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Vitamin D Status in United States War Veterans

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To the Editor:

Vitamin D insufficiency has become recognized as a common phenomenon among ambulatory and hospitalized adults (1). Vitamin D is associated with increased risk of many chronic illnesses including cancer, hypertension, diabetes, and osteoporosis (2). The best marker of vitamin D status is the serum 25-hydroxyvitamin D concentration (1). Many factors influence circulating 25-hydroxyvitamin D levels including race, season, body mass index, and age (1).

The prevalence of vitamin D insufficiency has not been well characterized in US war veterans. McMurtry and colleagues found that most veterans living in nursing homes have vitamin D insufficiency (3). We sought to determine the prevalence of vitamin D insufficiency in ambulatory US war veterans seen at the Atlanta VA Medical Center. We were also interested in which physicians were screening for vitamin D insufficiency and how vitamin D insufficiency was being treated.

The study was approved by the Emory University Institutional Review Board and the Atlanta VA Medical Center Research and Development Committee. Using the VA computerized patient record system, we collected all 25-hydroxyvitamin D levels that were measured in the fall month of September 2006 and the spring month of March 2007. We collected demographic information including age, sex, body mass index, race, and the specialty of the physician ordering the test. We determined the number of individuals who were vitamin D insufficient defined as a 25-hydroxyvitamin D concentration less than 30 ng/mL. We reviewed pharmacy records to determine if and how the vitamin D insufficiency was treated.

We found that 25-hydroxyvitamin D was measured 136 and 226 times in the months of September and March, respectively. There were no differences in age, sex, and body mass index in the fall and spring groups (Table 1). As expected, mean 25-hydroxyvitamin D levels were statistically lower in the spring compared with the fall, and there was a higher prevalence of vitamin D insufficiency in the spring (Table 1). Black subjects had significantly ($P<.05$) lower 25-hydroxyvitamin D concentrations than white subjects in the spring and fall. White

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subjects had a higher prevalence of vitamin D insufficiency in the spring compared to the fall in contrast to black subjects who did not have statistically significant seasonal variation in the prevalence of vitamin D insufficiency. There were differences in the specialty of the physician ordering the 25-hydroxyvitamin D level with nephrologists being the most common physician group testing for vitamin D status. Only about 30% of participants who were deemed to have vitamin D insufficiency were prescribed more than 1000 IU of vitamin D. Almost half of the participants did not receive any treatment for vitamin D insufficiency.

In conclusion, we found that vitamin D insufficiency was highly prevalent in veterans and that many veterans either did not receive treatment for vitamin D insufficiency or received inadequate amounts of vitamin D replacement to restore vitamin D status to normal. These findings further underscore the urgent need to screen for and treat vitamin D insufficiency, particularly among US veterans. Increased screening for vitamin D status should be considered by primary care physicians.

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REFERENCES

1. Holick MF. Vitamin D deficiency. *N Engl J Med* 2007;357:266–281. [PubMed: 17634462]
2. Bischoff-Ferrari HA, Giovannucci E, Willett WC, Dietrich T, Dawson-Hughes B. Estimation of optimal serum concentrations of 25-hydroxyvitamin D for multiple health outcomes [erratum in *Am J Clin Nutr*. 2006;84:1253]. *Am J Clin Nutr* 2006;84:18–28. [PubMed: 16825677]
3. McMurtry CT, Young SE, Downs RW, Adler RA. Mild vitamin D deficiency and secondary hyperparathyroidism in nursing home patients receiving adequate dietary vitamin D. *J Am Geriatr Soc* 1992;40:343–347. [PubMed: 1556361]

Table 1

Vitamin D Status in US War Veterans at the Atlanta VA Medical Center Assessed During Fall and Spring

Variable	September (N = 136)	March (N = 226)
Mean age, y (SD)	66 (13)	68 (18)
Sex		
Male	125	198
Female	11	28
Mean body mass index, kg/m ² (SD)	30 (7)	29 (9)
Race, No. (%)		
White	78 (57)	100 (44)
Black	43 (32)	102 (45)
Asian Hispanic	0	2(<1)
Unknown	15 (11)	22 (10)
Mean 25-Hydroxyvitamin D, ng/mL (SD)		
White	32 (14) ^b	26 (16) ^{b,c}
Black	25 (10) ^b	20 (11) ^{b,c}
Total ^e	30 (16)	23 (11) ^c
Prevalence of vitamin D insufficiency, No./subtotal (%)		
White	38/78 (49)	68/100 (68) ^d
Black	29/43 (67)	82/102 (80)
Total ^e	75/136 (55)	166/226 (73) ^d
Ordering physician, No.		
Endocrinologist	12	34
Nephrologist	68	77
Primary care physician	32	54
Other	21	40
Unknown	3	21
Treatment of vitamin D insufficiency, No. (%)		
None	61 (45)	107 (47)
Vitamin D <1000 IU	26 (19)	65 (29)
Vitamin D ≥1000 IU	49 (36)	54 (24)

^a Percentages may not total 100 because of rounding.^b Comparing white and black subjects in the same season, $P < .05$, Student *t* test.^c Comparing mean 25-hydroxyvitamin D value in March to mean value in September, $P < .05$, Student *t* test.^d Comparing prevalence of vitamin D insufficiency in March to prevalence in September, $P < .01$, chi-square test.^e Totals include subjects of black, white, Asian Hispanic, or unknown ethnicity.