Vitamin D Deficiency Found Common in Teens

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EXPERT ANALYSIS FROM THE ANNUAL MEETING OF THE SOCIETY FOR ADOLESCENT HEALTH AND MEDICINE

TORONTO — Vitamin D supplementation needs to be considered in all adolescents, especially during the winter months, in higher latitudes, and when good sunscreen habits are enforced, according to Dr. Catherine M. Gordon.

"We get vitamin D either from the sun or from supplements or food," she said at the meeting. "A sunscreen of SPF 8 or above reduces vitamin D production by about 97.5%, and most children use a much higher SPF."

Also, among individuals with darkly pigmented skin, melanin competes with vitamin D precursors for photons.

Individuals living in northern latitudes during winter months cannot produce vitamin D_3. Researchers found that on cloudless days in Boston, sunlight did not initiate cutaneous production of vitamin D from November through February (J. Clin. Endocrinol. Metab. 1988;67:373-8).

One study found that 15% of milk samples in the United States and Canada had no detectable vitamin D, and more than half had less than 80% of the content stated on the label.

The American Academy of Pediatrics in 2008 recommended 400 IU across the pediatric age spectrum, including adolescents, she said.

However, many health providers for adults recommend that their patients receive 1,000 IU as a daily supplementation dose.

"Many of us believe that adolescents are not that different from adults, and that 1,000 IU daily would be the appropriate dose," Dr. Gordon said.

The Food and Nutrition Board of the National Academy of Sciences set the lowest observed adverse effect level for humans at 2,000 IU vitamin D daily. However, "this is probably wrong," she said. Adults in Canada studied at a high latitude and with not a lot of sun exposure who were given 4,000 IU for 2-5 months achieved just high-normal levels of vitamin D with no signs of toxicity (Am. J. Clin. Nutr. 2001;73:288).

Although the current safety limit for vitamin D is 2,000 IU a day, many studies have shown that daily intakes of 10,000 a day were required before manifestations of toxicity were reported, said Dr. Gordon of the divisions of adolescent medicine and endocrinology at Children's Hospital Boston and director of the hospital's bone health program.

Although vitamin D can be found in fatty fishes and cod liver oils—"not a favorite among adolescents"—as well as fortified milk and juice, concern exists about the reliability of the milk supply for vitamin D delivery, noted Dr. Gordon. One study found that 15% of milk samples in the United States and Canada had no detectable vitamin D, and more than half had less than 80% of the vitamin D content stated on the label (N. Engl. J. Med. 1993;329:1507).

In one study, Dr. Gordon found that 42% of 307 healthy adolescents tested had vitamin D levels of 20 ng/mL or less; 24% had 15 ng/mL or less of detectable serum 25-hydroxyvitamin D (Arch. Pediatr. Adolesc. Med. 2004;158:531-7).

Some individuals are at particularly high risk. Vitamin D deficiency occurs in individuals with inflammatory bowel disease with associated malabsorption, in patients with cystic fibrosis, and in patients with seizure disorders because anticonvulsants increase vitamin D metabolism.

Anorexia nervosa patients actually have a low prevalence of vitamin D deficiency because they tend to be compliant with multivitamins and calcium.

On the other end of the spectrum, obese patients are at high risk for vitamin D deficiency because "it appears that vitamin D is sequestered in fat tissue," she said. ■

Disclosures: *None were reported.*