



Letter to the Editor

Could vitamin C improve the therapeutic effect of integrated medicine for COVID-19?

Siukan Law ^{*1}, Dawn Chingtung Au ¹, Albert Wingnang Leung ², Chuanshan Xu ³

1- Faculty of Science and Technology, The Technological and Higher Education Institute of Hong Kong, Tsing Yi, New Territories, Hong Kong.

2- School of Graduate Studies, Lingnan University, Tuen Mun, New Territories, Hong Kong.

3- Key Laboratory of Molecular Target and Clinical Pharmacology, State Key Laboratory of Respiratory Disease, School of Pharmaceutical Sciences and Fifth Affiliated Hospital, Guangzhou Medical University, Guangzhou 511436, China.

LETTER INFO

Letter history:

Received 3 June 2022

Received in revised form 11 June 2022

Accepted 12 June 2022

Keywords:

Vitamin C
Integrated medicine
COVID-19

Dear Editor

Recently, a paper published by **Yang et al.** that combined the therapy of Western medicine, traditional Chinese medicine, and a high dose of vitamin C resulted in the most effective outcome for flight against COVID-19. It's shortening the time of disease recovery, symptom disappearance, chest CT improvement, and tongue amelioration [1]. Traditional Chinese medicine such as Bai-Nu decoction, and Buzhong Yiqi decoction possessed anti-inflammatory, anti-oxidant properties, which improved the properties of western medicines added by increasing the white blood cell count and lymphocyte count supplement with vitamin C for combating COVID-19 [2].

The western medicines that are commonly used include (i) alpha-interferon (5 million U or equivalent dose each time for adults and twice daily),

(ii) lopinavir/ritonavir (200 mg/50 mg per pill for adults, two pills each time and twice daily), ribavirin (jointly with interferon or lopinavir/ ritonavir, 500 mg each time for adults, and twice or three times of intravenous injection daily), chloroquine phosphate (500 mg for 7 days, adults aged 18-65 with body weight over 50 kg), and arbidol (200 mg for adults, and no longer than 10 days) [3].

What is the important role of vitamin C? **Farjana et al.** reported that vitamin C alleviated complications associated with COVID-19 because of the antioxidant to anti-microbial functions, which prevented inflammation, oxidative stress, and autophagy disordered, as well as immune dysfunction [4]. **Huang et al.** also indicated vitamin C as an essential vitamin for the human immune system, which enhanced the body's immunity to viruses in a high dosage of vitamin C [5]. Meanwhile, **Hemilä et al.** described vitamin C resistance of chick embryo tracheal organ cultures to an infection caused by the avian coronavirus [6]. Its mechanism was quite similar to the prevention of COVID-19.

The above information demonstrates that vitamin C improves the therapeutic effect of integrated medicine for COVID-19. It is a safe and inexpensive essential nutrient, that is supplementary to Chinese and western medicines with an excellent safety assessment in the human body during past investigations.

Author contributions

All authors contributed to the concept, acquisition and analysis of data, drafting of the article, and critical revision for important intellectual content.

Conflicts of interest: The authors have no conflicts of interest to disclose.

Funding/support: The authors received no funding source/grants or other materials support for this work.

References

- 1-**Yang X, Wang Y, Liu Y, Shang L, Cheng Z, Fang L, et al.** Traditional Chinese medicine together with high-dose vitamin C improves the therapeutic effect of western medicine against COVID-19. *Am J Transl Res* 2022;14(1):501-510.
- 2-**Lee HJ, Lee H, Kim MH, Choi YY, Ahn KS, Um JY, et al.** Angelica dahurica ameliorates the inflammation of gingival tissue via regulation of pro-inflammatory mediators in experimental model for periodontitis. *J Ethnopharmacol* 2017;205:16-21.
- 3-**Wei PF.** Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Trial Version 7), *Chinese Medical Journal* 2020;133(9): 1087-1095.
- 4-**Farjana M, Moni A, Sohag AAM, Hasan A, Hannan MA, Hossain MG, et al.** Repositioning Vitamin C as a Promising Option to Alleviate Complications associated with COVID-19. *Infect Chemother* 2020; 52(4):461-477.
- 5-**Huang L, Wang L, Tan J, Liu H, Ni Y.** High-dose vitamin C intravenous infusion in the treatment of patients with COVID-19. *Medicine* 2021;100(19):e25876.

6-**Hemilä H, de Man AME.** Vitamin C and COVID-19. *Front Med (Lausanne)* 2021;7: 559811.