

RAAS antagonist therapy in patients with COVID-19

S	<p><u>Situation</u></p> <p>Concern for increased risk of COVID-19 transmission and infection severity due to background RAAS antagonist therapy (ACEi/ARB) has been raised within the public (e.g., social media) and healthcare sectors.</p>
B	<p><u>Background</u></p> <p>Initial epidemiologic studies from China found an association with hypertension and both acute respiratory distress syndrome and death from COVID-19. This has led to a growing concern that this association may be due to use of specific antihypertensives, namely ACEi/ARBs.</p> <p>The theory behind this is complex. Simply put, the RAAS system manages blood pressure through impacting systemic vascular resistance, including both vessel diameter and blood volume. This involves multiple enzymes and receptors, including ACE2. ACE2 has been shown to be a co-receptor for viral entry of coronaviruses. Use of ACEi/ARB therapy is known to increase the expression of ACE2.</p>
A	<p><u>Assessment</u></p> <p>The relationship (if any) between COVID-19 transmission and/or severity of infection and ACEi/ARB use requires further investigation. It will take time to get this information. We will need to continue to follow the data and expert advice as more information becomes available.</p> <p>Withholding ACEi/ARB therapy in patients with CV disease (especially heart failure, ischemic heart disease, hypertension) could cause harm by worsening the control of these conditions.</p> <p>Currently, there is no experimental or clinical data demonstrating benefits or adverse outcomes with use of ACEi/ARBs or other RAAS antagonists (e.g., ARNi, MRA) in COVID-19 patients.</p>

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Recommendation

The Heart Failure Society of America, American College of Cardiology, and American Heart Association has advised the following:

“The HFSA, ACC, and AHA recommend continuation of RAAS antagonists for those patients who are currently prescribed such agents for indications for which these agents are known to be beneficial, such as heart failure, hypertension, or ischemic heart disease. In the event patients with cardiovascular disease are diagnosed with COVID-19, individualized treatment decisions should be made according to each patient’s hemodynamic status and clinical presentation. Therefore, be advised not to add or remove any RAAS-related treatments, beyond actions based on standard clinical practice.”

HFSA/ACC/AHA statement re: using RAAS antagonists in COVID-19

https://professional.heart.org/professional/ScienceNews/UCM_505836_HFSAACCAHA-statement-addresses-concerns-re-using-RAAS-antagonists-in-COVID-19.jsp

NEJM Special Report on RAASi in patients with COVID – published 03/30/2020

<https://www.nejm.org/doi/full/10.1056/NEJMSr2005760>

Specialty position statements or communications supporting the maintenance of RAASi in clinically stable patients with COVID-19, include:

HYPERTENSION

- International Society of Hypertension
- European Society of Hypertension
- Hypertension Canada

Cardiovascular

- American Heart Association, American College of Cardiology, Heart Failure Society of America
- Canadian Cardiovascular Society
- European Society of Cardiology
- British Society for Heart Failure, British Cardiovascular Society

Nephrology

- The Renal Association, United Kingdom

General Medicine

- American College of Physicians

https://www.nejm.org/doi/suppl/10.1056/NEJMSr2005760/suppl_file/nejmsr2005760_appendix.pdf

JAMA Viewpoint on ACEi/ARB therapy in COVID-19 – published 03/24/2020

<https://jamanetwork.com/journals/jama/fullarticle/2763803>