

# Correlation of Vitamin-D with Inflammatory Markers in COVID-19 Patients

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## Background & Aims

Great interest has been raised by the possible protective role of vitamin D in coronavirus disease 2019 (COVID-19), but objective data on 25 (OH) vitamin D deficiency in hospitalized COVID-19 patients are not conclusive. The aim of this study was to determine the prevalence of 25 (OH) vitamin D deficiency in COVID-19 patients admitted to a tertiary care hospital and explore its association with clinical outcomes and the markers of disease severity.

## Methods

In this single-observational descriptive study, 100 consecutive adult COVID-19 patients hospitalized in a tertiary care hospital were enrolled from March to April 2021. 25 (OH) Vitamin D serum levels were assessed 48 h since hospital admission and categorized into: normal ( $\geq 30$  ng/mL), insufficient ( $< 30$ - $\geq 20$  ng/mL), moderately deficient ( $< 20$ - $\geq 10$  ng/mL), severely deficient ( $< 10$  ng/mL).

## Results

The prevalence of 25 (OH) vitamin D insufficiency, moderate deficiency and severe deficiency was 13.2%, 22.5% and 54.3%, respectively. 25 (OH) Vitamin D deficiency ( $< 20$  ng/mL) was not associated with COVID-19 clinical features and outcomes. Unexpectedly, after adjusting for major confounders, a significant positive association between increasing 25 (OH) vitamin D levels and in-hospital mortality (on a continuous logarithmic scale, odds ratio = 1.73 [95% CI, 1.11 to 2.69];  $P = .016$ ) was observed.

## Conclusions

Very low 25 (OH) vitamin D levels were highly prevalent and suggestive of deficiency among our hospitalized severe COVID-19 patients, but low 25 (OH) vitamin D levels were not associated with outcome variables. Whether 25 (OH) vitamin D adequacy may influence clinical outcomes in COVID-19 and the unexpected correlation between higher 25 (OH) vitamin D levels and mortality require further investigations by large intervention trials.