Commentary on: Calcium and vitamin D use among adults in periodontal disease maintenance programmes

D. Dixon, C. F. Hildebolt, D. D. Miley, M. N. Garcia, T. K. Pilgram, R. Couture, C. Anderson Spearie and R. Civitelli

IN BRIEF

- Optimal intake of vitamin D and calcium slows bone resorption and ensures adequate calcium for bone mineralisation.
- Optimal levels of vitamin D should have an immunosuppressive effect on periodontal disease.
- Older adults, particularly those with dark skin colour and/or those who live in northern latitudes, should consider oral vitamin D supplementation.

Objectives To determine the level of calcium and vitamin D oral supplementation in patients in periodontal disease maintenance programs. **Design** Convenience survey. **Setting** St. Louis Metropolitan region. **Subjects and methods** Patients (n = 228) in two university-based, periodontal disease maintenance programs. **Main outcome measures** Reported amounts of oral calcium and vitamin D supplementation were tested for differences based on gender and race. **Results** The last published recommended daily intakes from the United States (US) Food and Nutrition Board (FNB) for adults >50 years of age are 1,200 mg calcium and 400 IU vitamin D (or 600 IU if over 70). The mean age of the 228 patients (125 females and 103 males) was 63.6 ± 11.0 years (standard deviation). Of the 228 patients surveyed: (1) 204 (89%) were >50 years of age and of these, only 15 (7%) met the US FNB's recommended intakes of calcium and vitamin D from supplementation; (2) 138 (66%) reported that they took no oral supplementation, with significantly more males (n = 82) than females (n = 56) not taking supplementation (p = 0.03); (3) 88 (39%) took calcium supplementation, with females (947 ± 511 mg/day) taking significantly (p <0.001) more than males (632 ± 907 mg/day); and (4) 66 (29%) took vitamin D supplementation, with females(420 ± 227 IU/day) taking approximately the same amount as males (443 ± 317 IU/day, p >0.05). The amounts of oral supplementation did not vary with race (p >0.05). **Conclusion** The use of calcium and vitamin D supplementation has been promoted for years, yet the numbers of adults taking supplements remains low and the level of supplementation varies greatly. Knowledge of the benefits of supplementation needs to be better disseminated and research needs to be conducted to determine optimal levels of calcium and vitamin D supplementation.

COMMENTARY

The role of calcium intake and vitamin D in maintaining the integrity and strength of the skeletal system is well established, particularly in those individuals who are more susceptible to the development of osteoporosis, such as the elderly. Several recent studies have demonstrated a link between osteoporosis and susceptibility to loss of the alveolar bone support, particularly when accompanied by periodontal inflammation. Moreover, new evidence has emerged for the role of vitamin D in enhancing resistance to infection and in reducing destructive inflammation. From these new insights into the beneficial roles of vitamin D and calcium, their recommended dietary supplement levels have been adjusted upward by several organisations including as the United States Food and Nutrition Board (US FNB).

This paper by Dixon *et al.* highlights public health concerns regarding the insufficient levels of both calcium and vitamin supplementation in a cohort of 228 patients enrolled in a periodontal disease maintenance program. In this relatively older population, a striking feature from the survey conducted was the low percentage of patients who met the US FNB recommended daily intake of calcium and vitamin D from supplementation (7%), and the high percentage who did not take any oral supplementation of calcium or vitamin D (66%). While it would be difficult to link this observation of low supplementation to the history of periodontal disease in this population, it would be of considerable interest to compare the survey results from this population with a comparable age-matched population without a current or past history of periodontal disease. A second study of interest would be to measure actual serum levels of vitamin D and calcium in this cohort. Particularly in the case of vitamin D, serum levels may vary widely with both seasonal variations to sunlight exposure and with levels of skin pigmentation. Nevertheless, the observations from this study point to the need for new educational programmes for the dental practitioner, for other healthcare providers and for the general population on the importance and benefits of calcium and vitamin D supplementation in the maintenance of oral and systemic health.

M. I. Ryder DMD, Professor and Chair,
Division of Periodontology,
University of California, San Francisco, USA
DOI: 10.1038/sj.bdj.2009.532