



DOI: 10.5505/anatoljfm.2020.86158

Anatol J Family Med 2021;4(2):197–198

## Time to Take Vitamin D Seriously in the Current Coronavirus Disease 2019 Pandemic

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From the very beginning of the coronavirus disease 2019 (COVID-19) pandemic, physicians from various specialties have published scientific reports on the potentially important role of vitamin D in SARS-CoV-2 infection and on the course of COVID-19 disease.<sup>[1-5]</sup>

Vitamin D therapy may reduce the risk of other viral infections, especially acute viral respiratory infections.<sup>[1]</sup> The immunomodulatory effects of vitamin D are well known, along with the important role of this vitamin in the induction of beta-defensins of the macrophages, cytokine storm mitigation, and many other innate and adaptive immunity functions.<sup>[1]</sup>

COVID-19 is a new disease; therefore, the results of interventional clinical trials with vitamin D previously are unavailable. Since the beginning of the pandemic, numerous retrospective studies have been published, confirming the association of low vitamin D levels with a more severe course of SARS-CoV-2 infection and poorer disease outcomes; further, vitamin D deficiency is characteristic of groups at a higher risk of COVID-19.<sup>[2]</sup>

Even one of the most extensive observational studies on 14.000 individuals proves that a low vitamin D level is an independent risk factor for SARS-CoV-2 infection, morbidity, and hospitalization.<sup>[3]</sup>

In the year 2020, the results of an interventional randomized study on the benefit of vitamin D therapy in COVID-19 patients have been published that shows good efficacy of this vitamin in preventing disease severity and reducing the need for treatment in intensive care units. Of the 50 patients treated with 25-hydroxyvitamin D, only 1 (2%) required admission to the intensive care unit, none died, and all were discharged from the hospital without complications. Of the 26 patients who were not treated with vitamin D, 13 (50%) required treatment in intensive care units, 7 (7.7%) died, and the others were discharged without complications.<sup>[4]</sup>

Our earlier studies on COVID-19 and meta-analyses of interventional studies that have assessed the role of vitamin D in respiratory viral infections have shown that vitamin D supplementation in deficient patients reduced the morbidity rate and severity of the infection course; thus, we emphasize the importance of a healthy vitamin D status in the whole population, and especially in high-risk individuals.<sup>[1]</sup>

Vitamin D deficiency is easy and inexpensive to manage with proper replacement therapy. Vitamin D supplementation is associated with a minor risk of adverse effects when administered in preventive doses, except in patients with parathyroid disease, hypercalcemia, or kidney stones.<sup>[5]</sup>

**Please cite this article as:**

Siuka D. Time to Take Vitamin D Seriously in the Current Coronavirus Disease 2019 Pandemic. *Anatol J Family Med* 2021;4(2):197–198.

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Received Date: 24.09.2020

Accepted Date: 09.12.2020

Published online: 20.08.2021

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COVID-19 is a new disease; therefore, there is limited strong clinical evidence on the effects of vitamin D on SARS-CoV-2 infection. However, there is robust clinical evidence regarding the beneficial effect of vitamin D on the alleviation of viral respiratory infections in people with low vitamin D levels. In such pandemic situations, the European Center for Infectious Diseases encourages health-care professionals to take logical action steps based on previously known findings in the related areas that can help achieve a deeper understanding of the role of vitamin D.<sup>[1]</sup>

A recent pilot randomized study provided important evidence regarding vitamin D replacement in COVID-19 patients. Thus, there is an urgent need for medical professionals to form a strategy for including vitamin D in the preventive protocol and in the treatment guidelines of COVID-19 patients.<sup>[4]</sup>

We believe that it would be highly unethical in such a severe pandemic condition not to stress the importance of the benefits of vitamin D based on previous knowledge and new strong evidence. Thus, "It is time to take vitamin D seriously in the COVID-19 pandemic".

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