Vitamin D and COVID-19: a PubMed-based overview of reviews

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INTRODUCTION

Vitamin D indicates a group of lipid-soluble steroid compounds first studied for their involvement in calcium, magnesium, and phosphate metabolism. In recent years, the role of vitamin D for the immune system against infectious diseases has been explored. In light of COVID-19 global burden, several authors have started to investigate the potential contribution of vitamin D supplementation against SARS-CoV-2 infection.

AIM

To understand whether vitamin D can be a useful evidence-based integrative option for COVID-19 prevention.

METHODS

Scientific database: PubMed. Search date: December 7th, 2020.

Keywords: “vitamin D”, “*calciferol”, “calcitriol”, “COVID-19”, “SARS-CoV-2”, “coronavirus”.

Inclusion criteria: reviews of clinical studies.

Results: 305 articles found, 15 reviews included in this work.

EFFICACY

- **Positive association between vitamin D deficiency and COVID-19 severity**
- Potentially reduced risk of infection in subjects with normal vitamin D levels
- A preventive role was suggested even for some categories of patients (diabetic, obese, or pediatric subjects)

POSSIBLE MECHANISMS OF ACTION

- Inactivation of some viral compounds
- Reduction in pro-inflammatory cytokines (NF-kB, IL-6, TNF)
- Modulation of ACE-2 and MMP-9 concentrations
- Diminished risk of endothelial dysfunction and bradykinin storm

RECOMMENDED DOSAGE OF SUPPLEMENTATION

- **Daily doses of 400-1000 IU vitamin D** for up to 12 months.
- Vitamin D serum concentrations of 20–30 ng/mL reduced the risk of acute respiratory infections, although even higher levels (up to 40-60 ng/mL) may be preferable for this purpose.

CONCLUSIONS

In conclusion, vitamin D supplementation may be useful for COVID-19, especially in individuals with low levels of this micronutrient. In fact, vitamin D deficiency is associated with a worse disease severity, and possibly with an increased risk of infection. Considering its high tolerability and low costs, further large clinical studies are advised to ascertain whether a standardized vitamin D supplementation may be a valuable clinical strategy to apply on a large scale.

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CONFERENCE INFORMATION

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