OPEN ACCESS Freely available online

Journal of Nutrition & Food Sciences

Commentary

Prevention of Current Viral (COVID-19) Infection and Future Outbreak by Modulating Dietary Habit and Life Style

Lukmanul Hakkim F[1]*, Hamid A. Bakshi[2]

[1]*Department of Mathematics and Sciences, College of Arts and Applied Sciences, Research Center, Dhofar University, Salalah 211, Oman;*
[2]*School of Pharmacy and Pharmaceutical Sciences, Ulster University, Coleraine, County Londonderry, BT52 1SA, Northern Ireland, UK*

ABSTRACT

The outbreak of COVID-19 started in Wuhan, china in December 2019. Since then this outbreak causes significant loss of life and sever economic crisis around the world. People who are older than 60 years of age and having clinical conditions such as high blood pressure, diabetes, and low immune system suffered a lot due to this pandemic. Out of these whole scenarios we understand common criteria that those who have stronger immune system they would be able to fight this disease and recover. Enormous literature states that maintaining healthier life style would significantly improve immune system performance and this will prevent infection of uncertain virus outbreaks. Further dietary agents such as garlic, ginger, turmeric, lemon, cinnamon, black seed, and pepper etc has enormous potential to keep immune system stronger. Changing the modern life style such as eating junk foods, improper sleep, lack of exercise etc. would diminish the activity of immune system and these habits makes system more vulnerable to virus infections. Here we propose that adopting a life style with natural ingredients, regular exercise, remain hydrated would significantly enhance the immune system function.

Keywords: COVID-19; Prevention; Immune system; Food ingredients; Oman

INTRODUCTION

Unexpected outbreak of the COVID-19 virus and its rapid spread in community created massive disturbances among the world countries and flabbergasted various government sectors worldwide. The COVID-19 spread causes the loss of several innocent people. The number of confirmed cases of COVID-19 infection and related deaths are rising day by day. As of midst of February 2020, the largest mortality report was reported in china whereas the incidence in other Asian countries, in Europe and North America remains low so far [1]. The first two COVID-19 cases were reported in Oman on 24th February 2020 and as of 7th May a total of 2958 laboratory confirmed COVID-19 cases with 980 cases being cured and mortality rate 0.5% [2]. The efforts of scientist to characterize the COVID-19 genome sequence [3,4] lead to rapid understanding of COVID-19 characteristics and its molecular mechanism of host infection however, developing new anti-viral agents and vaccines within a short span of time remains to be an unreachable milestone. Although scientist learn the detrimental effects of previous outbreaks such as SARS, MERS, Ebola etc. still modern medicine could not able to restrict the COVID-19 infection spread and save human life.

The scientific data clearly suggests that from the current COVID-19 outbreak the people having stronger immune system or first line defense system showed resistance and recovered. However the old age people with weaker first line defense system along with other complications such as diabetes, asthma, COPD, high blood pressure could not able to fight COVID-19 and sadly resulted in deaths [5]. It is general perception as per the COVID-19 case fatality rate (CFR) that young people's morbid condition is relatively less severe than aged people [6]. According to the Korea Centers for Disease Control and Prevention, as of May 28, 2020 the overall CFR was 2.37% in 11,344 patients with confirmed cases however it was increased in elderly patients (10.9% in patients aged 70-79 years and 26.6% in patients ≥80 years) [7]. CFR data from china states that as of February 11, 2020, 2.3% CFR was recorded out of 44,672 diagnosed cases however, the CFR was 8.0% in patients aged 70-79 years and 14.8% in patients aged ≥80 years [8]. Further CFR data from Italy shows that CFR was <1% in the age group of <50 years and rapidly increased in the age group of ≥60 years, reaching 16.9% and 24.4% in the age group of 70-79 years and ≥80 years, respectively [9].

