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► **To cite this version:**

Patrick Zemb, Peter Bergman, Carlos Camargo, Etienne Cavalier, Catherine Cormier, et al.. Vitamin D deficiency and the COVID-19 pandemic. *Journal of Global Antimicrobial Resistance*, Elsevier, 2020, 22, pp.133-134. 10.1016/j.jgar.2020.05.006 . hal-03150330

HAL Id: hal-03150330

<https://hal-amu.archives-ouvertes.fr/hal-03150330>

Submitted on 23 Feb 2021

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Short Communication

Vitamin D deficiency and the COVID-19 pandemic

Patrick Zemb^{a,*}, Peter Bergman^b, Carlos A. Camargo Jr^c, Etienne Cavalier^d, Catherine Cormier^e, Marie Courbebaisse^f, Bruce Hollis^g, Fabrice Jouliaⁿ, Salvatore Minisola^h, Stefan Pilzⁱ, Pawel Pludowski^j, François Schmitt^k, Mihnea Zdrengeha^l, Jean-Claude Souberbielle^m

^a Gynecology Department, Centre hospitalier de Lorient, Lorient, France

^b Department of Laboratory Medicine, Karolinska Institutet, Stockholm, Sweden

^c Department of Emergency Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

^d Department of Clinical Chemistry, University of Liège, CHU de Liège, Liège, Belgium

^e Department of Rheumatology, Cochin Hospital, AP-HP, Paris, France

^f Department of Physiology, Georges Pompidou European Hospital, AP-HP, Paris, France

^g Medical University of South Carolina, Charleston, SC, USA

^h Department of Clinical, Internal, Anaesthesiologic and Cardiovascular Sciences, 'Sapienza', Rome University, Viale del Policlinico 155, Rome, 00161 Italy

ⁱ Division of Endocrinology and Diabetology, Department of Internal Medicine, Medical University of Graz, Graz, Austria

^j Department of Biochemistry, Radioimmunology and Experimental Medicine, The Children's Memorial Health Institute, Warsaw, Poland

^k Department of Laboratory Medicine, Centre hospitalier de Lorient, Lorient, France

^l Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

^m Department of Physiology, Necker-Enfants malades hospital, AP-HP, Paris, France

ⁿ Center of Research in Cardiovascular and Nutrition (C2VN), Aix-Marseille University & INSERM 1260, France



ARTICLE INFO

Article history:

Received 24 April 2020

Received in revised form 5 May 2020

Accepted 19 May 2020

Available online 29 May 2020

Keywords:

Vitamin D

coronavirus

respiratory infections

Covid-19

The COVID-19 (coronavirus disease 2019) pandemic is having a colossal human, societal and economic cost that is encouraging individuals, physicians, collectives and authorities to re-evaluate the benefit/cost ratio of the various resources that could help us to better address the crisis—and limit the risk of its recurrence. In this context, we cannot ignore evidence in a recent 'individual patient data' meta-analysis that vitamin D supplementation protects against acute respiratory infections (ARIs) [1]. In this meta-analysis of 25 randomised controlled trials (RCTs) for which the full data of almost 11 000 individual patients were available, subgroup analyses revealed that the benefit was observed in those who received frequent (e.g. daily) doses of vitamin D but not in those who received bolus doses, and that the effect was largest when

vitamin D was given to individuals with vitamin D deficiency. Since then, several new RCTs have been published with mixed results, with some studies showing beneficial effects of vitamin D on ARIs while other did not. It is known that vitamin D stimulates innate immunity and modulates acquired immunity [2], explaining at least in part how vitamin D may fight against ARIs. Given that vitamin D deficiency is very common [3], especially during the 'cold' season owing to a lack of sunlight exposure, and given that containment at home will prevent sunlight exposure for many people worldwide, even in spring/summer, we believe that vitamin D supplementation should be encouraged, at least in any individual with risk factors of vitamin D deficiency (e.g. obesity, old age, dark skin, wearing covering clothes, no sunshine exposure). We acknowledge that while COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is a type of ARI, we have no data enabling us to assert that vitamin D supplementation will reduce the incidence of COVID-19 infection.

* Corresponding author.

E-mail address: patrick.zemb@orange.fr (P. Zemb).

However, except for certain rare situations of vitamin D hypersensitivity (e.g. mutation in the CYP24A1 gene or sarcoidosis), daily supplementation with moderate doses of vitamin D₃ is safe. Specifically, there was no increased occurrence of renal stones in recent mega-trials that tested vitamin D₃ doses of 2000 IU/day [4] or 4000 IU/day [5]. In conclusion, despite a lack of direct evidence of an effect of vitamin D status on COVID-19 infection, we believe that vitamin D deficiency is an easily modifiable risk factor of ARIs and should be actively corrected through inexpensive, safe and readily-available vitamin D supplements. Even a small decrease in COVID-19 infections would easily justify this intervention. Nevertheless, we acknowledge that specific high-quality data are needed to demonstrate the efficacy of vitamin D supplementation in the prevention of COVID-19.

Funding

None.

Competing interests

None declared.

Ethical approval

Not required.

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