RE-EMERGING VITAMIN D DEFICIENCY EPIDEMIC AND ITS IMPLICATIONS ON THE PUBLIC HEALTH IN THE US

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Abstract

Vitamin D is essential in maintaining the bone health and Calcium homeostasis in the body. These actions are mediated through the Vitamin D receptors (VDR) present in cells through which the activated vitamin D acts [1]. In the past, it was known that these receptors existed in the intestine and bone cell. However, recent discovery of VDR in other tissues as well, has broadened the action of Vitamin D and increased its adequate intake [1].

In the past, Vitamin D deficiency was most common among institutionalized, elderly patients and children and thought to be extinct in the healthy population. However, recent evidence has shown that, prevalence of vitamin D deficiency is increasing into an epidemic status in the overall population of the United States, including the healthy individuals [2-3]. The increased daily-recommended requirement and other multiple factors are responsible for the re-emergence of this epidemic [4-5]. Some of these factors could be used to control the epidemic. Studies have also shown the association between vitamin D deficiency and increased risk for developing chronic diseases such as diabetes, hypertension, multiple

sclerosis, arthritis, and some fatal cancers like prostate, colon and breast cancers [1, 4, 6-14]. This issue results in increased disease burden, morbidity and mortality in the community [15-20].

Methods: The literature search was conducted using the University of Texas Health Science Center at Houston (UTHSC) and University of Texas Southwestern Medical Center (UTSW) online library. The key search terms used are “vitamin D deficiency And prevalence Or epidemiology”, “vitamin D deficiency And implication And public health” using PubMed and Mesh database and “vitamin D deficiency” using systematic reviews. The search is limited to Humans and the English language. The articles considered for the review are limited to Healthy US population to avoid health conditions that predispose the population to vitamin D deficiency. Only US population is considered to narrow down the study.

Results: There is an increased prevalence of low levels of Vitamin D levels below the normal range in the US population regardless of age and health status. Vitamin D deficiency is also associated with increased risk of chronic illnesses and fatal cancers.

Conclusion: This increased prevalence and the association of the deficiency with increased all-cause mortality has increased the economic burden and compromised the quality of life among the population. This necessitates the health care providers to routinely screen their patients for the Vitamin D status and counsel them to avoid the harmful effects of the Vitamin D deficiency.