Correspondence to: Lukmanul Hakkim F, Department of Mathematics and Sciences, College of Arts and Applied Sciences, Research Center, Dhofar University, Salalah 211, Oman, Tel: +96894954482; E-mail: clonehakkim@gmail.com

Received: June 05, 2020, **Accepted:** July 06, 2020, **Published:** July 13, 2020

Citation: Hakkim FL, Bakshi HA (2020) Prevention of Current Viral (COVID-19) Infection and Future Outbreak by Modulating Dietary Habit and Life Style 10:776. doi: 10.35248/2155-9600.20.10.776

DISCUSSION

Recent data published in nature medicine states that 42 year old Chinese woman recovered from COVID-19 symptoms after 7 days of observation period by natural innate immune response and patients blood sample analysis reveals that number of antibody secreting cells (ASCs), circulating TFH cells $CD38^{+}HLA\text{-}DR^{+}$ $CD8^{+}$ T cells increased in response to infection [10].

Further blood collected from the recovered patients infused to patients with severe symptoms is in clinical practice. This is clear evidence that indicates recovered patients possess stronger immune system and their blood contains antibodies against COVID-19. This emphasizes the importance of maintaining the stronger immune system. In near future there are risks of emerging new virus outbreak and it may be more severe infectious agent than COVID-19. To combat such type of unexpected virus outbreaks the immune system of people should be forceful irrespective of age group. "Prevention is better than cure" so focusing on preventive measures would improve the clinical outcomes rather than actions during the course of outbreak.

Currently different clinical trials using chloroquine, hydroxychloroquine (HCQ), azithromycin, remdesivir to treat COVID-19 patients all over the world and so far the efficacy of these on clearance of COVID-19 is not convincing. French group reported clinical trial data on six patients who received HCQ and azithromycin. This treatment facilitates viral clearance from nasopharynx of patients and they suggested this might indicate synergy between HCQ and azithromycin [11]. In another study from the French group reported clinical trial on non-randomized series of 80 patients with mild COVID-19 who had been treated with HCQ and azithromycin [12]. Although sufficient numbers of patients were recruited in this study however they could not draw conclusive evidence on efficacy of HCQ and azithromycin.

Another small randomized controlled trial reported from China on the efficacy of HCQ for mild COVID-19 symptoms [13]. This study suggested that HCQ diminished cough and fever significantly but side effects remain questionable. Further there are no clear data are available on viral clearance, patients discharge history and mortality. A retrospective analysis of 181 hospitalized patients with COVID-19 in France, in which 84 patients who received HCQ (600 mg/day) and remaining 97 patients who did not receive treatment [14]. The outcome of this study states that there was no benefit for the patients who received HCQ and approximately 10% of patients discontinued the treatment because of changes in their electrocardiograms (ECGs). A recent study conducted in Brazil where participant received high dose CQ (600 mg BID for 10 days) and low dose CQ (450 BID × 1 day then 450 mg daily × 4 days) along with ceftriaxone and azithromycin [15]. Data reveal that more than 25% of patients who received high doses developed a prolonged QTc > 500 ms. Further there was no clear evidence on viral clearance and study was stopped due to safety concerns. Tolerance of intake of chemical based drugs by human system is always remains an unanswered question. Practicing natural medicine to prevent or to treat the disease is always a better option and World health organization recommends this [16].

The modern life style such as intake of junk foods [17], irregular sleeping habit [18], less intake of water [19], lack of exercise [20], food with less antioxidants [21] causes detrimental effects such as lowering immune power, increases risk of having life style based diseases such as diabetes, hypercholesterolemia, high blood pressure, etc. These clinical conditions make the human system more vulnerable to infections. Natural food ingredients such as garlic, ginger, turmeric, lemon, cinnamon, black seed, and pepper have long history for its immune boosting activities however the scientific evidence on immune boosting effects of these food ingredients is lacking.

CONCLUSION

Intake of these food ingredients and biological properties of its phytochemicals are ignored by modern diet habit. Further regular exercise and remaining hydrated is an important strategy to maintain the immune system stronger. We propose that regular intake of dietary garlic, ginger, turmeric, lemon, cinnamon, black seed, and pepper would keep immune system stronger to fight against any type of viral infections.

CONFLICT OF INTERESTS

The author(s) declare no potential conflict of interest.

