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102 A Comparison of Presenting Characteristics, Comorbidities, and Outcomes of Those Admitted to the Intensive Care Unit Between Community and Urban Emergency Departments in Arizona



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Background: With the rapid spread of SARS-CoV-2 across the globe, numerous authors have noted different patient characteristics that may relate to an increased admission rate to an intensive care unit (ICU). However, little data has been presented comparing these characteristics among those who receive care at either a rural or urban emergency department (ED).

Study Objective: To compare the clinical characteristics and outcomes of patients with COVID-19 admitted to the ICU from rural and urban EDs.

Methods: A retrospective, multi-center cohort study of adult patients who required hospitalization between March 01, 2020 and July 01, 2020 due to confirmed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection from two rural and one urban ED in Arizona were included in analysis. Research assistants who were blinded to the study hypothesis were trained on proper data abstraction prior to the collection of data by the study team. With adherence to a quality-controlled protocol and structured abstraction tool, research assistants manually collected patient demographics, ED laboratory values, initial vital signs, total hospitalizations, ICU admissions, and mortality in a with a one-to-one allocation ratio non-White and White patients. Comparisons of the comorbidities among patients transferred to the ICU in urban and rural hospitals were conducted with the chi-squared analysis. Factors that may predict transfer to the ICU were determined via a stepwise multivariable binomial logistic regression.

Results: A total of 304 patients (175 urban and 129 rural) with confirmed SARS-CoV-2 infection were admitted to the hospital during the study period with 63 patients (24 urban vs 39 rural; OR=2.1, $p=0.01$) being admitted to the ICU. Of those admitted to the ICU, a total of 21 (33.3%) were female (11 urban and 10 rural). The median age of patients admitted to the ICU from the urban cohort was 66.0 years old (IQR=35.0) and from the rural cohort was 62.6 years (IQR=28). The most common comorbidity seen in both urban and rural patients admitted to the ICU was hypertension (12 [50%] urban; 21 [53.8%] rural). In the overall cohort, multivariable logistic regression showed an increase in the odds of ICU admission among patients presenting with concurrent bacterial infection ($p=0.043$), elevated temperature ($p=0.002$), respiratory rate ($p=0.003$), white blood cells ($p=0.034$), and reduced hemoglobin levels ($p=0.014$). Across the total cohort, these factors predicted transfer to the ICU with a sensitivity of 39.5% and specificity of 95.2%.

Conclusion: Patients with confirmed SARS-CoV-2 are more likely to require critical care intervention if presenting to the emergency department with concurrent bacterial infection, elevated temperature, respiratory rate, white blood cells, and reduced hemoglobin. The degree to which these factors generalize between urban and rural hospitals remains to be elucidated.

103 Obesity Is Not Associated With Mortality In COVID-19 Pneumonia



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Study Objective: Currently there is conflicting evidence regarding the impact of obesity on patient outcomes in COVID-19 pneumonia. Specifically, obesity may be associated with severe pneumonia, hypoxia, intubation and mortality. The CXR opacity scoring system has been shown to characterize pneumonia severity in COVID-19 patients. The aim of this study is to evaluate the association between obesity, pneumonia severity and mortality.

Methods: A retrospective chart review was conducted for April 2020 at an urban ED located in a medically underserved region. Inclusion criteria consisted of adult ED

patients who were admitted with COVID-19 pneumonia. An EM attending and senior resident determined the CXR opacity scores in severity ranging from 0 to 6. Scores ≥ 3 indicate a severe pneumonia. Inter-rater agreement was determined based on the kappa coefficient. Demographic information, Pulse Oximetry (PO), Body Mass Index (BMI), intubation requirement and mortality were analyzed using chi-square and student's t -test.

Results: 306 patients met inclusion criteria. The mean age was 61.9 ± 14.7 years and there were 40.2% male patients. The mean BMI and PO were 30.1 ± 6.4 and 88.7 ± 3.9 , respectively. Pneumonia on CXR was 85.3% bilateral, 6.5% left and 8.2% right. 43.5% of patients were given CXR opacity scores ≥ 3 for severe pneumonia. The kappa coefficient for CXR opacity scoring agreement was 0.47. Patients were categorized as BMI ≤ 25 (63, 20%), $> 25-30$ (101, 33%), $> 30-35$ (82, 27%), $> 35-40$ (32, 10.5%), > 40 (23, 7.5%) and undetermined (5, 2%). There were 84 (27.4%) patients with hypoxia determined with triage PO ≤ 85 . We found that 48 (16%) patients were intubated in the ED. The overall in-hospital mortality was 21%. There was no association between BMI and hypoxia ($P=0.38$), CXR opacity score ($P=0.71$), intubation ($P=0.67$) or mortality ($P=0.39$).

Conclusion: In our ED cohort of COVID-19 pneumonia patients, we found that obesity was not associated with severity of pneumonia, hypoxia, intubation or mortality. Further research is therefore needed to fully understand the role of obesity in COVID-19 outcomes.

104 Inflammation-Type Dysbiosis of the Oral Microbiome Associates With the Duration of Coronavirus Disease 2019 (COVID-19) and Long COVID Disease States



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Study Objectives: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused the pandemic, Coronavirus Disease 2019 (COVID-19), with many of those infected now facing the burden of prolonged symptoms after they have cleared the infection. The most debilitating of these, called post-acute sequelae of COVID-19 (PASC), known colloquially as long COVID, is thought to be linked to immune dysregulation due to harmful inflammation, with the exact causes being unknown. Given the oral-lung aspiration axis being a key factor to many respiratory infectious processes and the microbiome's previous role in systemic inflammation, we aimed to examine the relationship between the oral microbiome and the duration of symptom, including development of long COVID.

Methods: Symptom duration was determined via follow-up among a cohort of emergency department patients admitted to the hospital for COVID-19 infection. Tongue swabs were collected from patients presenting with symptoms concerning for COVID-19 infection. Patients with confirmed COVID-19 infection were followed until resolution of all symptoms. Bacterial composition of oral samples was determined by metagenomic sequencing. We used random forest classification modeling to identify microbiota and clinical covariates that associate with longer duration of symptoms.

Results: Of the 31 patients followed, 17 developed ongoing symptomatic COVID-19 (symptoms > 4 weeks) and 10 went on to long COVID (symptoms > 8 weeks). Patients with prolonged symptoms had higher abundances of microbiota that induce inflammation, such as members of the genera *Prevotella* and *Veillonella*. Notable is the increased abundances of species that produce inflammation causing lipopolysaccharides and the similarity of long COVID patients' oral microbiome to those of patients with chronic fatigue syndrome.

Conclusion: This is the first study to describe the microbiome's association with long COVID and explore the possibility that the oral microbiome may play a role in this disease.

105 Sexually Transmitted Infection Testing at an Urban Hospital Pre- and Post-SARS-CoV-19 Pandemic



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Study Objectives: To determine whether behavior changes made during the SARS-CoV-19 pandemic impacted the number of patients being tested and the positivity rate