Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

Background. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has led to increased hospitalizations and utilization of critical care services. There are few studies describing co-morbidities and demographics associated with patients readmitted within 30 days of discharge. The purpose of this study is to describe this patient population.

Methods. This was a single-center, retrospective study at The Ohio State University Wexner Medical Center to identify patients who were admitted secondary to SARS-CoV-2 and required readmission within 30 days due to complications that might be associated with COVID-19. Adults admitted between 3/15/2020 and 11/15/2020 were included in this study. Baseline demographics including age, gender, and race in addition to select comorbidities were identified.

Results. 250 patients were identified who were readmitted for various reasons. Readmitted patients had a median age of 55 years, 44% were male, and 41.2% were Black/African-American. 62.4% of the population was obese (BMI 23.0 kg/m²) with 21.6% with a BMI ≥ 40 kg/m². The top three co-morbidities seen included Diabetes Mellitus (DM) (32.2%), Hyperlipidemia (48.3%) and Hypertension (51.7%).

Conclusion. Though this study lacked a comparator group, it is clear that patients readmitted with all cause etiologies were disproportionally Black/African-American and obese, with a high prevalence of DM, hyperlipidemia, and hypertension. We recommend close monitoring of patients in these groups to reduce COVID-19 readmissions. This is the first step in identifying which patients may be more likely to develop complications and required readmission, the next step is to compare these patients to those that were not readmitted to develop a risk model for readmission.

Disclosures. Carl Malvestuto, M.D., Lilly (Scientific Research Study Investigator) Regeneron Inc. (Scientific Research Study Investigator) ViIV Healthcare (Advisor or Review Panel member) Mohammad Mahdood Sobhanie, M.D., Regeneron (Scientific Research Study Investigator) Regeneron (Scientific Research Study Investigator, Was a sub-investigator for Regeneron 2066 and 2069)

319. Presepsin as a Prognostic Biomarker for Mortality in COVID-19 Patients vs Community-Acquired Pneumonia (CAP) Patients

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Background. Lower respiratory tract infections such as community-acquired pneumonia (CAP) and coronavirus disease 2019 (COVID-19) are the main current causes of mortality worldwide. Several scores and biomarkers have been proposed to identify patients at risk of dying, with unclear results. Presepsin is a glycoprotein expressed on the surface of the membrane of monocytes and macrophages and its utility has been proven in sepsis as a predictor of severity and treatment response. However, it is unknown the utility of this biomarker as a mortality predictor among COVID-19 and CAP patients. Thus, the aim of this study was to determine the utility of serum presepsin to identify patients at risk of dying due to COVID-19 and CAP.

Methods. A prospective observational study was conducted at Clinica Universidad de La Sabana, Colombia. We included 240 patients who required hospital admission due to CAP or COVID-19. Plasma samples were collected within 24 hours of admission. The presepsin concentration was quantified using the PATHFAST system. Afterwards, a two-tailed test was used to compare mortality rates among patients and their presepsin plasma concentration. Lastly, the ROC was calculated to determine presepsin's sensitivity as a mortality predictor.

Results. A total of 88 patients with CAP and 152 patients with COVID-19 were included in the study. The median [with IQR] in Presepsin plasma concentration was higher in all patients who died (920 [573 - 2340] vs 573 [307.5 - 1052.5], p-value=0.0001). Furthermore, comparing to the study group, the median concentration of presepsin was higher in patients deceased by COVID-19 than those who survived. (1358 [642.8 - 2976.8] vs 570 [335.2 - 1007.5], p-value=0.0001). In addition, the area under the curve (AUC) ROC of presepsin to predict risk of mortality was 0.769. DeLong’s test comparing ROC curves in COVID-19 and CAP patients had a p-value=0.073.

Conclusion. Plasma concentrations of presepsin plasma were higher among COVID-19 patients who died. Moreover, serum concentration of presepsin were not useful to identify CAP patients at risk of dying. However, practical use of Presepsin as a prognostic biomarker of severity is yet to be assessed as further studies are needed.

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320. Differentiating Dengue from COVID-19: A Diagnostic Challenge in the Tropical Regions of the Americas

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Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

Background. The differentiation between dengue and coronavirus disease 2019 (COVID-19) diagnoses is a challenge in tropical regions due to the similarity of symptoms and limited access to specific diagnostic tests for each disease. The objective of this study was to describe the initial symptoms and laboratory test values of patients who presented to the emergency department with dengue or COVID-19. A cross-sectional study was performed in a single center in Cali, Colombia.

Methods. The inclusion criteria were patients with a diagnosis of dengue or COVID-19 who were older than 14 years of age. All patients experienced fever or other symptoms for fewer than ten days. Linear regression was performed to evaluate the differences in the neutrophil-lymphocyte ratio (NLR) between patients diagnosed with COVID-19 and dengue and was adjusted for sex and age group (<31 and ≥31 years). The sample size was calculated to test the hypothesis that the median NLR in COVID-19 patients is higher than that in dengue patients. A p-value < 0.05 was considered statistically significant for all analyses.

