Fact Sheet

News from the IBD Help Center

BONE LOSS

As many as 30% to 60% of people with Crohn's disease or ulcerative colitis have lower-than-average bone density. In some individuals, it takes the form of osteoporosis (a condition that literally means "porous bones"). In others, the bone abnormality is osteopenia (low bone density) or osteomalacia (softening of the bones). These conditions occur more frequently in people with Crohn's disease than in those with ulcerative colitis. They also are more common in women than in men. Low bone density can affect inflammatory bowel disease (IBD) patients at any age.

Although bone seems as hard as a rock, it's actually living tissue. Throughout your life, old bone is removed and new bone is added. These two processes—bone resorption and bone formation—are components of the body's continuous bone turnover known as bone remodeling. If bone resorption and formation occurred at exactly the same pace, bone mass would remain the same. But that isn't the case. After age 35 or so, bone resorption outpaces formation and bone density begins to decline. Some loss of bone density is normal. Only when the process accelerates does osteoporosis become a threat.

Although people with osteoporosis may notice some back pain or change in posture, this disorder generally produces no symptoms until the bone becomes so weakened that it breaks. Bone fractures due to osteoporosis most often occur in the spine and hips. This is why screening tests for bone loss (also known as bone density testing) and preventive measures to stop bone loss are so important.

Causes

- ***Corticosteroid medications.*** These powerful anti-inflammatory medications can produce serious side effects, and bone loss is one of them. It is believed that 30% to 50% of people who take corticosteroids on a long-term basis develop osteoporosis, and the effects can be powerful—with the impact on bone health depending largely on the dose and length of time that a person is on these medications. Corticosteroids impair the formation of new bone by:
  - Decreasing the amount of calcium (essential bone-building mineral) absorbed by the intestines from food
  - Increasing the elimination of calcium in the urine
  - Stimulating the production of cells that break down bone
  - Decreasing the number of bone-forming cells
  - Reducing the production of the hormone estrogen, which contributes to strong bones

- ***Inflammation.*** People with IBD often have elevated concentrations of specialized proteins, called cytokines, which increase the body's inflammatory response. These chemicals may disrupt normal bone metabolism—the pace at which old bone is removed and new bone is formed. It also appears that individuals with more active forms of Crohn's may be at increased risk of developing osteoporosis because their cytokine activity is greater. The cytokine connection also might explain why people with ulcerative colitis suffer less bone loss than those with Crohn's disease.

- ***Vitamin D deficiency.*** Vitamin D is necessary for the absorption of calcium. Together, vitamin D and calcium are critical for building healthy bone. Vitamin D is absorbed in the small intestine, which is the part of the gut that absorbs most nutrients. Because vitamin D is absorbed in the small intestine, people with Crohn's disease—particularly those who have had sections of their small intestine removed or who have extensive small intestine involvement—are at increased risk for vitamin D deficiency. This, in turn, may result in bone loss and osteoporosis. Another factor that can deprive the body of vitamin D is inadequate sun exposure, as sunlight works to synthesize vitamin D in the skin.

Risk Factors

According to experts, increasing age, female gender, and low body mass index (BMI) put people with IBD at greater risk for bone loss than any of the other causes described above. This means that older, female Crohn's patients who are of slight build are at greater risk for bone-thinning conditions than younger and heavier patients. Smoking and alcohol consumption increase the risk as well.

Diagnosis

Diagnosis of bone loss is generally made with a special X-ray technology called dual-energy X-ray absorptiometry (DEXA). Results of the test, which measure bone mineral density in the spine, hip, and other bones, indicate the risk of suffering a bone fracture. In the general population, a diagnosis of osteopenia (weak bones) doubles the risk of fracture, and a diagnosis of osteoporosis increases the risk by four or five times.

Preventive Measures

- Reduce steroid use (under your doctor's supervision)
- It may be helpful to use steroid-sparing drugs, such as azathioprine, 6-MP, methotrexate, infliximab, or budesonide—a systemic corticosteroid with fewer side effects than traditional steroids.
- Speak to your doctor about taking medications to enhance bone health.
- Restrict alcohol consumption
- Stop smoking
- Engage in regular physical activity
- Eat a diet rich in calcium or speak to your doctor about taking the recommended 1,500 mg of calcium daily
- If you don't get enough natural exposure to sunlight, then dietary sources of vitamin D are essential. These include fortified milk, fish oils, and liver. Alternatively, speak to your doctor about taking the recommended 800 units daily of supplemental vitamin D (contained in many multivitamins)

January 2015