DOI: 10.1002/jmv.25843

LETTER TO THE EDITOR

JOURNAL OF MEDICAL VIROLOGY WILEY

Reporting of all cardiac medications and their outcome in COVID-19

To the Editor,

We read with much interest the article "Organ-protective effect of angiotensin-converting enzyme 2 and its effect on the prognosis of COVID-19" by Cheng et al[1] in your esteemed Journal. The authors have discussed the theoretical basis of angiotensin-converting enzyme 2 (ACE-2) in improving the outcome of coronavirus disease 2019 (COVID-19) patients. We believe that this topic is rapidly evolving and requires further evidence and discussion for understanding the multiple factors which contribute to the pathogenesis and outcome. We have the following comments.

In a study by Cao et al,[2] genetic expressions of the ACE-2 receptor was different in different populations and tissue. Despite having the highest expression of the above genes COVID-related mortality in the East Asian population was lesser. Among the drugs affecting the renin-angiotensin-aldosterone system (RAAS), angiotensin receptor blockers have been thought to facilitate viral entry by increasing the expression of ACE-2 receptors resulting in greater disease severity. However, ACE inhibitors do not have a similar effect on the receptor.[3] While it is known that ACE-2 receptors facilitate COVID-19 viral entry, the higher number of receptors causing higher organ damage is not yet established. Rather the cytokine storm secondary to dysregulation of the immune system continues to be the prominent pathophysiological basis behind organ injury.[4]

We agree with the authors regarding the fact that COVID-related organ damage and mortality is higher among patients with prior cardiovascular disease including hypertension, coronary artery disease, and heart failure. It is known that these patients have increased ACE-2 as compared to normal individuals.[5] Whether RAAS inhibitors worsen clinical outcomes in a patient with COVID-19 secondary to increasing ACE-2 levels continues to be a continuous debate awaiting prospective clinical data. Either these cardiac agents are inappropriately being stopped in patient who require them (ie, heart failure) or are inappropriately being continued in patients at risk of harm (hypotensive and acute renal injury). While the downregulation of ACE-2 has been shown to worsen lung injury, among patients with upregulated ACE-2 secondary to RAAS inhibition outcome has not yet been reported to be favorable.[6] Most studies have the limitation of not having details of drug, dose, and duration of RAAS inhibitors. While clinical trials on the effect of angiotensin receptor blockers (Losartan) on COVID-19 is being undertaken, meticulous reporting of various RAAS inhibitors in patients with COVID-19 will facilitate further understanding.[7]

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

AUTHOR CONTRIBUTIONS

All authors have seen the manuscript and agree to the content and data. All the authors played a significant role in the paper. Patient consent: not applicable.

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