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"An Analysis of Patients who Developed AKI upon Admission to an Academic Tertiary Care Center during the First Month of the Acceleration Phase of COVID-19 in New Orleans, LA"

Introduction: The SARS-CoV2 virus targets the ACE2 receptor, an enzyme abundant in lung and renal epithelium. At the start of the COVID-19 pandemic, clinicians focused their efforts on the respiratory-related effects of the virus. As the pandemic progressed, it became increasingly evident that renal manifestations of the virus were widespread. Specifically, acute kidney injury (AKI) emerged as a prominent manifestation of severe COVID infections. As evidenced by new data continuing to surface in China, and now in the US, there have been several studies pointing to a positive relationship between rates of AKI and mortality among patients infected with SARS-CoV2. In this study, we analyzed the clinical characteristics and outcomes of patients with COVID-19 who developed AKI upon admission to a single, tertiary care center in New Orleans, LA.

Methods: A retrospective cohort study was conducted with patients admitted to a tertiary care center in New Orleans, LA with positive SARS-CoV-2 testing from March 9th to March 31st, 2020, who developed AKI (defined by KDIGO). For those with positive SARS-CoV-2-tests, various data was abstracted via EPIC into a REDCap database. All charts were reviewed until September 9th, 2020 to allow for a minimum of 4 months of follow up for all patients.

Results: 249 patients were hospitalized during the month of March 2020 who had screened positive for SARS-COV-2 via RT-PCR nasopharyngeal swab. 118 (47%) of these patients developed AKI while admitted to our institution with the median age of these patients being 66 years old. Of the 118 patients, 45 had low stage (1) AKI and 73 had high stage (2 or 3) AKI. 39 patients required dialysis, 36 of which had Stage 3 AKI. 2 dialysis patients had Stage 2 AKI and 1 had Stage 1 AKI. Statistical significance was seen ICU admin, age, ventilation, creatinine upon admission, phosphorus, BUN, albumin, and LDH levels in patient AKI stage and dialysis.

Conclusion: Development of AKI was a significant effect of SARS-COV-2 infection in our population. This study has several limitations. First, this was a retrospective analysis subjected to the shortcomings of conducting a chart review. Second, although this study reveals one hospital's unique experience as a large, academic, safety net hospital, this is a single-center study that does not represent the entire city of New Orleans or Louisiana's experience with COVID-19. While we obtained a minimum of 4 months of follow up on our study cohort, we are limited to viewing only the medical records within our hospital's network. Therefore, if patients were readmitted outside of our healthcare network, we did not report such data, and therefore it was not included in our outcomes data.