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Vitamin D status in Latin America

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In year 2006, the population of Latin America and Caribbean region was 556 million, from diverse ethnic origins. Mean life expectancy is 73 years and therefore, a significant growth of elderly population is anticipated all over the region. Hip fracture incidence (an average of published data) is 192/100,000 persons aged 50 years and older. Latitudes range from 33° North to 55° South. Dietary habits show ample variations between regions and a deficient nutritional status is common in the poorer regions [1]. A few studies have addressed the status of vitamin D among small samples of diverse populations and a review on the subject raises concern about hypovitaminosis D among different population groups in Latin America [2]. Table 1 shows some of the findings in comparable studies.

A study in healthy elderly men and women from different regions of Argentina showed significant differences in mean values of 25(OH)D between habitants of northern (52nmol/L) and southern (36nmol/L) provinces. This study showed a cut-off level of 25(OH)D of 68nmol/L at which serum PTH began to increase [3]. Another study in ambulatory women from Buenos Aires, showed differences in 25(OH)D levels in summer (63nmol/L) and winter (53nmol/L) [4]. Neonates and mothers from the southernmost province had lower 25(OH)D than those from Buenos Aires [5], and a proposal for a supplementation scheme for children in that province (twice single doses of 100,000IU ergocalciferol every three months during autumn and winter) resulted in a safe recovery of 25(OH)D levels [6].

An international epidemiological investigation conducted in postmenopausal women with osteoporosis from Mexico (n=149), Chile (n=115) and Brazil (n=151) found lower values of 25(OH)

D in Mexico than in Chile and Brazil [7]. The percentage of persons with inadequate levels of 25(OH)D (<75nmol/L) in the mentioned countries were 67%, 50% and 42% respectively (see Table 1). A further study of postmenopausal women screened for a clinical trial on osteoporosis from 4 different cities in Mexico, who were not taking any supplements, showed a very low value of serum 25(OH)D [8]. Prevalence of hypovitaminosis D depended on its defined threshold and varied from 2%, 31%, 62% to 97% for 25(OH)D levels below 22.5nmol/L, 27.5nmol/L, 50nmol/L and 75nmol/L respectively. Finally, another very recent report showed that osteoporotic women from Mexico City taking calcium and vitamin D supplements had higher values (84nmol/L) of 25(OH)D than those not taking any (64nmol/L) [9]. Differences found in results from small-scale studies suggest methodological differences in patient selection, including the use or not of vitamin supplements, seasonal variations and sun exposure habits.

Practical aspects of vitamin D in both public health and daily clinical practice should consider the need to increase awareness on several aspects of the promotion of bone health among health authorities, health professionals and public in general [10]. Attitudes and knowledge on vitamin D may be less than ideal among doctors [11]. Availability of vitamin D2 and D3 preparations may be limited in several countries (including Mexico), probably because of a low demand of such preparations. Finally, the health burden of avoiding sun exposure may be more dangerous than the risks of exposing moderately to the sun [12], but health professionals should endorse this concept.

For further information, the reader is referred to:

A. Mithal, D.A. Wahl, J-P. Bonjour et al. on behalf of the IOF Committee of Scientific Advisors (CSA) Nutrition Working Group. Global vitamin D status and determinants of hypovitaminosis D (2009) *Osteoporosis International, in press*

Table 1 Studies on Vitamin D Status in Latin America

Country	Mean Age	Mean 25(OH)D nmol/L	% <75 nmol/L	Reference
Argentina	71.3	44	87	3
Brazil	67.6	81.5	42.4	7
Chile	62.6	75.5	50.4	7
Mexico	65.6	65.5	67.1	7
Mexico	63.6	47.25	96.8	8
Mexico	65.8	78	50.6	9

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12. Lucas RM, McMichael AJ, Armstrong BK, Smith WT (2008) Estimating the global disease burden due to ultraviolet radiation exposure. Int J Epidemiol 37:654-667.