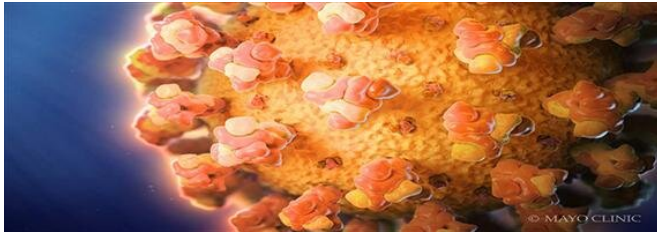


ACE inhibitors and angiotensin receptor blockers may improve prognosis in COVID-19 hypertensive patients

31 March 2020



Credit: Mayo Clinic

Patients with underlying health conditions such as hypertension, heart failure, and chronic kidney disease are at increased risk of severe coronavirus disease 2019 (COVID-19). Physicians, healthcare professionals, researchers, and patients are actively debating the potential influence of angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) in patients during the COVID-19 outbreak. One of the ways the virus enters the body is through ACE2, the enzyme that converts angiotensin I to angiotensin II in the lungs and other tissues and organs, suggesting to some that the drugs may increase susceptibility to the virus and severity of the disease.

In a [new review](#) published in *Mayo Clinic Proceedings* a group of scientists who have been working on the frontlines fighting the deadly virus in Spain, Italy, and the United States, dissect the controversy in considerable detail, to explain the level of evidence on this topic for clinicians. "In agreement with current guidelines, we recommend patients with hypertension should continue taking anti-hypertensive medications without interruption," says lead author Fabian Sanchis-Gomar, MD, Ph.D., of the Department of Physiology, Faculty of Medicine, University of Valencia and INCLIVA

Biomedical Research Institute, Valencia, Spain; and Division of Cardiovascular Medicine, Stanford University School of Medicine, Stanford, CA, USA.

After in-depth review of more than 60 published studies, Dr. Sanchis-Gomar and his coauthors conclude that, importantly, no studies have reported an increase in circulating ACE2 levels or expression thus far, and increased expression would not necessarily imply an increased risk of infection or [disease](#) severity. Their research included studies that suggest that elevated levels of angiotensin II, the target of renin-angiotensin-aldosterone system (RAAS) inhibitors such as ACEIs and ARBs, may foster acute respiratory distress syndrome (ARDS) in COVID-19 patients. Other research suggests that RAAS inhibitors may have a role to play in the treatment of COVID-19. The authors note, however, that much more research and evidence are needed.

In a video accompanying the article, co-author Carl J. Lavie, MD, of the John Ochsner Heart and Vascular Institute, Ochsner Clinical School—University of Queensland School of Medicine, New Orleans, LA, USA, says, "Angiotensin II is known to foster inflammation, oxygenation, vasoconstriction, and fibrosis, so it is quite conceivable that a pharmaceutical agent that can inhibit the production of this hormone could actually be very beneficial for preventing lung injury and also for systemic health. Certainly, it is premature right now to start these agents as a preventive measure for COVID-19 in patients with no other indicator for RAAS inhibitors. However, this is an active area for investigation."

Current evidence indicates that RAAS inhibitors significantly reduce mortality in cardiovascular disease, reduce the progression of [chronic kidney disease](#), and are the cornerstone of treatment for

[heart failure](#) and hypertension. "ACEIs or ARBs therapy should be maintained or initiated, as indicated, in patients regardless of COVID-19," notes Dr. Sanchis-Gomar.

While no differences exist between ARBs and ACEIs in terms of efficacy to decrease blood pressure and improve other outcomes, a cough sometimes associated with the use of ACEIs, and withdrawal rates due to adverse events are lower with ARBs. "Given the equal efficacy but fewer adverse events, ARBs could potentially be a more favorable treatment option in COVID-19 patients at higher risk for developing severe forms of the disease," says Dr. Sanchis-Gomar.

Provided by Elsevier

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