337. SARS-CoV-2 Viral Load Does Not Predict Incident Venous Thromboembolism in COVID-19

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The EPICC Study Group

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

Background. The risk factors of venous thromboembolism (VTE) in COVID-19 warrant further study. We leveraged a cohort in the Military Health System (MHS) to identify clinical and virological predictors of incident deep venous thrombus (DVT), pulmonary embolism (PE), and other VTE within 90-days after COVID-19 onset.

Methods. PCR or serologically-confirmed SARS-CoV-2 infected MHS beneficiaries were enrolled via nine military treatment facilities (MTFs) through April 2021. Cases characteristics were derived from interview and review of the electronic medical record (EMR) through one-year follow-up in outpatients and inpatients. qPCR was performed on upper respiratory swab specimens collected post-enrollment to estimate SARS-CoV-2 viral load. The frequency of incident DVT, PE, or other VTE by 90-days post-COVID-19 onset were ascertained by ICD-10 code. Correlates of 90-day VTE were determined through multivariable logistic regression, including age and sampling time-adjusted log10 SARS-CoV-2 GE/reaction as a priori predictors in addition to other demographic and clinical covariates which were selected through stepwise regression.

Results. 1473 participants with SARS-CoV-2 infection were enrolled through April 2021. 21% of study participants were inpatients; the mean age was 41 years (SD = 17.0 years). The median Charlson Comorbidity Index score was 0 (IQR = 0 - 1, range = 0 - 13). 27 (1.8%) had a prior history of VTE. Mean maximum viral load observed was 1.65 × 10^10 genome equivalents/reaction. 36 (2.4%) of all SARS-CoV-2 cases (including inpatients and outpatients), 29 (9.5%) of COVID-19 inpatients, and 7 (0.6%) of outpatients received an ICD-10 diagnosis of any VTE within 90 days after COVID-19 onset. Logistic regression identified hospitalization (aOR = 11.1, p = 0.003) and prior VTE (aOR = 6.2, p = 0.009) as independent predictors of VTE within 90 days of symptom onset. Neither age (aOR = 1.0, p = 0.50), other demographic characteristics, nor SARS-CoV-2 viral load (aOR = 1.1, p = 0.60) were associated with VTE.

Conclusion. VTE was relatively frequent in this MHS cohort. SARS-CoV-2 viral load did not increase the odds of 90-day VTE. Rather, being hospitalized for SARS-CoV-2 and prior VTE history remained the strongest predictors of this complication.

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339. COVID-19 Mortality in a Private Hospital in Mexico City

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

**Background.** According to the Institute of Global Health Science (IGHS), mortality for Covid-19 patients treated in public hospitals in Mexico ranges between 30-50%, decreasing to 20% in private health care facilities. Our objective was to determine factors associated with Superinfections in Patients with COVID-19 treated in public hospitals in Mexico. Our study aimed to determine factors associated with increased risk of superinfections.

**Methods.** We include all patients that were admitted to hospital Medica Sur, in the south part of Mexico City during year 2020. We analyzed the total mortality presented in all our patients with a follow up of two months, and relay that to age and gender.

**Results.** During year 2020, we admitted in our hospital 1,075 patients with confirmed diagnosis of COVID-19 through nasopharyngeal molecular test; 772 were male (71.8%) with more than 50% between 40 and 59 years, while females were more frequent between 40 and 69 years age. Seventy-four patients (6.88%) died during hospitalization; 59 (79.7%) males and 15 females. Mortality rate was clearly related to age (figure 1) with 30% mortality for males between 80-89 years and 19% for females. Mortality rate by gender and age

### Significant Variables with Correlation of Increased Superinfection Risk

| Variables                  | p value |
|----------------------------|---------|
| Black Ethnicity            | 0.046   |
| Chronic Kidney Disease     | 0.008   |
| ICU upon Admission         | <0.001  |
| Lymphocytopenia            | 0.007   |
| Tocilizumab                | 0.029   |

Multivariable analysis results for increased superinfection risk. All baseline characteristics with univariate analysis resulting in a p value of < 0.2 were included in the backwards, stepwise logistic regression model.

**Conclusion.** In conclusion, our retrospective cohort study reports a superinfection rate of 13.9%. Presence of a superinfection significantly increases the likelihood of mortality within 28-days from admission. Characteristics that have a significant correlation to increased risk of superinfections include Black ethnicity, chronic kidney disease, ICU upon admission, and receipt of tocilizumab.

