

Will the Methylene Blue Work as Magical Drug for Various Level of Prevention in COVID-19?

Dear Sir,

The world is facing a pandemic of COVID-19 of unprecedented proportions. The second wave has broken all previous grim records for India. Although there is a more or less widely accepted protocol of treatment for these patients, there still is a lot of scope for the discovery of new drugs as well as repurposing existing drugs for efficient and successful treatment of COVID-19.

Currently, oxygen therapy is the key with other supportive drugs. Many drugs have shown potential for treatment such as lopinavir, remdesivir, favipiravir, darunavir and others; also some immunomodulatory agents such as HCQ, ivermectine, colchicine, aviptadil, and others.^[1] Historically, we know that there are very limited drugs which are effective in viral diseases.

Many individuals, institutes, and organizations are trying out different drugs and combinations in the treatment of different aspects of the disease such as prevention, mild disease, cytokine storm, and post-COVID rehabilitation. In this context, we would like to bring to notice the use of methylene blue (MB) in the treatment of COVID and its aftermath in the form of pulmonary fibrosis. MB is an organic dye used in the treatment of methemoglobinemia.

Quite a few workers have been exploring the uses of this drug in COVID-19. Iranian author Ghahestani *et al.*^[2] discussed the hypothesis of action at cellular level particularly on Bradykinin/NO pathway involved in SARS-CoV-2 infection, in their article. They also compared with other kininogen – kallikrein system targeting drugs and MB. MB is affordable, inexpensive, least side effects and with many advantages. Hamidi Alamdari *et al.*^[3] reported in their paper that the MB has virucidal effect on RNA virus like polio virus and others through occupied the cellular site where virus get attached and direct indirect virucidal effect. MB also has a role in the prevention of lung sequelae of COVID-19. Namazi *et al.*^[4] and Kanter *et al.*^[5] have proved in their animal experiments that there is a role of MB in the prevention of fibrosis.

If its efficacy is proven, MB definitely would have a great significance among the pantheon of drugs being used in the treatment of COVID-19. It has many advantages such as easy availability, cheap, good shelf-life, and no major side effects. The only precautions, which need to be taken, are in patients of hemolytic anemia and G6PD deficiency. There are some drug interaction with anti-depression drugs and discoloration of mouth can be troublesome.^[6]

However, it is imperative to have well-designed trials with sufficient sample size to validate and ratify the repurposing of MB in the treatment of COVID-19. In the haste to start treatment, the opportunity of generating high quality evidence should not be lost.

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Conflicts of interest

There are no conflicts of interest.

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REFERENCES

1. Scavone C, Brusco S, Bertini M, Sportiello L, Rafaniello C, Zoccoli A, *et al.* Current pharmacological treatments for COVID-19: What's next? *Br J Pharmacol* 2020;177:4813-24.
2. Ghahestani SM, Shahab E, Karimi S, Madani MH. Methylene blue may have a role in the treatment of COVID-19. *Med Hypotheses* 2020;144:110163.
3. Hamidi Alamdari D, Bagheri Moghaddam A, Amini S, Hamidi Alamdari A, Damsaz M, Yarahmadi A. The application of a reduced dye used in orthopedics as a novel treatment against coronavirus (COVID-19): A suggested therapeutic protocol. *Arch Bone Jt Surg* 2020;8:291-4.
4. Namazi H, Emami MJ, Nazhvani FD, Dehghani Nazhvani A, Kargarshourki Z. Effectiveness of methylene blue in the

prevention of stifle joint arthrofibrosis in rabbit models. Arch Bone Jt Surg 2019;7:269-77.

5. Kanter M, Sahin SH, Basaran UN, Ayvaz S, Aksu B, Erboga M, *et al.* The effect of methylene blue treatment on aspiration pneumonia. J Surg Res 2015;193:909-19.
6. Ginimuge PR, Jyothi SD. Methylene blue: Revisited. J Anaesthesiol Clin Pharmacol 2010;26:517-20.

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