Raising vitamin D levels in HIV-positive people

Vitamin D is not like other vitamins; it acts as a hormone and has complex and poorly understood functions within the body. Vitamin D deficiency and insufficiency are common in people with HIV infection. Anecdotal reports from physicians caring for HIV-positive people and results from clinical trials suggest that getting vitamin D levels in the blood into the optimal range (75 nmol/litre or greater) is not easy and may take several months or up to a year even when relatively high doses (such as 4,000 IU/day) are taken with over-the-counter oral supplements. Researchers in Los Angeles conducted a 12-week study of oral vitamin D₃ supplementation. Their results suggest that it is possible to significantly raise vitamin D levels in the blood with over-the-counter supplements but very high doses are needed, particularly in cases of pre-existing deficiency.

Study details

Researchers recruited 82 HIV-positive people—78 men and four women. All participants were on stable ART. Their average profile at the start of the study was as follows:

- age – 48 years
- CD4+ count – 552 cells
- viral load – less than 200 copies/ml

Problems such as higher-than-normal blood pressure and abnormal levels of cholesterol in the blood were common. Prior to entry in the study, none of the volunteers were taking more than 400 IU per day of vitamin D. And the level of vitamin D in their blood was less than 50 nmol/litre, suggesting deficiency.

All participants were supplied with a liquid formulation of vitamin D₃ called Ddrops, with each drop containing 2,000 IU of vitamin D. In Canada, the maximum allowable amount of vitamin D per tablet, capsule or drop sold over the counter is 1,000 IU.

Each participant was instructed to take 50,000 IU twice weekly for five consecutive weeks. After this, participants were told to reduce their dose to 2,000 IU per day for seven additional weeks.

Results

Overall, 81% of participants had their levels of vitamin D rise to 75 nmol/litre or greater after 12 weeks of supplementation. Ten participants (12%) disclosed that they had difficulty taking Ddrops as directed.

About 60% of participants were taking efavirenz (Sustiva, Stocrin and in Atripla) and 77% were taking tenofovir (Viread and in Truvada and Atripla). Exposure to efavirenz has been linked to decreased levels of vitamin D, and exposure to tenofovir, in theory, might have had a similar effect. However, in the present study, exposure to efavirenz or tenofovir or other anti-HIV medicines did not affect the ability of participants to increase their vitamin D levels.

No significant changes in viral load or CD4+ cell counts occurred as a result of taking high doses of vitamin D. Also, no toxicity was reported.

The results of the Los Angeles trial are reassuring in at least several ways, as follows:

- They confirm the effectiveness of the liquid formulation in popular use—Ddrops.
- It is possible for HIV-positive adults to achieve adequate levels of vitamin D in the blood with aggressive oral supplementation.
• High doses of oral vitamin D over the short-term were not associated with toxicity.
• Vitamin D had no negative effects on HIV viral load.
• Vitamin D supplementation did not increase (or decrease) CD4+ cell counts.
• Vitamin D levels can rise with supplementation despite the use of medicines such as efavirenz.

The research team plans to continue to monitor the participants in this study to observe the long-term effect of vitamin D supplementation.

The best dose of vitamin D supplementation to move the concentration of this vitamin in the blood closer to ideal levels is not known and will probably vary from one person to another. But the present study may serve as one possible method for quickly raising vitamin D levels.

Many clinical trials of vitamin D are planned or underway in the U.S. with a variety of populations affected or infected with HIV. Here are just a few examples of these trials:

• women who have entered menopause
• comparing the effects of frequent low-doses (between 2,000 and 4,000 IU per day) and very high doses such as 50,000 IU/week for up to eight weeks
• the government-funded AIDS Clinical Trials Group (ACTG) is planning to test whether high-dose vitamin D can prevent the bone loss that often occurs when ART is initiated

—Sean R. Hosein

REFERENCE:

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