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**Abstracts**

**340. Outcomes of COVID-19 in Hospitalized SOT Recipients: Experience in Colombia, South America**

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

**Background.** SOTs (SOT) recipients with COVID-19 are considered to be at high risk of severe clinical outcomes. Several descriptive studies have reported a high frequency of intensive care unit admission and death rates. There is a lack of evidence regarding the best approach for immunosuppressive therapy in SOT recipients with COVID-19.

**Methods.** We performed a single-centered, retrospective, observational study of all SOT recipients with SARS-CoV-2 confirmed infection RT-PCR from nasopharyngeal swab specimens who were admitted to the emergency department from March 25 to September 1, 2020. Glucocorticoid therapy was administered according to the criteria of the attending physician. We classified glucocorticoid therapy as high dose if the patient received dexamethasone 6 mg/day or methylprednisolone 40 mg/day, and a high dose if the patient received methylprednisolone 80-160 mg/day. Specimens collected within the first 48 hours were defined as confection, while specimens collected after 48 hours were defined as hospital-acquired superinfection.

**Results.** Of a total of 43 SOT recipients with COVID-19, 17 (39%) required intensive care unit admission. 32 (74.4%) required glucocorticoid therapy: 13 received low dose and 19 high dose. 15 (34.8%) had secondary infections. A total of 12 (27.9%) presented hospital-acquired bacterial superinfections, mostly caused by P. aeruginosa, most of isolation were from respiratory tract cultures. The mean interval from hospital admission to superinfection diagnosis was 9 (7-13) days. Community-acquired co-infection at COVID-19 diagnosis was documented only in 3 (6.9%) patients, mostly caused by K. Pneumoniae, all isolations were from urine culture. Glucocorticoid therapy was indicated in 32 (80%) patients, received high dose and 13 low doses. Overall hospital mortality was 17.5%. ICU mortality was 41%. Overall mortality in the high dose steroids group was 37 % vs. 0% in the low dose group.

**Conclusion.** Our results showed a higher frequency of superinfection in SOT recipients with COVID-19 compared to previous reports, and higher ICU mortality. Further studies are needed to establish the best approach for glucocorticoid therapy in SOT recipients with COVID-19.

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**341. Evaluation of Antimicrobial Use and Prescribing Patterns During the COVID-19 Pandemic in Patients Receiving Tocilizumab**

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

**Background.** Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infected patients experience systemic inflammatory and respiratory distress, which appears to be associated with increased cytokine release. During the peak of coronavirus disease 2019 (COVID-19), tocilizumab was used to treat critically ill patients with potential cytokine storm. However, tocilizumab has an increased risk of developing serious infections.

**Methods.** This retrospective observational chart review was approved by Institutional Review Board and evaluated patients admitted from March to November 2020, who were SARS-CoV-2 positive and received tocilizumab for the treatment group and no tocilizumab for the control group. The primary endpoint is usage of antimicrobials. The secondary endpoints are development and outcomes of secondary infections and hospital length of stay and readmission. A Chi square test was used for categorical data and Mann-Whitney test was used for continuous data.

**Results.** A total of 160 patients were included in analysis, with 80 in each arm. 36% of patients in the treatment group required antibiotics compared to 35% in the control group (p = 0.0015), with the highest usage of anti-MRSA coverage, beta-lactams, cephalosporins, and carbapenems in both groups. Antifungal therapy was required in 21.3% of patients in the tocilizumab group compared to 6.3% in the control group (p = 0.0059), with echinocandins being the most used class in both groups. The median days of antimicrobial use in the tocilizumab group was 14 (IQR 7, 24.5) compared to 9 (IQR 6.5, 19) in the control group (p = 0.3346). In the treatment group, 60% of patients developed a secondary infection compared to 35% of patients in the control group (p < 0.0017). Secondary infection treatment failure was observed in 75% of tocilizumab patients compared to 60.7% of control patients (p = 0.1910). In hospital mortality was 50% in patients who received tocilizumab compared to 27.5% in the control group (p < 0.0039).

**Conclusion.** Patients on tocilizumab received more antimicrobials, but with a similar spectrum of antimicrobial coverage. Patients who received tocilizumab had