

# Vitamin D Deficiency Common in Osteoporosis

BY BRUCE JANCIN  
Denver Bureau

VIENNA — More than half of postmenopausal women being treated for osteoporosis in the United States and the rest of the world have vitamin D levels that are inadequate for skeletal health, according to two recent cross-sectional surveys totalling 2,821 such women in 20 countries.

"Wherever we look in the world, patients are not getting enough vitamin D to maintain calcium homeostasis. ... This is a missed opportunity. When we're giving bone-active drugs to patients with osteoporosis, if we don't think about vitamin D inadequacy, then we miss the opportunity to ensure that our patients have optimal gains in bone mineral density. And these studies show that the problem is very, very common," David Hosking, M.D., declared at the annual European congress of rheumatology.

The North American survey involved a

total of 1,536 community-dwelling postmenopausal women being treated for osteoporosis. Of these, 52% were found to have a serum 25-hydroxyvitamin D (25[OH]D) level below 30 ng/mL, which most experts define as the cutoff for vitamin D inadequacy from the standpoint of facilitating calcium absorption in the intestine. Both surveys showed the prevalence of secondary hyperparathyroidism began rising as 25(OH)D dropped below 30 ng/mL.

The body senses when intestinal calcium absorption is inadequate. It responds by triggering secondary hyperparathyroidism. The resultant increased parathyroid hormone production leads to greater bone remodeling.

"If you're young, that probably doesn't matter desperately much, but if you're elderly or you're a postmenopausal woman in negative calcium balance, then that amplifies your rate of bone loss," explained Dr. Hosking of Nottingham (England) City Hospital.

In the international survey, the overall prevalence of vitamin D inadequacy was 59% (see graphic).

"The Middle East was a real surprise. Here, where there's lots of sunshine, we'd imagine that all the patients would be able to make adequate levels of vitamin D. But because it's so searingly hot, hardly anybody goes out in the midday sun and the prevalence of vitamin D deficiency is very high," he observed at the meeting, which was sponsored by the European League Against Rheumatism.

The prevalence of vitamin D inadequacy in the two surveys was unaffected by latitude. This finding suggests that the casual, "let-the-sun-take-care-of-it" approach to vitamin D that's widespread in more equatorial areas is misplaced, the physician said.

The Institute of Medicine's recommended daily vitamin D intake is 400 IU for individuals aged 51-70 years and 600 IU for those older than 70 years. Yet only 60% of postmenopausal osteoporosis patients in the U.S. survey claimed to be taking at least 400 IU/day. Their rate of vitamin D inadequacy was 45%, as compared with 63% in those not taking a daily supplement of at least 400 IU of vitamin D. But that 45% prevalence is still unacceptably high, Dr. Hosking said, adding that it probably reflects poor compliance with vitamin D therapy.

In the North American survey, multivariate analysis identified eight variables as independent predictors of vitamin D inadequacy: age older than 80 years; obesity; nonwhite race; the use of drugs known

to affect vitamin D metabolism; education less than 12th grade; lack of exercise; a daily vitamin D intake of less than 400 IU; and a lack of physician counseling regarding the importance of vitamin D to bone health. Patients with five or more risk factors had a 90% prevalence of inadequate vitamin D.

Two of these risk factors—failure to take an adequate daily vitamin D supplement and

lack of physician counseling regarding vitamin D's importance to skeletal health—are readily remediable through patient and physician education. That's the approach Dr. Hosking considers most effective. Some experts advocate modestly increasing sun exposure; however, the skin becomes less efficient at converting sunlight to vitamin D with advancing age, and skin cancer is an issue.

Several audience members urged a public health approach to encourage people to eat more vitamin D-rich foods. However, Dr. Hosking was skeptical, as the list of such foods is limited to liver, oily fish, eggs, and a few other choices. In Europe, dairy products are typically not vitamin D-fortified.

