LETTER

Can Ivermectin be Useful for COVID-19 Management as an Immunomodulating Agent?

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Abstract:

The possibility of using ivermectin in the treatment of COVID-19 as an immunomodulating agent, has been discussed, which may prevent life-threatening virally driven cytokine storm syndrome.

Keywords: COVID-19, Ivermectin, NF-κB, Cytokine, Cytokine storm syndrome, Immunomodulator.

Article History

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Dear Editor,

COVID-19 is an emerging and rapidly evolving situation in the world.

The recent report of Caly et al., (2020) [1] stated that an anti-parasitic medicine ivermectin has antiviral action against the SARS-CoV-2 virus (a causative agent for COVID-19) clinical isolate in vitro and it is worthy of further consideration as a possible SARS-CoV-2 antiviral drug.

Ivermectin is a well-known anti-parasitic drug with a broad spectrum of activity, high efficacy as well as a wide margin of safety [2].

It is approved by the U.S. FDA for managing such parasitic infections like strongyloidiasis and onchocerciasis [3]. Evidence suggests that oral ivermectin may be a safe and effective treatment for scabies as well; however, ivermectin is not U.S. FDA-approved for this use [4].

Accumulating evidence suggests that a subgroup of patients with severe COVID-19 might have a cytokine storm syndrome [5].

Predictors of fatality from a recent retrospective, multicenter study of 150 confirmed COVID-19 cases in Wuhan (China) suggest that mortality might be due to virally driven hyperinflammation [6].

The transcription factor NF-κB regulates multiple aspects of innate and adaptive immune functions and serves as a pivotal mediator of inflammatory responses. NF-κB induces the expression of various pro-inflammatory genes, including those encoding cytokines and chemokines [7].

Jiang et al., (2019) in their study found that ivermectin at its very low dose, which did not induce obvious cytotoxicity, drastically reversed the resistance of tumor cells to the chemotherapeutic drugs both in vitro and in vivo by inhibition of the transcriptional factor NF-κB and could potentially be used in combination with chemotherapeutic agents to treat cancers and in particular, drug-resistant cancers [8]. Prior to them, Zhang et al., (2009) indicated that ivermectin might inhibit lipopolysaccharide (LPS)-induced production of inflammatory cytokines by blocking the NF-κB pathway and improving LPS-induced survival in mice [9].

Summarizing all the information, ivermectin could be considered for a clinical trial to determine its efficacy in the management of COVID-19 as an immunomodulating agent which might prevent life-threatening virally driven cytokine storm syndrome.

REFERENCES


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