Should ACE Inhibitors and ARBs be Discontinued in Patients with COVID-19?

A correspondence published in Lancet on March 11, 2020 hypothesized that patients who are receiving angiotensin converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARBs) may be at increased risk of developing severe or fatal COVID-19 infections.1 This hypothesis is based on initial studies from China describing patients with COVID-19 infections suggesting that cardiovascular disease, diabetes, hypertension, and cerebrovascular disease are common risk factors among patients who are hospitalized or have poor outcomes.2-4 These conditions are often treated with ACEI or ARBs; however, no clinical trials to date have evaluated the impact of ACEI and ARBs on outcomes in patients with COVID-19.1

Pathogenic human coronaviruses, such as severe acute respiratory syndrome coronavirus (SARS-CoV) and SARS-CoV-2, bind to epithelial cells in the lung, blood vessels, kidney, and intestines through ACE2.5 Data suggest that ACE2 is increased in patients with Type 1 or 2 diabetes or hypertension who are taking ACEI or ARBs.6-7 This upregulation of ACE2 could theoretically facilitate COVID-19 infection.1

However, there is limited and sometimes conflicting information available to support this is the course of COVID infection. On March 12, 2020, an abstract published from the Chinese Medical Association Publishing House Ltd. proposed that ACEI and ARBs may reduce mortality and pulmonary inflammatory response in COVID-19 and could be used to control blood pressure in this patient population. This abstract cited evidence that ACE and angiotensin II are poor prognostic factors in patients with severe pneumonia and referenced animal studies that have indicated that renin-angiotensin system inhibitors could reduce symptoms in severe pneumonia and respiratory failure.8

It is important to note that there are currently no clinical trials evaluating the impact of ACEI or ARB therapy on outcomes or disease severity risk in patients infected with COVID-19. Furthermore, these drugs have proven benefits for patients with diabetes and hypertension.9 For these reasons, the Duke Antimicrobial Stewardship Outreach Network does not endorse discontinuation of ACEI and ARB therapies in patients with COVID-19 infections. We support the recommendations from the Council on Hypertension of the European Society of Cardiology and the joint statement from the American College of Cardiology, the American Heart Association and the Heart Failure Society of America who all reinforce that patient currently prescribe ACEI or ARB treatment should continue these treatments as prescribed.10-11


References: