

Zinc therapy in COVID-19: A new hope for Covid management

COVID-19 pandemic remains a substantial threat to entire healthcare system & disrupts the economy of high to low income countries globally. There is no specific antiviral therapeutic option to date available for COVID-19 management, so the preventive measure has been the mainstay to fight back the current COVID-19 infection. The host immune system plays pivotal roles against COVID-19 disease progression, similar to many other viral infections. Several vitamins such as vitamin A, B6, B12, C, D, E, and folate & microelements including zinc, iron, selenium, magnesium and copper play essential physiological roles in promoting the immune system.¹

A recent study by Darnton-Hill reported that selenium, iron, potassium, sodium, calcium, magnesium, folic acid, copper and zinc play an important role in improving the immune physiology and patient recovers earlier and decrease the hospital stay among COVID-19 patients.² In support of that, several studies across the world advocated the importance of a balanced diet with relevant nutrients and trace elements especially zinc as a therapeutic option to build up robust immunity to fight back the COVID-19 pandemic.³

Zinc is a trace element which maintains cellular physiology like vision, taste perception, cognition, cell reproduction, growth and immunity.⁴ Zinc deficits dampen equally innate and adaptive immune responses. Zinc deficiencies are evident by oxidant stress, increased inflammatory process, and life-threatening situations, as well as premature cell death at the cellular and sub-cellular levels.⁵ Nuclear Factor Kappa B (NF- κ B), a transcription factor known as the principal controller of the proinflammatory process, especially in infectious diseases, is also affected by zinc deficiency. Additionally, NF- κ B controls several characteristics of innate and adaptive immune responses.⁶

Earlier studies reported that high dose zinc consumption has effectively boosted patients' immune systems with several viral diseases, including torquetenovirus (TTV), common cold (rhinovirus).⁷ Since no approved effective treatment is yet available to minimize the current global pandemic's intensity, micronutrients like zinc, for its immune-boosting effect, and the antiviral mechanism is presumed to combat COVID-19 to some extent.⁸

There are few studies illustrate the efficacy of zinc therapy in managing COVID-19 patients. Many individuals globally consume zinc tablets, vitamin C, and B because of their immune booster & antiviral effects.⁹ However, a recent pre-print United States-based retrospective analysis utilizing electronic medical records found that patients treated with hydroxychloroquine and azithromycin with the addition of zinc sulfate had a higher recovery rate. Interestingly, additional supplementation of zinc sulfate was claimed to be associated with lower mortality rate, decrease hospital stay, and less invasive ventilation requirements.¹⁰

Considering the pros and cons of the consumption of zinc supplements, particularly in elderly persons or those with certain metabolic diseases like diabetes, obesity or cardiovascular diseases, these views have supported the possibility of using zinc compounds as an adjunct therapy in COVID-19 treatment.¹¹

However, double blind controlled clinical trials should be conducted on zinc therapy considering its antiviral and immunity boosting potency to recognize its possible role in prophylactic and an adjuvant in treatment against COVID-19.

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