

## Intake of calcium/vitamin D supplement in Iranian postmenopausal women

Mohsen Maddah · Seyede Hajar Sharami

Received: 25 September 2009 / Accepted: 28 October 2009 / Published online: 11 December 2009  
© The Author(s) 2009. This article is published with open access at Springerlink.com

In Iran, the last National Nutrition and Dietary Survey [1] showed that about 80% of Iranians do not meet the estimated average requirement for calcium. While foods are not generally fortified in Iran, dietary supplement may be a convenient way to prevent nutritional deficiency in high-risk population groups including the elderly [2, 3]. There is however, no data on supplement usage by older adults in Iran. This study assessed calcium/vitamin D supplement use among postmenopausal women with undiagnosed osteoporosis and normal bone women living in urban and rural areas in Guilan, northern Iran.

This study is part of a survey conducted to examine prevalence of osteoporosis among elderly women in Guilan, northern Iran. A total of 504 women from urban areas and 291 women from rural areas were selected. Diagnosis of osteoporosis was carried out using quantitative ultrasound technique and positive cases were confirmed by dual X-ray

absorptiometry [4]. Serum 25(OH) D3 was measured using a commercial kit (BioSource 25OH-Vit.D3-CT Kit).

Overall usage of calcium/vitamin D supplement was 18.8% in this population. While osteoporosis was more prevalent among rural women, they used calcium supplement less frequently than urban women did (Table 1). More educated women had more calcium/vitamin D use than less educated women (32.6% vs. 23.9%  $P<0.01$ ). These data showed that frequency of calcium/vitamin D usage was less among women with osteoporosis than women who had normal bone density (17.7% vs. 19.2%  $P<0.05$ ).

While there is insufficient knowledge about the actual amount of total nutrient that Iranian consumes from diet, it is estimated that the highest inadequate dietary intake is for calcium (80%) [1] and vitamin D (70%) [5]. Despite widespread deficiency of calcium and vitamin D only 18% of this population used calcium supplement daily. Considering that the fortification of food is not practiced in Iran (except for Iodine) there is a national need to remediate of vitamin and mineral deficiencies.

Intake of calcium/vitamin D supplement was less among those women who had undiagnosed osteoporosis than women with normal density bone. Moreover, more educated women were more likely to use calcium supplement than less educated women in this population. It has been shown that multivitamin/mineral supplements are generally used by individual who practice healthier life style [6]. In this population of postmenopausal women, rural women were more likely to have decreased bone mass than urban women. However, intake of calcium/vitamin D supplement among rural women was less than urban women.

---

M. Maddah (✉)  
Department of Human Nutrition, School of Public Health,  
Guilan University of Medical Sciences,  
Rasht, I.R., Iran  
e-mail: maddahm@yahoo.com

S. H. Sharami  
Department of gynecology, School of Medicine,  
Guilan University of Medical Sciences,  
Rasht, I.R., Iran

**Table 1** Age, employment status, body mass index, educational levels, prevalence of osteoporosis, vitamin D insufficiency, and supplement use of the women by urban and rural residence in Guilan, Iran

	Urban ( <i>n</i> =504)	Rural ( <i>n</i> =291)
Age (mean±SD)	64.1±9.0	62±8.1*
BMI (kg/m <sup>2</sup> )	29.7±5.3	27.5±5.5*
Employed (%)	18.5	0.9
Educational level (%)		
>5-year schooling	73.8	1.0
<5-year schooling	26.2	99.0
Vitamin D insufficiency <sup>a</sup>		
(>30 ng/ml)	84.7	79.5*
Osteoporosis (%)	16.6	22.1**
Calcium/vitamin D Supplement (%)	26.2	6.2*

\**P*<0.001; \*\**P*<0.05

<sup>a</sup> Serum vitamin D level was measured in 427 and 219 women in urban and rural areas, respectively

**Acknowledgment** We thank the women who participated in this study. This study was financially supported by Guilan University of Medical Sciences.

**Disclosures** None.

**Open Access** This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

## Reference

1. National assessment of iron, zinc, calcium, vitamin A and vitamin D in different age groups, 2001. *Final report of national survey*, Tehran, Iranian MOH, 2005 [in Farsi]
2. Sebastian RS, Cleveland LE, Goldman JD, Moshfegh AJ (2007) Older adults who use vitamin/mineral supplements differ from nonusers in nutrient intake adequacy and dietary attitudes. *J Am Diet Assoc* 107:1322–1332
3. NIH State-of-the-Sciences Conference Statement on Multivitamin/Mineral Supplement and Chronic Disease Prevention. *NIH Consensus State Sci Statements* 2006; 23:1–30
4. Sharami SH, Milani F, Alizadeh A, Ranjbar ZA, Shakiba M, Mohammadi A (2008) Risk factors of osteoporosis in women over 50 years of age: a population based study in the north of Iran. *J Turkish-German Gynecol Assoc* 9:38–44
5. Azizi F, Rais-Zadeh F, Mir Said Ghazi A (2000) Vitamin D deficiency in a group of Tehran population. *Research in Medicine* 4:291–303
6. Rock CL (2007) Multivitamin-mineral supplements: who uses them? *Am J Clin Nutr* 85:277S–279S