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# Association of ACE Inhibitors and COVID-19 Severity or Risk of Death

The COVID-19 pandemic has resulted in a significant number of deaths worldwide. Clinicians are still unclear as to who might be more susceptible to the infection and the factors associated with increased mortality. Laboratory data have shown that the angiotensin-converting enzyme-2 (ACE-2) serves as the receptor for severe acute respiratory syndrome coronavirus to gain entry into airway cells. Thus, any cell expressing the ACE-2 receptor may pave the way for the COVID 19 infection to develop. At the same time, many patients with hypertension are routinely treated with ACE inhibitors (ACEIs) and angiotensin receptor blockers (ARBs). The question is: could these patients be more susceptible to COVID-19?

Over the past few months, conflicting anecdotal reports have hinted that certain antihypertensive medications may be associated with higher morbidity and mortality in patients who acquire COVID 19. In a recent study from China, investigators looked at hypertensive patients treated with Renin-Angiotensin system inhibitors and the risk of death.

The study was conducted in a hospital in Wuhan, which has been the centre of the COVID 19 pandemic. The study looked at 1178 hospitalised patients (median age 55) with the COVID 19 infection from January 15 to March 15. All infected patients had the COVID-19 diagnosis confirmed by a real-time polymerase chain reaction. Clinical data, including laboratory parameters, imaging studies, and the type of drug treatment were also collected and analysed in all patients. The study compared the severity of illness in hypertensive patients who were prescribed ACEIs/ARBs to those who were not taking these drugs. Severe infection was defined as blood oxygen saturation of 93% or less, respiratory rate of 30/min or greater, lung infiltrates within 24-48 hours, acute respiratory failure, septic shock, and multiorgan failure.

Of the 1178 patients with COVID-19, 46.3% were men. The overall hospital mortality was 11%. Of these, 362 patients had hypertension (median age 66) and 52.2% were men. Of the hypertensive patients, 31.8% were already on ACEIs/ARBs. Among the hypertensive patients, the in-hospital mortality was 21.3%. However, the percentage of hypertensive patients taking ACEIs/ARBs did not differ in the severity of infections or survival rates when compared to patients not taking these medications. There was also no difference in the severity of infection or mortality rate when the patients taking ACEIs were compared to those who were taking ARBs.

Overall, the findings show that there was no significant difference in the severity of the infection, complications, and risk of death in hypertensive patients who were taking ACEIs/ARBs compared to those who were not on these medications. The study concludes that patients with hypertension can continue to be treated with these medications without any added morbidity or mortality in the presence of COVID-19.

Source: JAMA
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