



View Point

# An analysis of Vitamin D testing over recent years

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## ABSTRACT

Testing for vitamin D deficiency increased over the past years among the Nepalese population. This study aims to investigate the trends in the incidence of testing for vitamin D and the prevalence of patients with circulating concentrations of Vitamin D indicative of toxicity (>100 nmol/L) between 2015 and 2022.

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## INTRODUCTION

Vitamin D is a fat-soluble hormone synthesized mainly by the skin and only a few percent is derived from dietary sources. Studies have linked low levels of this vitamin with a higher incidence of allergies, autoimmune diseases, and certain types of cancer. Vitamin D is an important regulator of calcium balance. In addition, it has important effects on the immune system, directly inducing antimicrobial peptides at mucosal surfaces and modulating the function of T cells.<sup>1</sup> The high prevalence of vitamin D deficiency

is currently a global problem that has led to an increase in vitamin D supplementation intake in the general population. Consequently, this has contributed to an increase in the cases of vitamin D toxicity. Symptoms of acute intoxication are mainly due to hypercalcemia and include confusion, polyuria, polydipsia, anorexia, vomiting, and muscle weakness. The objective of this perspective is to report how the determinations of this hormone have evolved at our institution which nearly reflects the trend in the Nepalese population.

## OBSERVATION

The Vitamin D test and results for the years 2015-2022 were obtained through the laboratory information system. Prevalence of vitamin D concentrations of more than 100 ng/mL was identified in this time frame. In 2015, 2483 determinations and one case of toxicity (>100) were made; in 2016, 2017, and 2018; 3741, 5201, and 6311 determinations were done respectively with two cases of toxicity in each year. In 2019 and 2020, there was a decrease in Vitamin D tests reaching 4667 and 3754 determinations respectively, probably due to the COVID pandemic. Thereafter, the determinations made of vitamin D have increased remarkably, reaching 8016 in 2021 and 12007 in 2022 (4.5 times more than in 2015). The cases of poisoning have also increased, going from two cases in 2018 to five cases in 2021 and ten cases in 2022.

## DISCUSSION AND CONCLUSION

Observational studies from the pre-pandemic time found an association between low levels of vitamin D and an increased risk of respiratory tract infections.<sup>2</sup> There is also evidence

of a protective effect of vitamin D supplementation against respiratory tract infections, particularly in vitamin D deficient individuals.<sup>3,4</sup> During the COVID-19 pandemic, there was a recommendation for mass vitamin D supplementation to enhance the immune response to SARS-CoV2 infection.<sup>5</sup> In our analysis, the increase in supplementation with vitamin D and the rate of patients with toxic levels highlights the need to study vitamin D concentrations in supplemented patients. This number of vitamin D intoxication might be low however it is observed in a single institution; therefore, it represents a bigger number in the entire population.

**Conflict of Interest:** None

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