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Letter Article

# Cotrimoxazole as adjuvant therapy in critical ill COVID-19 patients

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## Dear Editor,

The ongoing pandemic of COVID-19 has forced us to consider using available drugs in the shortfall of vaccines and established treatment. Cotrimoxazole is one of the oldest drugs presently used in the prevention and treatment of opportunistic infections in the human immune deficiency virus (HIV) etc. It is a combination of two drugs Trimethoprim and Sulfamethoxazole.

Cotrimoxazole is a potent broad-spectrum antibiotic with antifungal, antiprotozoal, activity. The rationale behind the use of Cotrimoxazole is its anti-inflammatory and immunomodulatory action. The mortality among the COVID-19 patients is mainly due to the acute respiratory distress syndrome or pulmonary embolism and respiratory failure mediated by cytokine storm due to unopposed multiplication of cascade of inflammatory mediators [1]. The immunomodulatory and anti-inflammatory activity of the Cotrimoxazole is seen in many studies [2.3]. The ARROW trial showed lower concentrations of plasma pro-inflammatory markers like C reactive protein (CRP), Interleukin 6 in continuous Cotrimoxazole prophylaxis, suggesting its role as anti-inflammatory and immunomodulation [3]. The role of Interleukin 6 (IL6) and Tumour necrosis factor-alpha (TNF α) in the pathogenesis of COVID-19 mortality is well documented [4]. The role of Cotrimoxazole in the suppression of TNF α is also well documented [5]. Lymphopenia is associated with adverse outcomes in COVID-19. Cotrimoxazole has shown an increase in lymphocyte count in a short and long therapy duration, but these study findings are not consistent with few other studies; however, no significant impact of Cotrimoxazole was seen on immune activation of CD8 T cells [6-8]. Hence it should be reserved only for critically ill patients. Oxidative stress has an important aspect of the cytokine storm, which is also reduced by Cotrimoxazole [9]. Various side effects are mentioned in the literature. This cost-effective old drug is well tolerated among the population with the concomitant use of folic acid; moreover, it also looks after the secondary infections [7]. To conclude, Cotrimoxazole can be used as critically ill COVID-19 patients.

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### Abbreviations

COVID-19: Coronavirus Disease-19; HIV: Human Immune Deficiency Virus; CRP: C Reactive Protein; TNF: Tumour Necrosis Factor; TNF α: Tumour Necrosis Factor-Alpha; IL6: Interleukin 6

### Declarations

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### Availability of data and materials

Data will be available by emailing omkarchoudhari@yahoo.com

### Authors' contributions

Omkar Kalidasrao Choudhari (OKC) is the principal investigator of this manuscript (Letter). OKC, SS and UCO are equally participated in the the study concept, design, writing, reviewing, editing, and approving the manuscript in its final form. All authors read and approved the final manuscript.

### Ethics approval and consent to participate

I conducted the research following the Declaration of Helsinki; however, Letter Article needs no ethics committee approval.

### Consent for publication

Not applicable

### Competing interest

The author declare that he has no competing interests.



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