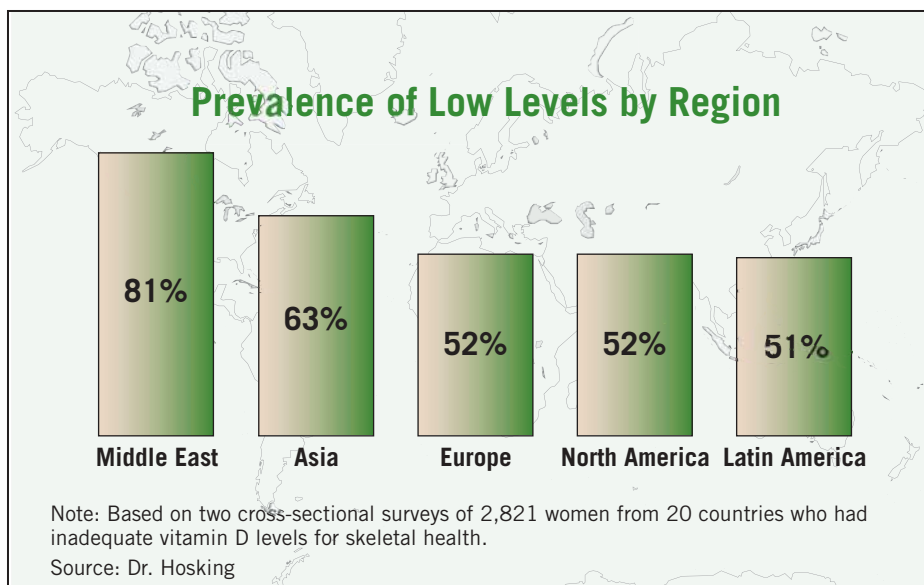
"I think for us within osteoporosis, it's much easier to target patients who need vitamin D supplements as part of our treatment because, after all, we're giving them a preparation to control their bone disease. So it's practical to deal with vitamin D at that stage," he said.

His analysis of the survey data was funded by Merck Sharp & Dohme Ltd. He is a consultant to the company as well as a member of its speakers' bureau. ■



**'Wherever we look in the world, patients are not getting enough vitamin D to maintain calcium homeostasis.'**

DR. HOSKING



## Bisphosphonate Regimen Options May Improve Compliance

BY HEIDI SPLETE  
Senior Writer

WASHINGTON — With elderly patients taking more medications than ever, convenient bisphosphonate regimen options may help reduce the overall medication burden and improve compliance with the osteoporosis therapy, suggest findings from a recent study of prescription trends.

In an investigation of prescription data for 250,286 postmenopausal women, about 65% of those prescribed daily or weekly bisphosphonates were also prescribed one to three concomitant medications, Deborah T. Gold, Ph.D., reported in a poster presented at an international symposium sponsored by the National Osteoporosis Foundation.

What's more, 12% of the study population received four con-

comitant medications, 7% received five, and 17% received six or more.

On average, the women were taking more than three concomitant medications, a burden shown to increase the risk of noncompliance in elderly patients (Arthritis Rheum. 2004;15[Suppl.]:S13).

Compliance is a significant problem with bisphosphonate therapy, in part because the strict fasting and administration requirements of the osteoporosis drugs can conflict with those of other medications.

Dr. Gold of Duke University, Durham, North Carolina, and colleagues analyzed information from a HIPAA-compliant, longitudinal patient database to determine the degree of concomitant medication use among women prescribed alendronate doses of 5, 10, 35, or 70 mg, or risedronate doses of 5 or 35 mg.

The women were aged 50 years and older.

Overall, the mean number of concomitant medications among women who received daily bisphosphonates increased from 3.1 in November 1999 to 4.2 in June 2004.

Among women who received weekly bisphosphonates, the burden of concomitant medications increased from 3.7 drugs in November 2000 to 3.8 in June 2004.

The number of prescribed concomitant medications increased with patient age, from 2.7 to 3.2 among women aged 50-64 years, compared with 3.2 to 4.0 among women aged 75 years and older.

The most common medications prescribed in conjunction with bisphosphonates in this study population were levothyroxine, atorvastatin, atenolol, furosemide, amlodipine, potassium chloride, hydrochloroth-

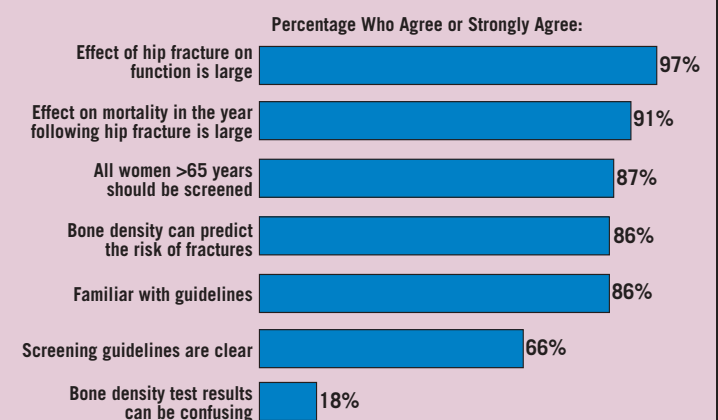
iazide, lisinopril, celecoxib, and simvastatin.

The investigators concluded that with greater concomitant

medication burden, the convenience of bisphosphonate regimens may have an instrumental effect on adherence. ■

### DATA WATCH

#### What Primary Care Physicians Think About Osteoporosis Screening



Note: Based on a survey of 287 family physicians, internists, and ob.gyns.  
Source: J.M. Neuner, M.D., and associates, Medical College of Wisconsin, Milwaukee