

Prognostic Utility of Baseline 25-Hydroxy Vitamin D Levels in Hospitalised COVID-19 Patients: Hope or Hype?

Sir,

Coronavirus disease 2019 (COVID-19) has caused more than 745,000 deaths globally.¹ A vital challenge for healthcare providers amidst the pandemic is the absence of scientific evidence signifying effective pharmacologic interventions for prevention and cure.² The 25-Hydroxy Vitamin D (25-OH-D) has been widely utilised as a potential strategy to prevent or treat COVID-19 disease. A review of randomised controlled trials from 2007 to 2020 has shown protective role of 25-OH-D against acute respiratory infections; however, considerable limitations and heterogeneity exist.³

The “sunny” vitamin’s deficiency affects over one billion people worldwide, and a population-based study from Pakistan reported 53.5% deficiency along with 31.2% insufficiency.⁴ Currently, there is no clear evidence especially from Pakistan, with a high prevalence of deficiency, on the prognostic utility of 25-OH-D. After approval from the Ethical Review Committee (ERC#2020-5168-14099), we retrospectively reviewed the data from the electronic health records of polymerase chain reaction-proven COVID-19 patients, to evaluate the association of 25-OH-D with severity of infection and mortality from March to August, 2020.

Table I: Distribution of age and 25-hydroxy vitamin D levels in the two study groups.

	Severe cases (n=4)	Non-severe cases (n=7)	p-value*
Age (mean +/- SD)	65 +/- 3.6 years	44.3 +/- 17.9 years	0.05
25-OH-vitamin D (median IQR)	19.5 (13.9-21.3) ng/ml	18.7 (15-45) ng/ml	0.788
	Non-survivors (n=2)	Survivors (n=9)	
Age (mean +/- SD)	64.5 +/- 4.5 years	49 +/- 18 years	0.27
25-OH-vitamin D (median IQR)	21.1 (20.8-21.1) ng/ml	18.1 (13.8-37.5) ng/ml	0.582

*p-value <0.05 considered significant.

The 25-OH-D test was undertaken within 24 hours of admission in only 11/239 COVID-19 in-patients (4.7%), with a male predominance (n=7). Taking 30 ng/ml as the cut off for 25-OH-D deficiency, 8 (73%) were found deficient. Furthermore, the data was split into two categories based on severity and survival. The two quantitative variables i.e. age and 25-OH-D levels were compared between groups using t-test and Mann-Whitney U-test, respectively, as depicted in Table I.

Increasing age was the only variable associated with severity of infection ($p=0.05$); whereas, no significant differences were noted for 25-OH-D in the two categories.

From a laboratory test requisition perspective, only 4.7% had baseline test requested amongst 239 COVID-19 cases. This further reflects that the clinicians were also not inclined towards its evaluation, in spite of the fact that Vitamin D metabolites have long been known to support innate immunity and antiviral effector mechanisms.

Despite limitations of a small subgroup with available 25-OH-D levels, this study concludes that contrary to the claims that 25-OH-D deficiency is associated with disease progression, including some recommending potentially toxic doses, no significant utility of 25-OH-D exists. However, large-scale longitudinal studies are required to establish its role; it is too early to recommend its inclusion in the standard biochemical workup of COVID-19 cases.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

SA: Devised the idea, analysed the data, literature review and penned the letter.

LJ: Involved in letter writing review of literature and analyses.

REFERENCES

- Ahmed S, Jafri L, Majid H, Khan AH, Ghani F, Siddiqui I. Challenges amid COVID-19 times-review of the changing practices in a clinical chemistry laboratory from a developing country. *Annals Med Surg* 2020; **55**:300-4 doi: 10.1016/j.amsu.2020.06.004.
- Jafri L, Ahmed S, Siddiqui I. Impact of COVID-19 on laboratory professionals-A descriptive cross sectional survey at a clinical chemistry laboratory in a developing country. *Annals Med Surg* 2020; **57**:70-5. doi: 10.1016/j.amsu.2020.07.022.
- Jolliffe D, Camargo CA, Sluyter J, Aglipay M, Aloia J, Bergman P, et al. Vitamin D supplementation to prevent acute respiratory infections: Systematic review and meta-analysis of aggregate data from randomised controlled trials. *Med Rxiv* 2020; doi.org/10.1101/2020.07.14.20152728.
- Riaz H, Finlayson AE, Bashir S, Hussain S, Mahmood S, Malik F, et al. Prevalence of vitamin D deficiency in Pakistan and implications for the future. *Expert Rev Clin Pharmacol* 2016; **9**(2):329-38. doi: 10.1586/17512433.2016.1122519.

Sibtain Ahmed and Lena Jafri

Department of Pathology, The Aga Khan University Hospital, Karachi, Pakistan

Correspondence to: Dr. Lena Jafri, Department of Pathology, The Aga Khan University Hospital, Stadium Road, Karachi, Pakistan
E-mail: lena.jafri@aku.edu

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