or be in response to poor nutrition. Prolonged heavy drinking can cause cirrhosis of the liver, which impairs bone health by interfering with the body's ability to use vitamin D effectively.

Sun exposure is needed for the skin to produce vitamin D. As people become less active and spend more time indoors, an increase in rates of secondary osteoporosis may arise.

Medical Conditions

Endocrine Disorders

Type 1 diabetes, Cushing's syndrome, and alterations in the health of the parathyroid and adrenal glands may result in an increased risk of osteoporosis occurrence.

Hyperthyroidism may lead to decreased bone density, and harm to the cells that make up the bones. Even if hyperthyroidism is corrected, damage to bones may persist.

Blood Disorders

People with cancers of the blood including leukemias, multiple myeloma, or lymphomas are at risk for osteoporosis. Hemophiliacs and individuals who have sickle cell disease are also.

Next page: immobility and medications.

Medical Conditions

Musculoskeletal and Auto-Immune Disorders

Rheumatoid arthritis and lupus are among the many conditions that contribute to osteoporosis. Mobility may be impaired, which hastens bone loss, and medications used to treat the illnesses impair bone health.

Chronic Kidney Disease

Healthy kidneys enable an inactive form of vitamin D to convert to the form that bones need to remain healthy. Individuals who have chronic kidney disease may not be able to convert the inactive vitamin to its usable form.

In addition, the deficiency may promote the development of other conditions that hasten bone loss. Bone formation may actually increase; however it is of poor quality and subject to fracture.

Immobility

Exercise stimulates bone-building cells to produce more bone – unless it is excessive and results in hormonal disturbances. Therefore, any illness or injury that interferes with mobility hastens bone loss.

People who are bedbound for extended periods of time are at risk for osteoporosis. In addition to immobility, bedbound people often take medications that impair bone health. Intravenous fluids and nutrients may be needed, and artificial nutrition may precipitate bone loss.

The bones suffer as a direct result of immobility, medication side effects, and impaired nutrition.

Medications

Many types of medications have the potential to harm the skeleton:

- Medications that reduce the occurrence of seizures. Anticonvulsants interfere with the body's ability to use vitamin D.
- Proton pump inhibitor medications are especially problematic when used by post-menopausal women. Proton pump inhibitors are commonly used for the treatment of gastroesophageal reflux disease (GERD) and other digestive ills.
- People who have had blood clots frequently require the use of heparin for extended periods of time. Heparin may cause bone loss.

- Corticosteroids are often prescribed as a means to reduce inflammation. People who have chronic health issues, such as respiratory problems and rheumatoid arthritis, may require them. Corticosteroids promote bone loss.
- Methotrexate is a medication which is used to treat cancer and rheumatoid arthritis. It has powerful side effects, including the creation of secondary osteoporosis.
- Lithium, thyroxine, some hormonal drugs, tacrolimus, and cyclosporine A increase the risk of secondary osteoporosis.

Screening for Secondary Osteoporosis

Screening for secondary osteoporosis includes an evaluation of health and medication review. Blood tests, urinalysis, and imaging studies are employed.

Dual energy x-ray absorptiometry, DXA, is the most commonly used test for determining bone density. The procedure is quick, reliable, and painless.

X-rays of specific areas, such as the spine, are sometimes used. Blood and urine tests can help to determine the underlying causes if bone loss occurs.

CT scans show bone loss but are expensive and rarely used for this purpose.

Treatment of Secondary Osteoporosis

Treatment focusses on correcting underlying causes and enhancing bone strength. Medications and supplements may be employed and dietary changes can be beneficial.

The goals of treatment include strengthening and preserving bone health. Prevention of injury, pain, and impairment are stressed.