

Editorial

NON – CLASSICAL ACTIONS OF VITAMIN D, EVIDENCE IS GROWING

Agha Shabbir Ali

Vitamin D is known for its classical role as a key factor in calcium and phosphorus homeostasis ultimately leading to good bone health. Recently “non-classical” role of Vitamin D is gaining importance in infections and allergic disorders in children as well as in older patients. This function of Vitamin-D in the immune system is achieved through its Vitamin D receptor (VDR). VDR is a ligand-regulated transcription factor that gets activated by the active form of Vitamin-D, 1, 25-dihydroxy chole calciferol (1, 25(OH)₂ D₃).¹

Despite the generous supply of Vitamin-D by nature in diet, and conversion of precursor Vitamin-D by ultraviolet sunlight most people are deficient in Vitamin-D.^{1,2} Major reasons for Vitamin-D deficiency are an indoor unhealthy style of living and improper dietary habits. Increasing demands during pregnancy, infancy, and toddlers aggravate Vitamin D deficiency. Depleted stores of Vitamin D in mothers and poor concentration in breast milk are other contributory factors in developing countries.³ At the time of this writing, the whole world is in the grip of the COVID-19 pandemic. Medical science is looking for ways and means to prevent coronavirus infection as well as its progress to severe-critical phase if at all infection does occur. The presence of VDR, throughout the immune system and expression of interleukin 1beta (IL-1beta) interleukin 8/CXCL8 by 1,25(OH)₂ D₃ in macrophages has drawn the focus of researchers to determine the role of Vitamin D supplementation in infections and immunity.⁴ The anti-viral role of Vitamin-D against Rhino virus and Adeno virus in bronchial epithelial cells through cAMP/LL33 antimicrobial peptides has already been proved.^{5,6}

Pakistan is blessed with ample sunshine throughout the year. High-class agriculture and dairy products are other great gifts of nature to our country. Published data from different sources report Vitamin-D deficiency to be as high as 90% in ambulatory persons.^{7,8} One can call it very rightly a pandemic of Vitamin-D deficiency. Although most of the persons with Vitamin-D deficiency are asymptomatic but short stature, bowing of legs, convulsions, kypho scoliosis, and chest deformities are common manifestations. Recurrent infections and slow response in viral as well as bacterial infections have also been seen in patients with Vitamin-D deficiency.⁹

Epidemiologists and infectious disease experts are foreseeing more and more difficult to treat infections in the future. There is a pressing need of undertaking all possible measures to overcome this pandemic of Vitamin D deficiency. Some cheap and practical preventive measures are increasing exposure time to direct sunshine of the body with minimal clothes. Clinicians can also encourage the general public to intake of Vitamin D-rich diet like fish, banana, egg, and oils, etc. But these diets in ample amount are generally not within the reach of the common man. More practical and affordable is the fortification of common food items e.g. Milk, Rice, flour, ready to eat (RTE) cereals for breakfast.¹⁰ Here comes the role of health and food authorities of government. This program should be taken as a national challenge. The authorities should enforce the manufacturers of such products for fortification at the time of manufacture. Last but not the least, all such measures of fortification should be in line with WHO guidelines for fortification. It will help to get the optimum amount of Vitamin-D as well as avoid its overdose.

Professor of Pediatrics, Unit 2, Akhtar Saeed Medical & Dental College, Lahore.

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