

Ivermectin: An Anti-Parasitic Drug that has Potential for Repurposing for COVID-19

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ABSTRACT

After global health catastrophe due to Coronavirus disease-2019 (COVID-19), a deep impact on the way we perceive our world and our everyday lives has been imprinted. Till now, no specific antiviral drug has been proven effective for curing patients. Ivermectin, the broad-spectrum macrocyclic lactone has proven to exert antiviral activity against human immunodeficiency virus (HIV), dengue virus and now capability to reduce viral RNA up to 5,000-fold after 48 h of infection with SARS-CoV-2.

KEYWORDS: COVID-19, SARS-CoV-2, Ivermectin, antiviral drugs.

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The outbreak of Coronavirus disease 2019 (COVID-19) has created a global health catastrophe that has had a deep impact on the way we perceive our world and our everyday lives. In Pakistan, total numbers of confirmed cases of COVID-19 are 32,674. Out of these, 8,555 patients have recovered so far and 724 fatalities have been reported. Even with minimum resources, Pakistan has taken meticulous measures like designed special hospitals, laboratories for testing, quarantine facilities, awareness campaign and lock down to control the spread of virus.¹

Till now, no specific antiviral drug has been proven effective for curing patients with severe Coronavirus disease 2019 (COVID-19). In the perspective of repurposing strategy for urgent medical needs, several drugs are being proposed for the treatment of COVID-19 like remdesivir, favipiravir, ivermectin, lopinavir/ritonavir, chloroquine and hydroxychloroquine.³

There are only few drugs that can truly lay claim to the title of ‘Wonder drug’ and Ivermectin is one of them based on its versatility, safety and the beneficial effect that it has had, and continues to have, worldwide—especially on hundreds of millions of the world’s poorest people ever since it was first used to treat Onchocerciasis in humans in 1988.² Ivermectin, the broad-spectrum macrocyclic lactone has proven to exert antiviral activity against human immunodeficiency virus (HIV) and dengue virus. It is known to inhibit the replication of SARS-CoV-2 in vitro as reported by Caly et al.³ It can dissociate the preformed IMP α/β 1 heterodimer, which is responsible for nuclear transport of viral protein cargos which is essential for the replication cycle and inhibition of the host’s antiviral response. Recently, an in vivo study has proven ivermectin’s capability to reduce viral RNA up to 5,000-fold after 48 h of infection with SARS-CoV-2.⁴ Ivermectin has a well proven safety profile for human use, and is FDA-approved for a number of parasitic infections.⁵

It has to be emphasized that general public communication of drugs as potential COVID-19 therapeutics, based exclusively on in vitro data, is neither scientifically nor ethically appropriate. Since Pakistan is a developing country and affordability for the patients in this setup matters the most. Currently, ivermectin is being

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manufactured in Pakistan by more than a dozen pharmaceutical companies costing as cheap as rupees 25 per tablet as compared to the other antiviral drugs under trials like remdesivir which is considered to be one of the most expensive drugs in US. Ivermectin, therefore warrants further pre-clinical and clinical investigation to figure out the adequate dosing to combat the COVID-19 pandemic.

CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

MR: Conception, design of study and acquisition published data.

MIP: Drafting of manuscript, Intellectual input.

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