Osteoporosis [1]

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Osteoporosis is the most common type of bone disease. It develops when more bone tissue is broken down by the body than can be replaced. As a result, bones become weak and fragile, making them more likely to fracture (break). These fractures may cause pain and disability that can interfere with a person?s daily life.

Signs and Symptoms

Relieving side effects, also called symptom management, palliative care [3], or supportive care, is an important part of cancer care and treatment. Talk with your health care team about any symptoms of osteoporosis you may experience, including any new symptoms or a change in symptoms.

In the early stages of bone loss there are usually no symptoms. However, once osteoporosis has caused bones to become weak and brittle, a person may experience:

- Back pain, often caused by a compression fracture or collapsed vertebra
- Loss of height over time
- Stooped posture or curved upper back
- A broken bone that happens more easily than expected, such as after a minor injury

Causes

As we age, our bodies lose the ability to replace the cells needed to repair and rebuild bone tissue, and bones may become thin and more porous as a result. In addition to age, other factors that can contribute to loss of bone mass include:

- Cancer metastasis (spread) to the bone, which causes bones to weaken in certain places. Breast cancer, prostate cancer, multiple myeloma, and lung cancer are the most common causes of bone metastases.
- The use of some types of chemotherapy
- Radiation therapy, which may cause any bones affected by the treatment to thin. For example, radiation therapy to the pelvis may increase the risk of pelvic and hip fractures for women age 65 and older. This risk may be greater for women who had osteoporosis before treatment.

- Being a woman, since women have a higher risk of osteoporosis than men. More than 80% of people diagnosed with osteoporosis are women. The risk of osteoporosis is especially high for women after menopause, when the levels of estrogen (a hormone that helps maintain bone density) in a woman?s body drops significantly.
- Hormone therapy for breast or prostate cancer. These treatments reduce levels of either estrogen or the male hormone, testosterone, and contribute to loss of bone mass and density.
- Heavy smoking and excessive alcohol consumption
- A family history of osteoporosis
- Other medications, including steroid therapy (such as prednisone), synthetic thyroid hormone therapy, drugs for heartburn, and a number of other commonly prescribed medications
- Long-term bed rest and inactivity
- Poor nutrition and not getting enough calcium and vitamin D
- Race and ethnic background. People who are white or Asian have an increased risk of developing osteoporosis.

Diagnosis and treatment

Loss of bone mass doesn't happen overnight, but it often goes unnoticed until a person experiences pain, loss of function, or a fracture. If you have painful joints, back pain, or stiffness, tell your doctor or nurse as soon as possible. Warning signs of more serious bone problems are often mistaken for arthritis-like symptoms.

The most common test used to measure bone mass is a dual energy x-ray absorptiometry (DEXA) scan or bone density scan, and it may be done before, during, and after cancer treatment. This test allows the doctor to measure the strength of the bone, usually the hip or the lower spine, based on the amount of calcium it contains. Depending on how low a person?s bone mineral density is compared to normal, the doctor may diagnose osteopenia (mild bone loss) or osteoporosis.

Treatment for osteoporosis and other bone complications usually involves the use of bone-modifying drugs like bisphosphonates (multiple brand names). These medications slow the rate of bone thinning and may reduce new bone damage and promote bone healing. They are also given to patients who experience bone pain related to the spread of cancer.

A possible condition associated with bone-modifying drugs is osteonecrosis of the jaw. It is an uncommon but serious condition. The symptoms of osteonecrosis of the jaw include pain, swelling, and infection of the jaw; loose teeth; and exposed bone. As a result, your doctor may recommend seeing a dentist before bone-strengthening treatment begins. It is also important to tell your dentist you are receiving treatment with a bisphosphonate or other bone-modifying drug before having any dental procedure.

Management of osteoporosis and its complications may also include:

Calcium and vitamin D supplements. Current recommendations for vitamin D are 800 international units (IU) per day for women of all ages. The recommendations for calcium supplements are 1,000 milligrams (mg) per day for premenopausal women (meaning before menopause) and 1,200 mg per day for women who have gone through menopause. Before you take any vitamin or mineral supplement, talk with your doctor.

Exercise. Weight-bearing physical activity (walking, dancing, stair climbing, and jumping rope) places stress on your bones, which triggers the body to make cells that form bone. Regular weight-bearing exercise also builds strong muscles, which can help your balance when walking and doing other activities. Your doctor can help you create an appropriate exercise plan based on your needs, physical abilities, and fitness level.

Maintaining a healthy weight. Eating a well-balanced diet is important to good bone health. Being underweight can contribute to bone loss and fractures.

Preventing falls. Falling is the main cause of fractures for people with osteoporosis. Poor vision, shoes that don?t fit well, a cluttered living space, mental impairment, drowsiness related to pain medication, and poor concentration can increase your risk of falling. To help prevent falls, try doing exercises to improve your balance.

More Information

Bone Scan ? What to Expect [4]

ASCO Answers Fact Sheet: When Cancer Spreads to the Bone [5]

ASCO Expert Corner: Vitamin D and Cancer Risk [6]

Physical Activity [7]

Weight Control [8]

ASCO's Guideline on Bone-Modifying Drugs for Breast Cancer [9]

ASCO's Guideline on Bisphosphonates for Multiple Myeloma [10]

Additional Resources

National Osteoporosis Foundation [11]

LIVE**STRONG** Foundation: Osteoporosis [12]

Links:
[1] http://www.cancer.net/navigating-cancer-care/side-effects/osteoporosis
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/25282
[4] http://www.cancer.net/node/24410
[5] http://www.cancer.net/sites/cancer.net/files/asco_answers_bone_metastasis.pdf

[6] http://www.cancer.net/node/24397
[7] http://www.cancer.net/node/24967
[8] http://www.cancer.net/node/25008
[9] http://www.cancer.net/node/29876
[10] http://www.cancer.net/node/29841
[11] http://www.nof.org/
[12] http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Osteoporosis