Use of Vitamin D Supplements in Middle East Countries: The Need of the Hour

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Vitamin D, a fat soluble vitamin, commonly known as “sunshine vitamin” is a steroid with hormone like activity. Apart from its established role in human growth and development, it plays a pivotal role in regulating the function of over 200 genes. The major production of vitamin D is through exposure of human skin to direct sunlight. In addition, few dietary intakes that naturally contain vitamin D, includes oily fish such as salmon, mackerel, and herring and oils from fish, including cod liver oil. There are two forms of vitamin D, vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol) [1].

The deficiency of vitamin D is a global health problem. For the last few decades, the prevalence of vitamin D deficiency is increasing worldwide [2]. Over a billion people worldwide falls into the category of either vitamin D deficient or insufficient category. Controversy exists regarding the optimum level of serum 25-hydroxyvitamin D in a healthy population. However, vitamin D deficiency is defined as a serum 25(OH)D less than 50 nmol/L; insufficiency is considered at 51 - 75 nmol/L [3]. The deficiency of vitamin D can be a risk factor for several diseases including rickets, growth retardation, muscle weakness, skeletal deformities, hypocalcemia, in children [4] as well as osteomalacia and hip fractures in adults [5]. The association of vitamin D deficiency has also been established with CVD [6] and diabetes mellitus [7].

Despite sufficiently high level of sun shine round the year, the prevalence of vitamin D deficiency is alarmingly high in most of the Middle East countries across all ages, and genders [8,9]. Recent studies performed in Kuwait and Saudi Arabia have demonstrated low levels of 25 (OH)D in young school children (< 25 nmol/L, and < 25-50 nmol/L, respectively) [10,11]. In Sultanate of Oman, the prevalence is as high as 87.5% among participants aged between 18 - 55 years [12]. Similarly, prevalence of vitamin D deficiency (< 37.5 nmol/L) had been reported among healthy adolescent in United Arab Emirates [13].

The increasing trend of low vitamin D status in these countries have been linked to various factors including lack of awareness and understanding, socio-cultural factors, the trend of not fortifying dairy products, and low vitamin D supplementation [14-16].

Dietary supplements are food products containing dietary ingredients aimed to add more nutritional value to a normal diet [17]. Scientific evidences have opened more options to understand the positive and negative effects of dietary supplements use in order to maintain a healthy life [18]. Institute of Medicine (IOM) recommends that infants up to one-year old require 400 IU, and children 1 - 18 years old should receive 600 IU [19]. However, the current recommendations for daily intake of vitamin D are likely to be suboptimal for subjects from Middle East. The rapid pace of vitamin D deficiency prevalence in these countries compel a high dose of vitamin D intake as compared to the recommended level, either from diet or supplements. Recent guidelines for the prevention and treatment of vitamin D deficiency have been put forward by few countries such as Saudi Arabia [20] and UAE [21]. Based on one of these guidelines [21], “Vitamin D supplementation/correction is advised in all persons whose serum 25(OH)D falls below 50 nmol/L (20 ng/ml), and achieving a target of 75 nmol/L (30 ng/ml) is particularly suited for frail, osteoporotic, and older patients”. In an order to minimize the significantly lower baseline vitamin D levels in subjects from the Middle East, these guidelines seem to be justified in recommending high dose above desirable level as compared to western countries.

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To achieve any favorable outcomes from supplement use in target individual or population, the care should always be taken for its tolerable upper intake levels, or guidance level [22]. However, there have been several trials in different countries in which high doses of vitamin D were administered without any adverse events [23,24].

The role of vitamin D supplementation has been demonstrated in reducing the risk of type1 diabetes in infants and children [25]. In addition, observational studies suggest that vitamin D may be protective against some cancers [25]. A high dose of oral Vitamin D supplementation (1400 - 14000 IU) exhibited favorable effects on musculoskeletal parameters in Lebanese adolescent girls [27]. Similarly, breast feeding mothers supplemented with 6000 IU of vitamin D3 and a prenatal vitamin with 400 IU of vitamin D exhibited neutral toxicity and provided adequate amount of vitamin D to nursing infants [28]. The health effects of Vitamin D supplementation are possibly through its anti-oxidant, anti-inflammatory and immunomodulatory properties [29].

About 80% of the world’s population has been reported to use nutritional supplement [30]. However, despite the higher prevalence of micronutrient deficiencies, the use of dietary supplement has been reported to be low in various Middle East countries [31]. To cope with the emerging epidemic of vitamin D deficiency, there is an intense need to modify lifestyle behavior and dietary intakes in these countries.

For the last few years, the continuous efforts from concerned health authorities, researchers and practitioners resulted in an increased demand of nutritional supplements in several part of Middle East countries, indicating a step forward in searching alternatives to solve the issue [32,33]. This trend should progress in coming future with more additional alternative strategies.

Current practices for the prevention of diseases related to vitamin D insufficiency in the general population must include the use of alternative strategies such as changes in lifestyle diet, and exercise. The use of vitamin D supplements should be recommended by all health-care practitioners based on individual need. Moreover, the public health authorities should take the responsibility of increasing the public health awareness and knowledge through various programs and workshops in guiding the appropriate use of supplements. In near future, implementation of new research and evidence-based government policies regarding vitamin D supplementation is an obligation for Middle East countries.

Conflict of Interest
The authors declare no conflict of interest.

Bibliography
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