Serum 1,25-Dihydroxyvitamin D Level Is Inappropriate for Use in Prospective Studies of Cancer Incidence

To the Editor:
In a recent paper, Umehara and colleagues reported that baseline serum 1,25-dihydroxyvitamin D [1,25(OH)2D] levels in a 10-year follow-up study in Japan were significantly inversely correlated with all-cause, cardiovascular, and respiratory infection mortality rates but not significantly correlated with the all-cancer mortality rate.1 However, it has been found from ecological studies that cancer mortality rates are inversely correlated with solar UVB doses in Japan2 and other mid-latitude countries.3 Solar UVB exposure is the most important source of vitamin D for most people. In addition, serum 25-hydroxyvitamin D [25(OH)D] levels are inversely correlated with cancer incidence, especially for short follow-up times,4 and with survival after cancer diagnosis.5 The preponderance the evidence supports the UVB-vitamin D-cancer hypothesis.6

Most observational studies do not investigate the relationship between serum 1,25(OH)2D levels and cancer risk. There are at least a couple of reasons for not doing so. One reason is that serum 25(OH)D levels are considered the most important index of vitamin D status, so are routinely measured. The second reason, important for cancer, is that most organs can readily convert serum 25(OH)D to 1,25(OH)2D as needed via 1-α-hydroxylase.7

A search of pubmed.gov found 1 paper that investigated mortality rates with respect to both serum 25(OH)D and 1,25(OH)2D levels. Although it found significantly increased risk of all-cancer mortality rates for 25(OH)D level <20ng/mL, it found limited significant correlations with 1,25(OH)2D level after adjustment for various cancer risk-modifying factors.8

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References

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