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LETTER TO THE EDITOR

Hypovitaminosis D: Searching for the evidence☆

Hipovitaminosis D: buscando la evidencia

Dear Sir,

Vitamin D contributes to good skeletal health, maintaining calcium homeostasis through action upon the vitamin D receptor.[1,2] The presence of vitamin D receptors in extraskeletal tissues; the synthesis of active forms of vitamin D in cells possessing 1α-hydroxylase activity; and the association of hypovitaminosis D with extraskeletal diseases suggest a possible extraskeletal effect of vitamin D.[2] Although no causal association with non-skeletal disease has been demonstrated, several studies have investigated the possible benefits of vitamin D supplementation in the context of diseases of this kind, with some of them reporting improvements in terms of clinical repercussion, prognosis and/or prevention. However, several recent studies suggest that the extraskeletal manifestations are not correlated to vitamin D deficiency, and therefore do not improve significantly with vitamin supplements.[2,3] According to one study, the lack of evidence regarding the prescription of vitamin D supplements for reducing global mortality and preventing cardiovascular or neoplastic diseases appears to be conclusive, with no need for further randomized clinical trials.[3]

Most institutions and societies do not recommend population screening for hypovitaminosis D.[4–6] Nevertheless, the determination of 25-hydroxy-vitamin D_3 (25[OH]D) should be requested in the presence of any phosphorus-calcium metabolic test result causing us to suspect vitamin D deficiency, or when the subject belongs to a risk group (pregnant women, children under 5 years of age, elderly over age 65, obese patients, dark-skinned persons migrating to latitudes with less sunlight, and institutionalized individuals or people with limited solar exposure).[2,4,7]

The most widely recommended laboratory test parameter for assessing serum vitamin D concentrations is the measurement of serum 25(OH)D, though consensus as to the reference serum levels is lacking. The minimum values for optimum status are between 20 and 30 ng/ml.[4,5] This lack of consensus has generated doubts in the case of serum concentrations between 20 and 30 ng/ml, since they could reflect sufficiency or insufficiency in relation to the decision to prescribe supplements. A factor to be taken into account in such determinations is the season of the year and the capacity of the individual to increase solar exposure.

The prescription of vitamin D supplements is indicated in cases of hypovitaminosis diagnosed on the basis of laboratory test findings and in individuals belonging to a risk group and who are unable to reach an optimum vitamin D status through non-sunburn solar exposure.[2] Furthermore, prophylactic supplementing is recommended in infants under one year of age, and in pregnant or breast-feeding women.[4,5] The decision to prescribe vitamin D supplements should be made with caution, since this practice is not without risk. In this regard, possible hypercalcemia and/or hypercalciuria should first be ruled out.

An alternative strategy for the treatment or prevention of hypovitaminosis D is to increase the amount of vitamin D ingested with the diet in enriched foods.[1] This practice is important during periods of little or no solar exposure, and is recommendable even from the second year of life.[8]

It is essential to remember that exposure to natural light without sunscreens and at doses that do not cause sunburn is the main source of vitamin D in children and adults. In the absence of this source it is difficult, if not impossible, to reach the serum vitamin D levels required by the body to cover its metabolic requirements. The indicated duration of solar exposure depends on the season of the year, the geographical setting, the time of day, skin color, and other factors.[1] In the Mediterranean setting vitamin D can be produced through solar exposure from approximately March to October—production being practically negligible during the winter months. Solar exposure of the hands and feet 2–3 times a week during approximately 25–50% of the time needed to cause minimum sunburn suffices to satisfy the needs regarding endogenous vitamin D production.[1,9] However, since solar exposure is a risk factor for skin lesions, a sunscreen should be used beyond that short period of time, with the avoidance of prolonged exposure.

In conclusion, the laboratory test determination of serum 25(OH)D is indicated in risk groups or when vitamin D deficiency is clinically suspected. Supplementation is indicated

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in cases of confirmed hypovitaminosis D, and on a prophylactic basis in infants under one year of age, as well as in pregnant and breast-feeding women. Low 25(OH)D concentrations have shown a causal relation to skeletal symptoms only. Vitamin D supplements contribute to prevent and improve the evolution of musculoskeletal diseases, reducing the risk of falls in elderly people with vitamin D deficiency or with a history of falls. Supplementation with the aim of preventing extraskeletal disorders such as diabetes, cardiovascular diseases, etc., is not recommended.

In view of the above, and as a preventive measure against vitamin D deficiency, healthy eating habits based on the Mediterranean diet, together with physical exercise in the open air and in natural light should be recommended for the entire population, with no limitations regarding age, sex or race.

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