Vitamin D Supplements: Not Just for Bone Health

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People living with cardiovascular disease or who are at risk for cardiovascular disease should seriously consider vitamin D supplementation, despite limits in supporting data, according to a review article published in the November 2011 issue of *Clinical Endocrinology*. Though the authors' suggestions to head vitamin D supplementation recommendations from various medical groups don't reference people living with HIV, advice designed to counter low vitamin D levels in various patient populations has long been considered applicable.

Vitamin D is essential for proper bone health. Research also concludes that it helps guard against cardiovascular disease and certain cancers. It is unique among vitamins in that it is made by the body in response to sunlight but is naturally present in very few foods. Other than sunlight, most people get their vitamin D in the form of fortified milk, fatty fishes or directly through supplements.

A number of recent studies have confirmed that vitamin D deficiency is common in both HIV-negative and HIV-positive people of all ages and all races. People with HIV, however, may be at particularly high risk of having vitamin D deficiency. This may be partly because certain HIV medications appear to lower vitamin D levels, particularly efavirenz (found in Sustiva and Atripla).

Most people are probably not getting enough vitamin D through traditional sources. Regular use of sunscreens with a sun protection factor (SPF) of 30 or higher can reduce vitamin D absorption from sunlight by up to 95 percent. Moreover, today's sedentary lifestyles means more people spend less time in the sun during the spring and summer, further reducing the opportunity to absorb enough sunlight during these critical seasons.

Other factors add to the problem. Most people living far from the equator aren't exposed to enough sunlight in the winter months to sustain adequate levels of vitamin D throughout the year. People with dark skin pigmentation have a natural protection from sunlight, so they're at even higher risk of having vitamin D deficiency. What's more, the consumption of fortified milk and fatty fish has dropped in recent years overall.

To circumvent vitamin D deficiency, a panel of experts representing The Endocrine Society recently published recommendations suggesting that HIV-negative adults ages 19 to 50 receive at least 600 international units (IU) per day of vitamin D to maintain bone and muscle health, and

that adults between 50 and 70 receive between 600 and 800 IU. Ideal intake may be as high as 1,500 to 2,000.

For adults who are obese or who are HIV positive, the panel recommended that daily intake of vitamin D may need to be up to 6,000 to 10,000 IU per day.

These numbers are higher than those by the Institute of Medicine (IOM), which recommends only 400 IU per day for most people. The IOM stated that evidence at the time didn't support supplementing above that level—and in fact it warned that higher doses could be harmful in some cases.

Yet none of the major cardiology medical groups has recently proposed specific recommendations regarding vitamin D at any dose. In turn, Stefan Pilz, MD, of the Medical University of Graz in Graz, Austria, and his colleagues set out to publish a review highlighting the benefits—or lack thereof—of vitamin D supplementation on cardiovascular health.

According to Pilz's team of reviewers, experimental studies conducted over the years have demonstrated beneficial vitamin D effects on cardiovascular risk factors, the heart and the blood vessels.

Meta-analysis—statistical evaluations of data collected from various studies—suggest that vitamin D treatment may modestly reduce death rates from any causes, the authors say. Unfortunately, they add, "data from randomized, controlled clinical trials exploring the effects of vitamin D supplementation are sparse, and some, but not all, studies showed beneficial effects of vitamin D supplementation on cardiovascular risk factors (e.g. arterial hypertension)."

Important research is, however, under way. Pilz and his colleagues note that large-scale randomized, controlled trials evaluating the effect of vitamin D on cardiovascular health outcomes are being conducted. "These studies will, however, not be finished within the next few years, leaving us with the question of how to handle vitamin D testing and treating in the clinical routine."

Because a patchwork of data regarding vitamin D supplementation and cardiovascular health exists, the authors write, "we cannot justify proposing general recommendations for vitamin D supplementation for the treatment and prevention of cardiovascular disease. However, we also cannot ignore the available knowledge on vitamin D. Consequently, we are of the opinion that overall risks and cost of vitamin D supplementation should be weighed against potential adverse consequences of untreated vitamin D deficiency. In this context, the proposed multiple health benefits of vitamin D and the relatively easy, cheap and safe manner of its supplementation should be considered."

The goal of vitamin D supplementation, they conclude, should be to increase blood levels of vitamin D so that they fall between 75 and 100 nanomoles (nm)—a simple blood test can determine whether vitamin D supplementation is necessary and, if so, whether the target level has

been achieved. “We therefore believe that aiming for this ‘optimal range’ of vitamin D status is reasonable. However, we should be aware that these data on the optimal vitamin D status are based on relatively low evidence levels, are controversially discussed and need to be further evaluated in large-scale [randomized, controlled trials].”

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