Results. A total of 103 SOT patients were identified, 13 candidates and 90 recipients.
Of the SOT candidates, there were 1 heart, 3 kidney, and 9 liver transplant candidates.
The SOT recipient cohort included 33 heart, 6 lung, 20 kidney, 3 liver and 2 multi-visceral recipients. A significant difference in age was observed between candidates and recipients with candidates being younger with median age of 4.5 years as opposed to recipient's median age of 12.8 years (p=0.0003). The majority of patients, 70 of 101 (69%), were symptomatic. Most common symptoms reported were fever in 34/70 (49%), cough in 31/70 (44%), and headache in 19/70 (27%). A higher percentage of candidates (31%, 4 of 13) were hospitalized for acute COVID-19 infection compared to (17%, 15 of 90) of recipients. A transplant candidate who ultimately died from underlying illness and COVID-19 was the only patient in the cohort who required mechanical ventilation. More deaths (2/13, 15%) occurred in transplant candidates with COVID-19 compared to transplant recipients with COVID-19 (1/90, 1%, p=0.04); however, 2 of the deaths occurred after recovery from acute COVID-19 illness.

Conclusion. Our study suggests that pediatric candidates who are actively listed for transplant with underlying conditions have more severe acute COVID-19 illness than pediatric SOT recipients despite their immunosuppression based on the higher mortality observed in the transplant candidates. Prospective studies are needed to better understand which specific patients are at increased risk for mortality from COVID-19.

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277. Low Rates of Bacterial Co-infection in Hospitalized Patients with COVID-19
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Temple University COVID-19 Research Group

Methods. We performed a retrospective chart review on patients admitted to our health system between March and May 2020 with confirmed COVID-19 by nasopharyngeal PCR. We reviewed patients with positive cultures from urine, blood, sputum, and sterile sites. Positive cultures were reviewed to determine if they represented a true infection versus a contaminant or colonization. Patients with true infections were categorized as having a co-infection (CI) if the positive culture was collected within 48 hours of initial positive SARS-CoV-2 PCR test. Additional data was collected on patient demographics, types of infections, organisms grown, and antibiotic usage.

Results. 902 patients were admitted with positive SARS-CoV-2 tests during the study period. Of these, 47 patients (5.2%) had a bacterial CI. Some patients had more than one CI, with 53 total CIs identified. The median age of patients with CI was 66 years old (39 – 90). Tables 1 and 2 describe patient characteristics and infections. A subgroup analysis on types of bacteria was done on the 20 patients with a respiratory CI, who accounted for 2.2% of all COVID-positive patients admitted during the study period. In these infections, Staphylococcus aureus, Streptococcus species, and Haemophilus influenzae were the most common organisms, accounting for 60%, 15%, and 10% infections, respectively.

Conclusion. The overall rate of CIs in patients admitted with COVID-19 was low. Some of these CIs may represent an “incidentally positive” COVID-19 test if a patient presented with one infection and had asymptomatic carriage of SARS-CoV-2 when community prevalence was high. Further analysis is needed to evaluate specific risk factors for co-infection.

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278. Immunosuppressed Patients with Prolonged Viral Shedding of SARS-COV-2
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Table 1. Patient Characteristics

| Type | Pneumonia N=20 | Bloodstream N=14 | Urinary N=17 | Penicillin N=1 |
|------|----------------|-----------------|-------------|--------------|
| Methicillin-susceptible Staphylococcus aureus | 7 (35) | 2 (14) | 0 (0) |
| Methicillin-resistant Staphylococcus aureus | 5 (25) | 1 (7) | 0 (0) |
| E. coli | 0 (0) | 2 (14) | 8 (53) |
| Streptococcus sp. | 3 (15) | 1 (7) | 0 (0) |
| K. pneumoniae | 5 (25) | 1 (7) | 0 (0) |
| Group A streptococcus | 3 (15) | 0 (0) | 2 (14) |
| Enterococcus sp. | 0 (0) | 2 (14) | 0 (0) |
| Citrobacter sp. | 2 (10) | 0 (0) | 0 (0) |
| Proteus sp. | 0 (0) | 2 (14) | 0 (0) |
| Morganella sp. | 0 (0) | 0 (0) | 0 (0) |
| Pseudomonas sp. | 0 (0) | 0 (0) | 0 (0) |
| Enterobacter sp. | 0 (0) | 0 (0) | 0 (0) |
| Serratia sp. | 0 (0) | 0 (0) | 0 (0) |
| Peptostreptococcus sp. | 0 (0) | 0 (0) | 0 (0) |

Total* 21 14 20 2
Some patients had more than one organism and/or infection

Conclusion. The overall rate of CIs in patients admitted with COVID-19 was low. Some of these CIs may represent an “incidentally positive” COVID-19 test if a patient presented with one infection and had asymptomatic carriage of SARS-CoV-2 when community prevalence was high. Further analysis is needed to evaluate specific risk factors for co-infection.
Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

Background. Most individuals diagnosed with mild to moderate COVID-19 are no longer infectious after day 10 of symptom onset and those with severe or critical illness from COVID are typically not infectious after day 20 of symptom onset. Recovered persons can continue to test positive for SARS-CoV-2 by PCR via detection of non-viable RNA in nasopharyngeal specimens for up to three months (or longer) after illness onset. It is also known that severely immunocompromised patients may produce replication-competent virus greater than 20 days from symptom onset and may require, per CDC recommendations, “additional testing and consultation with infectious diseases specialists and infection control experts”. We aim to discuss four case studies of severely immunocompromised patients who exhibited signs of persistent COVID-19 infection of COVID and how we managed transmission-based precautions in our hospital through sequencing and evaluation of cycle thresholds (CT) values and subgenomic RNA detection.

