Vitamin D deficiency in postmenopausal Egyptian women

The association between vitamin D deficiency and pathogenesis of osteoporosis has been reported and gynecologists have a duty to de- tect and manage osteoporosis [1,2]. Generally, there is no fortification of foods with vitamin D in Egypt but sunlight is strong throughout year, which should be sufficient for skin to manufacture the vitamin. However, most of the population is Muslim, and many Muslim women are veiled, commonly covering their whole body except the face, hands, and feet; therefore, many women may not be exposed to suffi- cient amounts of sunlight.

The aim of the present study was to estimate the prevalence of vitamin D deficiency among a cohort of healthy postmenopausal Egyptian women.

Participants were recruited between January 31 and August 31, 2012, at the outpatient clinics of Al-Kasr Alaini University Hospital, Cairo, and Fayoum University Hospital, Fayoum (130 km southwest of Cairo). Participants provided informed consent and the study was approved by the management committees of the outpatient clinics at which patients were recruited. Full medical history was taken and physical examination was performed. Women with medical issues such as diabetes mellitus or kidney/liver problems were excluded, as were those who took supplements containing vitamin D and/or pa- tients undergoing hormone replacement therapy. The study recruited 105 participants, who were divided into 2 groups according to meno- pausal status: premenopausal or postmenopausal.

Fasting blood samples were collected and analyzed for levels of 25-hydroxyvitamin D (25(OH)D), parathyroid hormone (PTH), albumin, and calcium. Levels of fasting type I collagen C-terminal telopeptide (β-CTx or CTx) were measured as a resorption marker for bones. Blood was first allowed to clot and then centrifuged at 2500 rpm for 5 minutes. Serum was then transferred to an airtight, capped, glass container and stored at −20 °C until processing. Serum 25(OH)D was measured via competitive radioimmunoassay technique using 125I-labeled 25(OH)D and antibody to 25(OH)D, following acetonitrile extraction. A second antibody was used as a precipitating agent. Vitamin D deficiency was defined as a 25(OH)D level of 20 ng/mL or less [3]. Intact PTH was mea- sured using immunochemiluminometric assay. Serum calcium was mea- sured spectrophotometrically using arsenazo III dye. Serum albumin was measured photometrically using bromocresol blue dye. The CTx level was determined via electrochemiluminescent immunoassay.

Student t test, χ^2 test, and Pearson correlation coefficient were used to test significance. Statistical calculations were performed using SPSS version 18 (IBM, Armonk, NY, USA). P b 0.01 was considered to be sta- tistically significant.

Average age among postmenopausal women was 59.6 ± 5.5 years, compared with 36.3 ± 5.1 years among premenopausal women. Body mass index (BMI, calculated as weight in kilograms divided by the square of height in meters) in the postmenopausal group was slightly higher than that in the premenopausal group (Table 1), with BMI and vitamin D levels negatively interdependent.

A trend toward higher average serum levels of calcium was detected in the postmenopausal group, although values were within normal reference ranges. There were substantially lower 25(OH)D levels in the postmenopausal group than in the premenopausal group. The mean PTH level was higher in the postmenopausal group than in the premenopausal group. There was also a higher level of CTx among post- menopausal women, possibly indicating high bone turnover.

Nine (25.7%) patients in the premenopausal group had vitamin D deficiency, compared with 48 (68.6%) in the postmenopausal group. There was a significant negative interdependence between vitamin D and CTx in the postmenopausal group, which might indicate a higher bone turnover in vitamin D-deficient postmenopausal women. Interest- ingly, the study also indicated an inverse relationship between parity and vitamin D level in both the premenopausal group ($r = -0.72$; P b 0.01) and the postmenopausal group ($r = -0.66$; P b 0.01).

In the present cohort of residents of 2 areas of Egypt, 68.6% of healthy postmenopausal women were vitamin D deficient, compared with 25.7% of premenopausal women. A study of postmenopausal Lebanese women with osteoporosis showed that 84.9% had vitamin D deficiency [4]. However, that study used a cutoff value of 30 ng/mL for vitamin D deficiency. The high

percentage of Egyptian women with vi- tamin D deficiency may be due to many women covering most of their body because the majority of the population are Muslims, and most women wear veils. This finding is also similar to results reported by Diamond et al. [5] in a study of bone turnover in a group of Australian Muslim women with vitamin D deficiency.

There is a growing number of studies regarding vitamin deficiency in postmenopausal women and its relationship with osteoporosis. In their systematic review, Gaugris et al. [6] found that 1.6%–86% of women in institutions and those living in the community had 25(OH) D levels of 20 ng/mL or lower. Age over 70 years, limited exposure to sun, deficiency in dietary vitamin D intake, winter, and nursing home environment were related to insufficient vitamin D levels [6]. A recent medical guideline advised vitamin D supplementation to minimize osteoporosis in postmenopausal women [7]The present study also showed an inverse relationship between vitamin D levels and parity among both premenopausal and post-menopausal women. This may have been caused by the increased need for vitamin D during pregnancy and lactation in both groups. This highlights the latest recommendation by the Endocrine Society that pregnant and lactating women require at least 1500–2000 IU of vitamin D per day to sustain blood levels of 25(OH)D above 30 ng/mL in order to lower subsequent risks of osteoporosis [3].

نقص فيتامين (د) لدى النساء المصريات بعد انقطاع الطمث

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ملخص البحث:.

والتسبب في هشاشة العظام و من واجب طبيب أمراض Dهناك ارتباط بين نقص فيتامين النساء اكتشاف ومعالجة هشاشة العظام. كان الهدف من هذه الدراسة تقدير معدل انتشار نقص فيتامين (د) في مجموعة من السيدات المصريات بعد سن انقطاع الطمث.

فائدة البحث و نتائجه:

- نسبة نقص فيتامين د أعلي في السيدات بعد سن انقطاع الطمث.
- نقص فيتامين د في السيدات المصريات بعد سن انقطاع الطمث قد يكون بسبب ان العديد من النساء تغطي معظم الجسم ، و العديد من النساء يلبسن الحجاب.

نتائج الدراسة تؤكد الدراسات الطبية التي تنصح باعطاء فيتامين د كمكمل غذائي لمنع هشاشة العظام في النساء بعد سن انقطاع الطمث