



Research Paper

Do we need to consider vitamin D supplements for covid prophylaxis in south Asian treatment protocols?

Accepted 24th June, 2021

ABSTRACT

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This study concerned the second wave of the covid pandemic with new variant cases surging daily. Most of the South Asian Countries are badly affected and infected individuals are battling death. The latest variants have raised concern to the peoples as well as health workers. Additionally coming mutants have made dreadful apprehension of the Covid third wave.

Key words: Second wave of covid-19, new variant, vitamin D supplements.

INTRODUCTION

The quarantine centers and hospitals lack basic amenities. The infrastructures, ventilators, and oxygen supplies are facing major crisis in India and Nepal. On the other hand, health workers are unable to fulfill patient's expectations due to the high flow of covid patients. Sporadically, abusive violations are being reported to doctors in Nepal and India. The government's considerations to improve the situation using preventive measures including guidelines of medication are still waited on to fulfill the people's expectations.

Vaccination is undoubtedly necessary to combat against COVID-19. We should not wait to Implement immunization, which may help to decrease our worries of the next unknown variants pandemic, and therefore, we have to commence mass vaccination to check its effectiveness for the new COVID variants. Having said so, south Asian countries like Nepal are unable to manufacture their own vaccine and continue to be dependent upon other nations. Currently, Remdesivir is barely available in Nepal and India where in other hands the Mucor-mycosis aggravating the post covid sequelae and a crisis of amphotericin Availability in pharmacies.

During these circumstances, practicing as a low socioeconomic countries doctor, do we need to consider preventative medications as well? Several literatures have been published about the importance of minerals and vitamins which had been helpful in improving immunity,

especially vitamin D which considerably protects against covid (ShahAlam et al., 2021; Ling et al., 2020; Wei and Christakos 2015; Gombart et al., 2020).

RESEARCH METHODS

Cholecalciferol is synthesized endogenously from 7-dehydrocholesterol in the skin dermis on exposure to sunlight. Cholecalciferol(D3) is produced endogenously from 7-dehydrocholesterol while the skin dermis gets exposed to sunlight. Ergocalciferol (D2), cod liver oil, yeast, sunlight exposed mushrooms, and some plants (Matsuoka et al., 1987; Matsuoka et al., 1992).

If we closely analyze two peaks of covid in summer years of 19 and 20 in South Asia, it has made people stay indoors. Wherein between these peaks, winter has foggy sunlight and somehow compromised to get exposed under the sunlight. Further in South Asian countries like India and Nepal has an additional high number of vegetarians (widows and monks) who relatively may get additional vulnerability to have dietary Ergocalciferol (D2), deficiency consequently leads to immunodeficiency and increases the chances of respiratory infection (Sahota, 2014).

Although the majority of recommendations from different authorities and esteemed healthcare institutions have undermined the vitamin-D supplements or screening

of deficiency to prevent covid and post covid consequences (<https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021>; <https://bestpractice.bmj.com/topics/en-gb/3000201/guidelines>).

The mechanism and importance of vitamin D for immunity boost is frequently published. It provides a physical barrier, cellular natural immunity, and adaptive immunity (<https://doi.org/10.1155/2018/5813095>; <https://doi.org/10.1016/j.virusres.2020.198235>). It helps to maintain the cellular integrity of various junctions (tight, gap, and adhere junctions) hence helps to prevent invasion of several viruses in the cell that causes infection (Grant et al., 2020).

RESULTS OF THE STUDY

Vitamin D supplantation helps to increase glutathione which spares ascorbic acid (vitamin-c), and has significant antimicrobial anti-oxidant properties in body defense mechanism (Lei et al., 2017; <https://doi.org/10.1556/1886.2019.00016>). Therefore, it is suggested in the prevention of covid-19 (Colunga et al., 2020). It has been reported that vitamin D has an innated role in the activation and differentiation of monocyte into macrophage which activates PI3K signaling pathways for ROS AND iNOS oxidative generation pathway. Additionally, it modulates the expression of PRRs including TLR2 and TLR4 in monocyte (Sadeghi et al., 2006). It also triggers autophagy which prevents severe immunopathology and is also an important antiviral mechanism seen in viral infection (Sly et al., 2001; Wu and Sun, 2011).

DISCUSSION AND CONCLUSION

Several studies have shown vitamin D deficiency and hospitalization with covid mortality rate (Grant et al., 2020; Annweiler et al., 2020; Annweiler et al., 2020; Meltzer et al., 2020; Kumar et al., 2021; Entrenas et al., 2020). Worldwide epidemiological studies, thorough survey and clinical trials supports vitamin D as a potential therapeutic agent against covid infection (Shah et al., 2021).

Research claims, oral administration of vitamin D dosage of 50,000 IU minimizes and decreases chances of influenza and severity of pneumonia, which is associated with coronavirus illness. Studies emphasized the prophylactic administration of vitamin D supplement within the COVID-19 management (<https://doi.org/10.1007/s12291-020-00953-y>; Kumar et al., 2021; Wimalawansa, 2020; Alipio, 2020).

Vitamin D serum could possibly suggest a chance of prevalence and prognoses of the COVID- 20. Proper diagnosis of vitamin D insufficiency might be a valuable to determine the patient's possibilities of developing serious

consequences. Appropriate preventive and/or therapeutic intervention may enhance COVID-20 outcomes. Therefore a serious consideration is required to screen the supplementation of vitamin D in future coming guidelines.

ACKNOWLEDGEMENT

This study was granted by the Natural Science Foundation of China (No. 81472304).

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