Researchers find vitamin D absorption is diminished in patients with Crohn's disease

January 18 2011

Researchers from Boston University School of Medicine (BUSM) have for the first time shown that reduced vitamin D absorption in patients with quiescent Crohn's disease (CD) may be the cause for their increased risk for vitamin D deficiency. The findings, which currently appear on-line in *Inflammatory Bowel Diseases*, also showed that the only way to determine absorption efficiency is to perform a vitamin D bioavailability test.

Vitamin D is ingested in the diet as well as synthesized in the skin from UVB irradiation from the sun. People living in areas that receive less sunlight have lower circulating 25-hydroxyvitamin D [25(OH)D] levels and have higher prevalence rates of inflammatory bowel disease (IBD). In addition, both children and adults with IBD have an increased incidence of vitamin D deficiency. In particular, patients with CD have an increased incidence of vitamin D deficiency, relative to both patients with ulcerative colitis and the general population.

Ten normal subjects (50 percent female) and 37 CD patients with quiescent disease (51 percent female) were included in this study. A vitamin D bioavailability test was performed on all subjects. After a baseline blood draw, all subjects were then given a single 50,000 IU oral dose of vitamin D2 in a capsule formulation and had their blood drawn 12 hours later to determine serum vitamin D2 which reflected their vitamin D2 absorption capacity. The researchers found that CD patients had on average a 30 percent decrease in their ability to absorb vitamin D2 when compared to normal subjects.

According to the researchers, this study emphasized the important role of an oral vitamin D absorption test, which may be an excellent means to assess for the malabsorption of fat soluble vitamin. "We demonstrated that neither disease activity nor prior surgery or location of disease predicts the ability to absorb vitamin D," said lead author Francis Farraye, MD, MSc, a professor of medicine at BUSM.

"Since the ability to absorb vitamin D in CD patients is unpredictable, the only way to determine absorption efficiency is to perform a vitamin D bioavailability test. This test is convenient and its use may guide clinicians in administering the appropriate therapeutic dose of vitamin D for treating vitamin D deficiency in patients with CD," added senior author Michael Holick, PhD, MD, a professor of medicine, physiology and biophysics at BUSM.

Additionally, in a pilot study, the researchers performed vitamin D absorption tests in four patients with ulcerative colitis (UC) and found a wide variability of vitamin D2 bioavailability in patients with UC as well as in 17 patients with CD, which was unexpected since vitamin D is absorbed in the small intestine and not in the colon.

The results, if confirmed by others may merit the development of a vitamin D assay by reference laboratories as a clinical test. "Our data support the use of an oral vitamin D absorption test in CD patients, especially in those patients who could not correct in the vitamin D deficiency by either dietary or pharmacologic means," added Farraye.

Provided by Boston University Medical Center