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Vitamin C as a Possible Therapy for COVID-19

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Conflict of Interest

No conflicts of interest.

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► See the article “Interim Guidelines on Antiviral Therapy for COVID-19” in volume 52 on page 281.

Dear Editor,

Kim et al. reviewed potential therapeutic approaches against coronavirus diseases 2019 (COVID-19) [1]. We would like to propose that vitamin C should also be included as a possible treatment as it has numerous effects on the immune system [2, 3].

In a meta-analysis of 29 controlled trials with 11,306 participants, we showed that regular vitamin C intake of around 1 g/day did not prevent upper respiratory tract infections (URTIs) [4]. However, the same trials found that vitamin C shortened and alleviated URTIs that occurred during the period of vitamin C administration. In adults the duration of infections was reduced by 8% and in children by 14% [4]. Given the low frequency and usually mild symptoms of URTIs, and the relatively small benefit, prophylactic daily vitamin C dosing does not seem worthwhile under normal circumstances. However, noting that many URTIs are caused by endemic coronaviruses, there is no reason or evidence to assume that vitamin C would be completely ineffective against COVID-19. Given that COVID-19 is often much more severe than ordinary URTIs, the above estimates might justify a regular increased daily intake of vitamin C while the prevalence of COVID-19 is high.

Furthermore, one of the major causes for concern with COVID-19 is the relatively high proportion of cases requiring intensive care unit (ICU) treatment. A meta-analysis of 12 trials with 1,766 patients in ICU found that vitamin C shortened ICU stay by 8% [5]. Another meta-analysis of eight trials found that vitamin C shortened the duration of mechanical ventilation in patients who required the longest ventilation [6]. There is evidence that vitamin C levels decline dramatically in critically ill patients [5, 7]. Although 0.1 g/day of vitamin C can maintain a normal plasma level in a healthy person [8], much higher doses (1–4 g/day) are needed to increase plasma vitamin C levels of critically ill patients to within the normal range [5, 9]. Vitamin C is a safe and inexpensive essential nutrient and therefore investigation of its possible effects on COVID-19 should be encouraged along with the several other potential treatments [1].

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