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Background:
Patients with hypertension have increased mortality with SARS-CoV-2 infection. The ACE2 enzyme serves as a functional receptor facilitating SARS-Cov-2 infection of cells. ACE2 gene expression increases with angiotensin II synthesis and blockade thus Feng L et al hypothesized that ACE inhibitors and angiotensin receptor blockers (ARBs) could increase incidence and severity of SARS-CoV-2 infection. Whether or not ACE inhibitors or ARBs increase likelihood of SARS-CoV-2 infection is unknown.

Methods:
We performed a retrospective observational study to investigate whether ACE inhibitor and ARBs was associated with increased incidence of COVID-19 in patients with hypertension. We manually analyzed electronic health records of 1640 patients tested for COVID-19 in our health system in New York State from February 1, 2020 through May 1, 2020. We limited our analysis to patients aged 30 years to 60 years at time of testing. We further restricted our analysis to patients with an isolated diagnosis of hypertension, excluding patients with diabetes, cardiovascular disease, psychiatric disorders, respiratory diseases, cancer, and autoimmune disease. We created a two by two table based on positive or negative COVID-19 test status and presence or absence of ACE Inhibitor or ARB in the hypertension regimen. We used a chi-squared test to determine if there is statistical difference between both groups.

Results:
The mean age of COVID-19 positive patients was 48.5 years, and mean age of COVID-19 negative patients was 47.6 years. The use of ACE inhibitors or ARBs was more common in COVID-19 negative patients at 60.1% (40 of 66), as compared to 42.1% (16 of 38) in COVID-19 positive patients. This difference of 18.0% was not statistically significant based on Chi-squared test ($p = 0.08$, 95% CI -1.8% to 36.0%).

Conclusion:
In this retrospective observational study of patients aged 30 to 60 years with an isolated diagnosis of hypertension tested for COVID-19 in our health system, presence of ACE inhibitor or ARB was not associated with a significant difference in incidence of COVID-19 positive status.