

EDITORIAL VIEW

Vitamin D deficiency – still a dilemma !

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ABSTRACT

Vitamin D deficiency is a global pandemic, with some variations in the incidence from country to country. This vitamin has very important roles in the body physiological functions, and the deficiency has been linked to cancer, cardiovascular diseases, fractures and falls, cognitive disorders, Parkinsonism, auto-immune diseases, type 2 diabetes, and many other diseases, including uterine atony, which is the major cause of postpartum hemorrhage. Although the exact mechanism of vitamin D deficiency is not known, many ailments have been associated and supplement intake is recommended.

Key words: Vitamin Deficiency: 25-Hydroxyvitamin D 3; Vitamin D Receptors: Uterine Inertia; Uterine Atony

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Vitamin D deficiency (VDD) is still a burning public health issue because of its high prevalence, which is estimated to be one billion people worldwide, across all ethnicities and age groups.¹⁻³ Regardless of the continuous research and subsequent workup against VDD, it still remains a pandemic all over the developed as well as developing countries. Its incidence is 20-60% in UK, 10-40% in US, 50% in Australian females & 31% in males.^{4,6} While in Sub-Sahara Africa it is 56%, in extended Middle East 65% and in Pakistan it is nearly 89% in females.^{7,8} The prevalence in South Asian population is surprisingly high irrespective of the fact that it is one of the most extreme sun-exposed regions.

Although not yet fully established, but emerging research supports the different possible roles of vitamin D against cancer, cardiovascular diseases, fractures and falls, cognitive disorders, parkinsonism, auto-immune diseases, type 2 diabetes, inflammatory diseases, respiratory ailments and depression. Thus its deficiency in the body may lead to serious consequences and may enhance morbidity and mortality.⁹

Vitamin D is naturally synthesized in the skin from exposure to the sunlight, typically between 1000 h and 1500 h in the spring, summer, and fall.¹⁰⁻¹² Vitamin D produced in the skin may remain in the blood at least twice as long as compared with ingested vitamin D.¹³

The high risk group for VDD may include people with dark skin complexion, obesity, excessive sunscreen users, patients taking drugs like anticonvulsants and

medications to treat AIDS/HIV [which enhances the catabolism of 25(OH)D and 1,25(OH)₂D], patients with fat malabsorption syndrome, nephritic syndrome, sarcoidosis, tuberculosis, chronic fungal infections, some lymphomas, and primary hyperparathyroidism.¹⁴⁻¹⁶

Vitamin D receptors (VDR) are present in many tissues and cells in the body. Thus multiple biological functions of 1,25(OH)₂D are understandable such as inhibition of cellular proliferation and differentiation, inhibiting angiogenesis, stimulating insulin production and inhibiting production of renin.¹⁷ Its effects on cardiovascular smooth muscles and myometrium are also studied by some clinicians.^{8,18}

In 2011-12, the number of obstetrical patients shifted to ICU after post-partum hemorrhage was tremendously increased at the settings of Sheikh Zayed Medical College / Hospital Rahim Yar Khan. One colleague in anesthesiology department got the idea that inadequate calcium uptake by uterine muscles due to vitamin D deficiency might be the cause of uterine atony. Moreover, he pointed out that inadequate calcium resulted in inadequate contraction of smooth muscles of blood vessels. Cardiac muscles and Blood vessels did not respond to catecholamines resulting in refractory shock.¹⁸ This idea was adopted by obstetrics department and a study was conducted in antenatal clinic and vitamin D was found deficient in nearly 89% pregnant females. Subsequently, another study was conducted and its results reflected strong association of uterine atony with low

vitamin D deficiency

vitamin D levels.⁸

So due to its extreme performance in the body for general wellbeing, it is highly recommended by Endocrine Society of Clinical Practice (ESCP), that the high risk group of people should be advised to take at least two to three times more vitamin D supplements for their age group. ESCP suggests that the maintenance upper limits (UL) of vitamin D, under medical supervision, should be 1000 IU/d for infants up to 6 months, 1500 IU/d for infants from 6 months to 1 year, at least 2500 IU/d for children aged 1–3 years, 3000 IU/d for children aged 4–8 years, and 4000 IU/d for everyone over 8 years. Higher levels of 2000 IU/d for children 0–1 year, 4000 IU/d for children 1–18 years, and 10000 IU/d for children and adults 19 years and older may be needed to correct VDD.¹⁹ Recommended use of Vitamin D may improve the cognitive function in

all age groups, along with its other important functions.

The list of food items rich in vitamin D is very small. So it is important to get additional vitamin D through supplements. Traditional multivitamins contain about 400 IU of vitamin D, but many multivitamins now contain 800 to 1000 IU.

Awareness related to vitamin D deficiency is required among our population in all age groups through social and electronic media. In addition to vitamin D supplements, some cheaper and feasible resources should also be adopted, like adequate exposure to sunlight, lesser use of sunscreens, and encouragement of outdoor activities instead of lying on couches with laptops/cell phones craze among our population.

Conflict of interest: Nil

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