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Beyond the Break
Question & Answer

Presentation: Role of Vitamin D in Nutrition, Bone Health and Osteoporosis
Date: March 4, 2016
Time: 12:00 pm -1:00 pm EST
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1. Does Vitamin D 3 or D2 have better results for Vitamin D deficiency? For those above 50 yrs of age

Both of these vitamin D isomers work; there is some evidence that vitamin D3 is a bit better with 25-hydroxyvitamin D values 15 nmol/L higher than if vitamin D2 were given. Some of the studies in that meta analysis showed even greater responses. The table shown by Tripkovic et al, 2012 Am J Clin Nutr has nice data showing improvements in some with deficiency and also improvements in those with good status too.

2. Can you tell me whether 50,000 IU weekly for 6 weeks is reasonable treatment for a 25(OH)D of 68 nmol/L?

And if so, when should another 25(OH) be measured?

As a dietitian I would only be able to recommend; a physician could prescribe. If a person has 25(OH)D of 68 nmol/L, it would be good to know what the target is and the rationale for the target. The Institute of Medicine suggests 50 nmol/L (and up to 125 nmol/L) is a generally good for bone health for most people. If you are thinking of other guidelines such as OC or Endocrine Societies, often these are 75 nmol/L targets for 25(OH)D. It is hard to say how much would be enough and for how long as people do metabolise vitamin D differently and some do not respond; it would be important to consider other conditions that might impact on vitamin D metabolism including medications too. For example older people might have more variable responses and those with fatty liver (NASH, NAFLD) might not have as much CYP activity to convert cholecalciferol to 25(OH)D. If I were part of a team who wanted to reach for higher 25(OH)D, I would think 4000 IU/d (the UL) would be enough and to test after 3 mo. Often vitamin D is further metabolised to 24,25(OH)2D and eventually excreted; this can be true when higher amounts are given and possibly using weekly regimens.

The table shown by Tripkovic et al, 2012 Am J Clin Nutr has some data on weekly dosages; I'm not sure such a dose would be needed in the long-term.

3. **Can you speak to the trend to give large doses of weekly vitamin D in long-term care?**
Here in Winnipeg, a lot of practitioners are prescribing 10,000 - 20,000 IU on a weekly basis (instead of daily)? Is this an acceptable method of supplementation? Does it have the same benefit/effect as a smaller dose of a daily supplement?
I do see the benefits of reducing polypharmacy in older adults living in LTC.

This is an important question, it would be ideal to give daily in my view, but polypharmacy is certainly another important issue. There is some work on weekly dosages including in the table by Tripkovic et al, 2012 Am J Clin Nutr, that I showed in brief. As well, in working with Tim Green of UBC we showed that weekly dosages of 20,000 IU for up to 6 months or more did result in higher vitamin D status, not too high per se but well above 75 nmol/L. The dose of 20,000 IU is cumulatively below the 4000 IU/d UL, so it makes sense no severe adverse effects were noted; although total calcium was elevated in 14%. That work is published in J Am Geriatr Soc 2014, Feldman et al. If I were working in long-term care again, I might want to give a weekly dose of 20,000 IU/wk. for 3 months to get stores up, but then use a lower maintenance dose like 10,000 IU/week . There are, however, to my knowledge no studies on this. We did do one study where 500 to 1000 IU on a daily basis was enough to keep values above 50 nmol/L in winter. If you have a chance to do some research, please publish, we all learn so much from each other.

4. **What do you think about the study that showed that vit D supplement in those that that had 25OHD of 65 or greater did not seem to have much benefit in terms falls, BMD and fracture preventing**

That study is an example of many where a supplement given to those who do not need it fails to show benefits; the study did show some benefits to maintaining bone though. The study failed to show fewer falls though which might just mean that enhancing status in those with good status will not improve muscle outcomes. Often each tissue has a threshold for the beneficial effects; perhaps we do not have a good understanding of this yet. I find that bone is more sensitive than soft tissue to many treatments, so that could explain why bone showed benefits of increasing vitamin D intakes, but muscle did not. It could also mean that good vitamin D status is a sign of good health, active and living in community.