Results. A total of 93 patients were included: 70 with dengue and 23 with COVID-19. Dengue patients were younger than COVID-19 patients. There were significant differences between dengue and COVID-19 patients regarding platelet count (p< 0.01), neutrophil count (p< 0.01), neutrophil-lymphocyte ratio (NLR) (p< 0.01), and abnormal alanine transaminase (ALT) (p=0.03). The NLR was significantly higher in COVID-19 patients than in dengue patients (p< 0.01).

Table 1. Demographics, clinical and laboratory characteristics in COVID-19 and dengue patients

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between dengue and COVID-19. These findings could be useful in geographical areas with a lack of resources.

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321. Clinical Characteristics of Hospitalized HIV Patients with COVID-19 in Miami
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**Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes**

**Background.** HIV is a significant risk factor for acquiring SARS-CoV-2 infection and is associated with increased risk of mortality from COVID-19. Information on the clinical characteristics of persons living with HIV (PLWH) hospitalized due to COVID-19 infection are inconsistent and sparse. As Miami area is currently the epicenter of new HIV infection, an understanding of the clinical characteristics of COVID-19 in hospitalized HIV patients in South Florida is needed.

**Methods.** This is a single center retrospective case series analysis of individuals with HIV hospitalized with COVID-19 from March 1, 2020 to March 31, 2021. We analyzed relevant data related to demographics, comorbidities, clinical presentation, HIV viral load and CD4 profiles, serum inflammatory markers, COVID-19 treatment and survival.

**Results.** 25 patients were identified. The demographic, socioeconomic and clinical data are described in Table 1. 88% of subjects were on HIV antiretroviral treatment (ART) but only 64% had undetected viral load and only 60% had CD4 counts > 200 cells/mm³. More study results are shown in Figures 1 and 2. The serum ferritin ranged from 29 to 40,577ng/mL while serum creatinine ranged from 0.5 to 2.8mg/dL, mean 1.04± 0.46mg/dL. The Pearson correlation between serum ferritin and serum creatinine (SCreat) was 0.715, p < 0.001 and between lymphopenia and SCreat, it was 0.544, p=0.005. 40% of subjects with CD4 < 200 cells/mm³ died compared to 33% with CD4 > 200 cells/mm³.

**Conclusion.** This first case series of hospitalized COVID-19 patients in PLWH illustrate important demographic and socioeconomic trends with an imbalance towards African Americans. The group mortality rate appear to be higher compared to the overall mortality rate of COVID-19 reported in the general population or other published HIV-COVID-19 coinfection case series. This is not surprising given the fact that only 64% of the cohort had undetected viral load and only 60% had CD4 counts > 200 despite reported 88% ART use. Correlations between lymphopenia and serum ferritin on one hand and serum creatinine on the other hand should be further explored in a larger case series or prospective study. Since COVID-19 mortality is related to HIV severity, improving socioeconomic status and ART compliance could play a role in positively improving outcome of hospitalized HIV-COVID-19 patients.

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322. Risk Factors for COVID-19 Disease Severity Using Electronic-Health Records in a Real-World Cohort in the United States
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**Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes**

**Background.** Over 32 million cases of COVID-19 have been reported in the US. Outcomes range from mild upper respiratory infection to hospitalization, acute respiratory failure, and death. We assessed risk factors associated with severe disease, defined as hospitalization within 21 days of diagnosis or death, using US electronic health records (EHR).

**Methods.** Patients in the Optum de-identified COVID-19 EHR database who were diagnosed with COVID-19 in 2020 were included in the analysis. Regularized multivariable logistic regression was used to identify risk factors for severe disease. Covariates included demographics, comorbidities, history of influenza vaccination, and calendar time.

**Results.** Of the 193,454 eligible patients, 36,043 (18.6%) were hospitalized within 21 days of COVID-19 diagnosis, and 6,397 (3.3%) died. Calendar time followed an inverse J-shaped relationship where severe disease rates rapidly declined in the first 25 weeks of the pandemic. BMI followed an asymmetric V-shaped relationship with highest rates of disease severity observed at the extremes. In the multivariable model, older age had the strongest association with disease severity (odds ratios and 95% confidence intervals of significant associations in Figure). Other risk factors were male sex, uninsured status, underweight and obese BMI, higher Charlson Comorbidity Index, and individual comorbidities including hypertension. Asthma and overweight BMI were not associated with disease severity. Blacks, Hispanics, and Asians experienced higher odds of disease severity compared to Whites.

**Conclusion.** Significant associations (odds ratio and 95% confidence intervals) with COVID-19 severity (hospitalization or death), adjusted for geographical division.