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Vitamin D and COVID-19

OPINIONS

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The author has completed the ICMJE form and declares no conflicts of interest.

To date, nobody has found a drug that dramatically improves the prospects in a severe case of SARS-CoV-2 infection, and it will be some time before a vaccine can become generally available. Could the vitamin D status of the population have a bearing on effective treatment and prevention of infections?

Vitamin D seems to play an important role for our immune system. A meta-analysis published in the British Medical Journal in 2017 concluded that vitamin D supplements gave general protection against respiratory infections, and the effect was most pronounced in those who had vitamin D deficiency (1). We see that many of the risk factors for COVID-19 (obesity, old age and dark skin pigmentation) coincide with the risk of vitamin D deficiency (2). In this context, it is notable that African-American patients have a higher risk of death from COVID-19 when compared to white patients (3), while COVID-19 does not appear to have affected Africa very severely (4). In Africa, the age distribution could be a partial explanation, but vitamin D from sunlight could be a contributory factor. The data are as yet sparse, but observational studies suggest that a low level of vitamin D increases the risk of catching COVID-19 (2). A recently published study compared available data on serum vitamin D in various countries with their incidence of and mortality from COVID-19 (5). The analysis indicated that higher levels of serum vitamin D made for a lower incidence of COVID-19, but there was insufficient evidence to draw conclusions

about an association between vitamin D levels and the degree of seriousness and mortality from COVID-19. Controlled trials are needed to establish whether vitamin D supplements have a prophylactic effect against COVID-19.

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It is also conceivable that vitamin D supplements can be used in the treatment of COVID-19. A Spanish pilot study included hospitalised patients who were given chloroquine and azithromycin (which later has been proven to be ineffective against COVID-19) and randomised them for supplements of vitamin D capsules (266 µg). The treatment group (50 patients) received two capsules on the first day, one capsule on days 3, 5 and 7, and thereafter on a weekly basis (6). The 26 patients in the control group received no placebo. Only one of those 50 who received vitamin D needed intensive care and none of them died, whereas 13 in the control group needed intensive care and two died ($p < 0.001$). It will be interesting to see whether these findings can be replicated in randomised, placebo-controlled clinical trials. According to the authors, a large multi-centre study of vitamin D supplements is currently underway in Spain.

> ***«In other words, irrespective of COVID-19, it is appropriate to recommend a daily spoonful of cod liver oil»***

An obvious question is: Should everybody take cod liver oil? In 2014, a group of vitamin D experts appointed by the Nordic Council of Ministers recommended that the level should exceed 50 nmol/L (7). We have no reliable data on vitamin D levels in the Norwegian population, but a study from 2010 showed that the average value in non-smokers was a little higher than 50 nmol/L, and lower in the winter months (8). Vitamin D supplements are a simple, harmless and low-cost intervention, but will by no means render other measures against COVID-19 superfluous. The expert group recommended an intake of 10 µg/day, and 20 µg/day for the elderly. In other words, irrespective of COVID-19, it is appropriate to recommend a daily spoonful of cod liver oil (10 µg / 5 mL) or the equivalent, now that we are entering a season with less sunlight.

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