

COVID-19: Vitamin D: a factor determining severity in COVID-19, new TILDA research

A new publication from the Irish Longitudinal Study on Ageing (TILDA) at Trinity College Dublin highlights the potential role of Vitamin D deficiency in the severity of COVID-19 infections.

Published as an editorial in the current edition of the *Journal of Alimentary Pharmacology and Therapeutics*, it reports the huge discrepancies in mortality rates related to Vitamin D levels at different latitudes globally; the high prevalence of Vitamin D deficiency in Northern Hemisphere countries; and the possible role of Vitamin D in suppressing the severe inflammatory responses seen in very ill COVID-19 patients and in COVID-19 deaths.

The study was undertaken by Dr Eamon Laird, School of Medicine, Trinity, and Professor Rose Anne Kenny, TILDA, and in collaboration with Professor Jon Rhodes and Dr Sree Subramanian at the University of Liverpool.

It is becoming clear that countries in the Southern Hemisphere such as Australia are seeing relatively low mortality due to COVID-19, which can no longer feasibly be related to the later appearance and spread of the virus.

Vitamin D is produced by sunlight absorption in the skin. This is impaired as people age, in certain ethnic groups and by obesity. Vitamin D deficiency correlates with poor sunlight exposure, age, hypertension, diabetes, obesity and ethnicity—all features associated with increased risk of severe COVID-19.

All countries that lie below a latitude of thirty-five degrees North have relatively low mortality from COVID-19, whereas people in countries that lie thirty-five degrees North and above receive insufficient sunlight for adequate Vitamin D levels in winter and spring. These include Italy and Spain, which have low population levels of Vitamin D.

Mortality rates from COVID-19 are higher at these latitudes, with the exception of Nordic countries, where Vitamin D supplementation is widespread and deficiency much less common.

Vitamin D is important in regulation and suppression of the inflammatory cytokine response, which plays a role in the severe consequences of COVID-19 and ‘acute respiratory distress syndrome’ associated with ventilation and mortality in COVID-19.

Professor Rose Anne Kenny said:

“Vitamin D has many benefits for bone and muscle health and the immune system, in addition to a potentially critical role in suppression of the severe pro-inflammatory response which characterises severe COVID-19 complications. Taking supplements of 800-1000 micrograms per day will ensure normal blood values. Public Health England, the Scottish and Welsh governments have issued recommendations for supplements for all adults from March to October, and supplementation all year round for adults living in care homes or nursing homes, required to wear clothes that cover most of the skin when outdoors, or with dark skin.”

“Similar public health recommendations are called for in Ireland. This advice is of importance given high mortality rates for SARS-CoV-2 infection in our nursing home sector. We are recommending that all nursing home residents take Vitamin D.”

Dr. Eamon Laird commented:

“In addition to metabolism in the skin, which is due to sun exposure, Vitamin D is present in foods such as oily fish (salmon, tuna, sardines), cheese, egg yolks and beef liver. However, supplementation is the best means of ensuring sufficient Vitamin D blood levels. As the effects of coronavirus continue, many of us are limited in the time we can spend outdoors, so extra care is required to keep vitamin D levels healthy.”

Professor John Rhodes said:

“More research is urgently required to explore the hypothesis that vitamin D prevents the cytokine storm and subsequent acute respiratory distress syndrome that is commonly the cause of mortality in SARS-CoV-2 infection. Meanwhile people at high risk of vitamin D deficiency should be encouraged to take supplemental Vitamin D.”

The full editorial can be read here:

<https://onlinelibrary.wiley.com/doi/epdf/10.1111/apt.15777>