REFERENCES

1. Velavan TP, Meyer CG. The COVID-19 epidemic. Trop Med Int Health. 2020;25(3):278-280.
2. Khamis F, Al-Zakwani I, Naamani HA, Lawati SA, Pandak N, Omar MB, et al. Clinical characteristics and outcomes of the first 63 adult patients hospitalized with COVID-19: An experience from Oman. J Infect Public Health. 2020;13(7):906-913.
3. Caly L, Druce J, Roberts J, Bond K, Tran T, Kostecki R, et al. Isolation and rapid sharing of the 2019 novel coronavirus (SAR-CoV-2) from the first patient diagnosed with COVID-19 in Australia. Med J Aust. 2020;212(10):459-462.
4. Sah R, Rodriguez-Morales AJ, Jha R, Chu DK, Gu H, Peiris M, et al. Complete Genome Sequence of a 2019 Novel Coronavirus (SARS-CoV-2) Strain Isolated in Nepal. Microbiol Resour Announc. 2020;9(11).
5. Zhang JJ, Dong X, Cao YY, Yuan YD, Yang YB, Yan YQ, et al. Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. Allergy. 2020;19.
6. Kang SJ, Jung SI. Age related morbidity and mortality among patients with COVID-19. Infect Chemother. 2020;52(2):154-164.
7. Korea Centers for Disease Control and Prevention (KCDC). Status of COVID-19 in Korea. 2020.
8. The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)-China, 2020. China CDC Weekly 2020;2(8):113-122.
9. Istituto Superiore di Sanita. Epidemia COVID-19. 2020.
10. Thevarajan I, Nguyen TH, Koutsakos M, Druce J, Caly L, Sandt CE, et al. Breadth of concomitant immune responses prior to patient recovery: a case report of non-severe COVID-19. Nature Med. 2020.
11. Gautret P, Lagier JC, Parola P, Hoang VT, Meddeb L, Mailhe M, et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. Int J Antimicrobial Agent. 2020a:105949.

12. Gautret P, Lagier JC, Parola P, Hoang VT, Meddeb L, Sevestre J, et al. Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: a pilot observational study. Travel Med Infect Dis. 2020b:101663.

13. Chen Z, Hu J, Zhang Z, Jiang S, Han S, Yan D, et al. Efficacy of hydroxychloroquine in patients with COVID-19: results of a randomized clinical trial. MedRXIV. 2020.

14. Mahevas M, Tran VT, Roumier M, Chabrol A, Paule R, Guillaud C, et al. No evidence of clinical efficacy of hydroxychloroquine in patients hospitalized for COVID-19 infection with oxygen requirement: results of a study using routinely collected data to emulate a target trial. MedRXIV. 2020:1-20.

15. Borba MG, Val FA, Sampaio VS, Ara MA, Alexandre U, Melo GC, et al. Chloroquine diphosphate in two different dosages as adjunctive therapy of hospitalized patients with severe respiratory syndrome in the context of coronavirus (SARS-CoV-2) infection: Preliminary safety results of a randomized, double-blinded, phase IIb cl. medRxiv. 2020.

16. Pal SK. Complementary and alternative medicine: An overview. Curr science. 2002;82(5):518-524.

17. Venter C, Eyerich S, Sarin T, Klatt KC. Nutrition and the immune system: A complicated tango. Nutrients. 2020;12(3):818.

18. Besedovsky L, Lange T, Born J. Sleep and immune function. Pflugers Arch-Eur J Physiol. 2012;463:121-137.

19. Mitchell JB, Dugas JP, Mcfarlin BK, Nelson MJ. Effect of exercise, heat stress, and hydration on immune cell number and function. Med Sci Sports Exerc. 2002;34(12):1941-1950.

20. Kruger K, Mooren FC, Pilat C. The immunomodulatory effects of physical activity. Curr Pharm Des. 2016; 22(24):3730-3748.

21. Pangrazzi L. Boosting the immune system with antioxidants: where are we now? Biochemist. 2019;41(1):42-44.