

Vitamin D (Part 2)

In my last posting, we discussed the importance of vitamin D in cardiovascular disease. I want to now talk about treatment of vitamin D deficiency. I had previously stated that serum 25(OH)D is the best functional measure of vitamin D status. Most experts agree that a serum level less than 20 ng/ml indicates deficiency and 21-29 ng/ml is considered insufficiency. The optimal range is still debated but most experts consider a level between 32-50 ng/ml to be normal.

The current recommended daily allowance for vitamin D in US is 200 IU/day for children and adults up to 50 years, 400 IU/day for age 51-70, and 600 IU/day over age 70. New research on the non-skeletal benefits of vitamin D has made these guidelines obsolete. Various studies have shown that the greatest physiologic effects have occurred in daily doses of 2000 IU or higher. Doses between 1000-2000 IU daily for adults are likely needed in absence of sun exposure to maintain levels of 30-50 ng/ml 25(OH)D. Vitamin D3 (cholecalciferol) is the form photosynthesized in mammals. Skin exposure without sunscreen can provide adequate amounts of vitamin D3. Vitamin D does not naturally exist in significant amounts in the human food chain. Milk is fortified with 400IU/quart. It is extremely difficult to consume adequate amounts of vitamin D from the diet unless one consumes oily fish frequently such as sockeye salmon. Cod liver oil and O3FA do not provide adequate amounts.

Vitamin D2 (ergocalciferol) is the plant-based form and is added to certain foods and multiple vitamins and is the only form available by prescription in the US. Toxicity and overdose have been related to vitamin D2 intake but not D3 intake. Doses of more than 50,000 IU daily of vitamin D2 were associated with high calcium and low phosphorous levels in the blood whereas doses up to 10,000 IU daily of D3 for 5 months do not cause toxicity. Symptoms of toxicity include weakness, loss of appetite, itching, thirst, excessive urination, and weakness.

In my own practice I treat patients only after drawing a 25(OH)D level. If the patient is deficient, I have managed them with over-the-counter vitamin D3, 5000 IU daily for 8 weeks and continue an additional 8 weeks if levels do not rise above 30 ng/ml. Once this is achieved, 1000-2000 IU each day is used for maintenance therapy. Doses are adjusted for obese patients and those with darker skin pigmentation. Ideally, levels should stay between 35-90 ng/dl. As levels normalize, many patients have a reduction in fatigue and also less muscle pain and cramping.