

The Medical Minute: Osteoporosis prevention and treatment options

19 May 2011, By: Edward J. Fox

Osteoporosis is a skeletal disease characterized by low bone mineral density and structural deterioration of bone, leading to bone weakness and increased risk of fracture. Osteoporosis should not be confused with osteoarthritis, which is a wear and tear disease of the joints. Osteoporosis can be prevented and also treated via a healthy diet and lifestyle, as well as appropriate medications.

Between the ages of 0 - 30 years, your body is building bone; at age 30 you have achieved "peak bone mass;" this is the maximum density your bone will reach naturally. To achieve a normal peak bone mass, a [healthy diet](#) rich in calcium and vitamin D is needed; current guidelines recommend at least 1500mg of calcium and 800IU of vitamin D per day. At least three cups of milk (low fat or fat free are ok) plus calcium rich foods (broccoli, almonds, yogurt, cheese) usually accomplishes this; calcium and vitamin D supplements can be used as an alternative. In addition, exercise also has been shown to improve bone strength and also can improve balance -- which can aid in preventing falls and subsequent [fractures](#).

Starting at age 30, bone is lost at 0.2 percent per year in both men and women; this jumps to 2 percent per year after menopause in women. However, neither calcium and vitamin D nor exercise alone are enough by themselves to stop age related or post-menopausal [osteoporosis](#). Special prescription medications called anti-reabsorptive agents can halt the loss of bone over time, and other newer medications such as bone anabolic agents can even rebuild bone.

For women, estrogen (i.e. Premarin, Raloxifene/Evista, etc.) replacement therapy is an anti-reabsorptive treatment that has been used in the past to stop post-menopausal [bone loss](#); however, it is now no longer recommended by the FDA as a first line of treatment due to side effects and risks associated with the use of estrogens.

Calcitonin (i.e. Miacalcin), developed in the 1980s, is another anti-reabsorptive agent to treat osteoporosis. This type of medication is administered via a nasal spray, although it is a very weak drug and loses efficacy with long-term use.

Bisphosphonates (Fosamax, Actonel, Boniva, Reclast) are currently the most widely used anti-reabsorptive medications to prevent bone loss and treat osteoporosis. Oral (once-a-week to once-a-month) as well as intravenous (once every three months to once-a-year) preparations are available. The drug is absorbed into the bone matrix, so its half-life is long (ten years). Side-effects are low but they exist, as for any medication, and your physician can determine if you are a candidate for this drug.

Denosumab (Prolia), is one of the newest anti-reabsorptive drugs to treat osteoporosis. It's administered every six months as a subcutaneous injection by your physician, and has been shown to be better at preventing bone loss compared to the bisphosphonates. Side-effects are similar to the bisphosphonates, but also include an increased risk of infections. This drug is ideal for patients who cannot take bisphosphonates, such as patients with kidney disease.

Teriparatide (Forteo) is currently the only anabolic (bone building) medication for osteoporosis treatment. It is a subcutaneous daily injection administered by the patient themselves; teaching classes are available to get patients started. The treatment lasts two years, and has been shown to build bone by up to 15 percent. Because the drug is a hormone analog of parathyroid hormone, it cannot be given to patients in the pediatric age range (yes, kids can get osteoporosis, too), or patients with a history of cancer, radiation, or Pagets disease. Again, your physician can tell you if this drug is appropriate for you.

Provided by Pennsylvania State University

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