

[2005] [FRI0349] GLOBAL PREVALENCE AND SKELETAL IMPLICATIONS OF VITAMIN D INADEQUACY

J. Reginster, F. Richy, V. Rabenda, A. Tancredi Department of Epidemiology, Public Health and Health Economics, University of Liège and WHO Collaborating Center for Public Health Aspects of Rheumatic Diseases, Liège, Belgium

Background: Osteoporosis is a chronic, progressive disease characterized by reduced bone mass and microarchitectural deterioration of bone. Vitamin D is an essential component of osteoporosis management strategies.

Objectives: This study examines the role of vitamin D in osteoporosis, and reviews current knowledge about the prevalence of vitamin D inadequacy and recommendations for supplementation.

Methods: A non-systematic review of recent publications that reported the prevalence and consequences of low serum 25-hydroxyvitamin D [25(OH)D].

Results: Inadequate serum vitamin D is an important risk factor for osteoporosis and fractures. It is associated with impaired calcium absorption and increased parathyroid hormone levels, leading to increased bone resorption and bone loss. Recent data also suggest that vitamin D inadequacy is associated with age-related muscle weakness,[1] musculoskeletal pain,[2] and increased body sway, risk of falls and falls-related fractures.[3] Nevertheless, many people have inadequate vitamin D levels, especially postmenopausal women with osteoporosis. Several studies demonstrate that more than 50% of patients with osteoporosis have inadequate vitamin D, irrespective of latitude. For example, in a study of community-dwelling postmenopausal osteoporotic women living in southern California, a highly sunny climate, 53% had serum vitamin D <30 ng/mL.[4] In another study, 97% of patients with a history of fractures or falls had serum 25(OH)D <30 ng/mL.[5] The positive effects of supplementation – the most effective means of correcting low vitamin D – include increased bone mineral density, decreased bone turnover, and reduced fracture risk. Moreover, vitamin D may increase muscle strength and reduce the risk of falls. However, patients do not consistently take daily vitamin D supplements. For example, patients with hip fractures demonstrated poor adherence to vitamin D and calcium, despite having received detailed information about the importance of supplementation.[6]

Conclusion: The prevalence of vitamin D inadequacy is high in many populations that are geographically and culturally diverse, and tends to be especially high in postmenopausal women with osteoporosis. Although supplementation is an effective means of improving vitamin D status, adherence to supplementation recommendations is low. Greater awareness of the importance of vitamin D for skeletal health and more aggressive supplementation are needed, especially in populations at high risk for inadequacy.

References: 1. Boland R. Role of vitamin D in skeletal muscle function. *Endocr Rev* 1986;7:434-8

2. Plotnikoff GA, Quigley JM. Prevalence of severe hypovitaminosis D in patients with persistent, nonspecific musculoskeletal pain. *Mayo Clin Proc* 2003;78:1463-70

3. Pfeifer M, Begerow B, Minne HW, Schlotthauer T, Pospeschill M, Scholz M, et al. Vitamin D status, trunk muscle strength, body sway, falls, and fractures among 237 postmenopausal women with osteoporosis. *Exp Clin Endocrinol Diabetes* 2001;109:87-92

4. Blau EM, Brenneman SK, Bruning AL, Chen Y. Prevalence of vitamin D insufficiency in an osteoporosis population in Southern California. *J Bone Miner Res* 2004;19(Suppl 1):S342

5. Simonelli C, Morancey JA, Swanson L, Killeen KK, Grimm KA, Weiss T, et al. A high prevalence of vitamin D insufficiency/deficiency in a minimal trauma fracture population. *J Bone Miner Res* 2004;19(Suppl 1):S433.

6. Segal E, Zinnman H, Raz B, Tamir A, Ish-Shalom S. Adherence to vitamin D supplementation in elderly patients after hip fracture [letter]. *J Am Geriatr Soc* 2004;52:474-5

Osteoporosis Clinical aspects and treatment

Citation: *Ann Rheum Dis* 2005;64(Suppl III):362

[Close Window](#)