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OSTEOPOROSIS AND OSTEOMALACIA ASSOCIATED WITH CELIAC DISEASE

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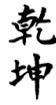
It is likely that calcium malabsorption is the major factor causing osteoporosis in patients with Celiac Disease. Although it may be asymptomatic, Celiac Disease is a lifelong disease. If there is lifelong impairment in calcium absorption, bone density will be compromised. In addition, some patients with Celiac Disease may not have adequate vitamin D. Vitamin D is a hormone that fosters both absorption of calcium from the gut and deposition of calcium and phosphorus into bone. Both calcium and vitamin D are absorbed in the upper small intestine, which is the area of the intestine most frequently affected by Celiac Disease. Vitamin D can also be made in the skin from sun exposure. People who get adequate sunshine don't really need vitamin D in their diet, and it doesn't matter if they malabsorb vitamin D.

By the time a person reaches their twenties, they have probably achieved their peak bone mass, which is a major determinant of osteoporosis later in life. In general, people who have high peak bone mass at maturity will end up with the most bone and fewer fractures later in life. Once the forties are reached, bone mass begins to decrease gradually by 1-2% per year. Women also go through a period of more rapid bone loss during the 5 to 10 years after menopause. Calcium deficiency impacts on bone density early in life because you will make less bone, and later in life when you will lose more bone than an individual with enough calcium available.

The incidence of osteoporosis in patients with Celiac Disease varies somewhat. The incidence is higher with more severe disease and older age at diagnosis. When children present with Celiac Disease, they usually have evidence of delayed or poor growth, and bone density, if measured, is low. When a gluten-free diet is maintained, there is usually an increase in bone mass, and the growth rate usually improves. Some studies suggest that children with Celiac Disease who are diagnosed at a young age and treated effectively will have normal bone mass when they reach adulthood.

Adults who have had lifelong undiagnosed Celiac Disease are more likely to have lower bone density than the average person their age. They are significantly more likely to already have had broken bones than are age and sex matched controls.

Patients with Celiac Disease may also have a different bone disorder called osteomalacia. Osteomalacia differs in several respects from osteoporosis. In osteomalacia, the amount of bone may be normal, but there is less mineral in the bone. Bone formation is a two-step process. Bone is first made as soft tissue; after the bone has been laid down, calcium and phosphorus are deposited in the tissue, and it hardens. In osteomalacia, less calcium and phosphorus are deposited into bone. This makes the bone soft and more pliable. In children, the long bones of the legs will bend and bow, which is called rickets. In contrast to osteoporosis, there are usually symptoms with osteomalacia. The bones may ache and feel sore to the touch. For example, it is common to have hip or heel pain when you stand. Fractures do occur, but they tend to be a little different from osteoporotic fractures. It is important for the physician and the patient to know whether they're dealing with osteoporosis or osteomalacia, because they are treated differently, and certain therapies that might make osteoporosis



better might make osteomalacia worse. The definitive diagnosis of osteomalacia is made by bone biopsy, where excess unmineralized bone can be seen, although tests of blood and urine may also be helpful.

TREATMENT FOR CELIAC PATIENTS WITH LOW BONE DENSITY

The most important treatment is the gluten-free diet. The available evidence suggests that if children or adults adhere to a gluten-free diet, bone density will improve, especially during the first year or two of treatment. If you're an adult at age 30, who has just discovered that you have Celiac Disease and low bone density, your bone density may increase anywhere between 5-10% over the first year or two on a gluten-free diet. There are no good studies looking beyond 1-2 years.

Calcium supplements are important, and may be necessary even in those patients who have a good response to the gluten-free diet. Celiac Disease patients lose more calcium in bowel movements than normal people do, and there is a certain amount of calcium that is lost in the urine whether you have Celiac Disease or not. Calcium is necessary for a myriad of body processes, and if it doesn't come from the diet or supplements, it is taken from the bones.

If the vitamin D level is low, supplements can be taken. Sometimes plain vitamin D doesn't work, because it is not well absorbed. Other types of vitamin D can be prescribed by your physician that are more easily absorbed. Making sure you get a reasonable amount of sunlight exposure is also a good way to get more vitamin D.

Women with Celiac Disease who go through menopause should strongly consider taking estrogen, which will protect them from the additional bone loss that occurs with estrogen deficiency.

There are other newer therapies for osteoporosis. None of them have been evaluated in patients with Celiac Disease. The new Merck drug, Fosamax (Alendronate), is absorbed mainly in the stomach, and should be absorbed in the patient with Celiac Disease. It does not contain gluten, but does contain lactose. The decision to institute Fosamax therapy is a very individual one that should be reached between the Celiac Disease patient and their doctor after a careful evaluation to make sure that there is no evidence of osteomalacia. Fosamax may make osteomalacia worse. Moreover, at this time we don't really know if Fosamax is effective. The other agent that is approved for osteoporosis is calcitonin, which is available in a nasal spray. Calcitonin probably won't hurt anybody, but there is no information available about whether it helps. Newer agents that act by different mechanisms to increase bone density are now in clinical trials.