Low Vitamin D Levels Are Common in Both HIV-Positive and HIV-Negative Women

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Though nearly two thirds of women in a large study had low vitamin D levels—a risk factor for bone and heart problems—the HIV-positive women were actually slightly less likely than HIV-negative women to be vitamin D deficient. These data were published online April 5 in the *Journal of Acquired Immune Deficiency Syndromes*.

Researchers have long known that low vitamin D levels can contribute to poor bone health, but in recent decades we've also learned that low vitamin D can lead to high blood pressure, cardiovascular disease, diabetes and even certain cancers. Some of the strongest risk factors for being vitamin D deficient include getting too little exposure to the sun—as can happen especially in winter months—consuming too little vitamin D, having dark skin and being overweight.

Vitamin D deficiency is common. In a recent study of the adult U.S. population, only 23 percent of those tested had sufficient blood levels of vitamin D. Inadequate vitamin D is also a growing concern in people with HIV. This is because some studies have found the condition to be more common in HIV-positive people, while others have found that the commonly used antiretroviral (ARV) drug efavirenz (found in Sustiva and Atripla) contributes to low vitamin D levels. What's more, many of the diseases that are cropping up at younger ages in people with HIV—such as cardiovascular disease, diabetes and metabolic syndrome—are all tied to vitamin D deficiency.

To better understand how HIV may contribute to vitamin D deficiency, Oluwatoyin Adeyemi, MD, from the CORE Center at Rush University Medical Center in Chicago, and her colleagues tested stored blood samples from 1,268 HIV-positive and 510 HIV-negative women enrolled in the Women's Interagency HIV Study (WIHS). The majority of the women were African American or Latino, and they were distributed equally in cities at lower and higher latitudes. Most of the women in the study were in their early 40s.

Adeyemi and her colleagues found that vitamin D deficiency was quite common among all the women in the study, with 63 percent deficient and 22 percent with severe deficiency. In fact, only 13 percent had sufficient blood levels of vitamin D.

What was interesting is that HIV-positive women, on average, had higher vitamin D levels. Also,

the proportion of HIV-positive women with vitamin D deficiency was lower compared with HIV-negative women, 60 percent versus 72 percent. The difference was small enough, however, that it could have occurred by chance. Adeyemi and her colleagues explained that this unexpected result could be due to the HIV-positive women enrolled in their study receiving better and more consistent health care than the HIV-negative women.

In most regards, the factors associated with higher odds for having low vitamin D levels were similar to those found in studies conducted solely in HIV-negative people. The two primary factors associated with low vitamin D levels in this study were being black or Latino and being overweight

In HIV-positive women, additional factors for having low vitamin D levels included having a lower CD4 count. Conversely, having an undetectable viral load or being on a protease inhibitor–based ARV regimen were protective.

In contrast to most studies, Adeyemi and her team found that older women were actually less likely than younger women to have low vitamin D levels. The authors offer two potential explanations: first, that the vast majority of older women in the WIHS study are still below the age categorized as “elderly” in the general population; and second, that the blood levels of vitamin D found in the older women suggested that many were using vitamin D supplements.

“While there are no formal guidelines on testing for and supplementation of vitamin D in HIV-infected women, it will be important to explore the response to vitamin D supplementation in these women and the impact on a myriad of health outcomes including insulin resistance, cardiovascular disease, bone health and a variety of mental health outcomes,” the authors write.

“An understanding of the role that vitamin D deficiency plays in non-AIDS-related morbidities reported in excess among HIV-infected individuals is planned for investigation in WIHS,” they conclude.

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