Methods. Nasopharyngeal (NP) samples were collected on patients exhibiting persistent COVID like symptoms. These samples underwent N gene and N gene subgenomic RNA (sgRNA) real-time reverse transcription polymerase chain reaction (rRT-PCR) testing.

Results. Analysis of longitudinal SARS-CoV-2 sequence data demonstrated within-patient virus evolution, including mutations in the receptor binding domain and deletions in the N-terminal domain of the spike protein, which have been implicated in antibody escape. See Figures 1 and 2.

Figure 1. Timelines of Identified Patients 1 and 2

Patient 1: 46-year-old woman with recently diagnosed stage IV diffuse large B-cell lymphoma for which she was treated with 2 cycles of R-CHOP. Patient 2: 38-year-old woman with history of myelodysplastic syndrome, peripheral blood stem cell transplant with chronic graft versus host disease of the GI tract, skin, and eyes as well as CMV enteritis, and she was maintained on rituximab, mycophenolate mofetil, prednisone, and monthly IVIG without recent changes to her immunosuppression.

Figure 2. Timeline of Identified Patients 3 and 4

Patient 3: 44-year-old man with prior history of thymoma s/p thymectomy. Patient 4: 46-year-old man who was initially diagnosed with marginal zone lymphoma approximately 2.5 years ago. He was initially treated with rituximab and achieved remission. He was then continued on maintenance rituximab without significant complications for a planned two years.

Conclusion. Differentiating between prolonged viral shedding of non-infectious RNA and persistent replicating viable virus can be difficult to determine without full evaluation of a patient's clinical picture and timeline. Consultation between laboratory, infectious diseases, and infection prevention experts to provide appropriate level of guidance for precautions and treatment may be warranted. Testing by PCR and analysis of CT values may provide key findings of viral replication in immunocompromised hosts, indicating the need for evaluation of additional treatment and maintaining isolation status in healthcare settings.

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279. Clinical Characteristics of Critically Ill Patients with COVID-19 and Invasive Pulmonary Aspergillosis: A Case Series From Mexico City

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

Background. COVID-19 has emerged as a global public health emergency and has been the main cause of intensive care admission during the pandemic. COVID-19-associated pulmonary aspergillosis (CAPA) has been reported in case series of critically ill patients. However, the criteria for CAPA diagnosis has been inconsistent among most of the reports. Mexico has been widely affected by SARS-CoV-2. We present a series of CAPA cases at a teaching hospital in Mexico City.

Methods. We performed a retrospective analysis of COVID-19 patients admitted to the ABC Medical Center from May 14, 2020, to May 1, 2021. Including only those with critical COVID-19 who required invasive mechanical ventilation (IMV). Patients with a diagnosis of CAPA were analyzed. We followed the 2020 EECM/ISHAM consensus criteria for CAPA diagnosis. Aspergillus antigen testing in tracheal aspirate and serum was done with Aspergillus-specific galactomannan test (GF) ELISA (Euroimmun Medizinische Labordiagnostika).

Results. Among the 230 admitted patients who required IMV, we identified 49 (21.3%) cases of CAPA, 46 probable CAPA and 3 proven CAPA. Nineteen (38%) of those died in the hospital. The mean age was 64.5 ± 12.6 years and 11 were female. Proven CAPA was diagnosed with culture in three cases (one A. niger, one A. terreus and one A. fumigatus). Probable CAPA was diagnosed by a positive serum GP in 27 (55.1%) patients and by a positive bronchoalveolar lavage (BAL) GP in 29 (59.2%) cases. Seven patients had both serum and BAL positive GP. Forty-six (93.9%) patients received corticosteroids, and 22 (49.9%) were treated with tocilizumab before CAPA diagnosis. All but one survived asepticazole as CAPA treatment. We detected 35 (71.4%) patients who had a bacterial co-infection. Eighteen of those died (51.4%) compared to only one died in the subgroup without co-infections (7.1%). The mean time from hospital admission to CAPA diagnosis was 6.2 days (SD 7.1) among those who survived compared to 13.2 (SD 6.3) days in those who died p< 0.01.

Conclusion. CAPA had a lower prevalence than previously reported in other series. However, it appears to be linked to high mortality when it occurs with other bacterial co-infections and when it is diagnosed late from admission.

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280. Burden of Hyperglycemia in Patients Receiving Dexamethasone for Severe COVID-19

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

Background. Previous studies demonstrated the adverse impact of corticosteroids on blood glucose homeostasis in both diabetics and non-diabetics. This raises concerns for corticosteroid use in severe COVID-19 where the population is enriched for those at highest risk of severe disease, such as diabetics and patients with obesity. Previous studies of dexamethasone in COVID-19 were limited by the inability to assess steroid-induced hyperglycemia or the impact of hyperglycemia on hospital resources.

Objective. The study aimed to describe the clinical characteristics, management, and outcomes related to hyperglycemia, before and after dexamethasone therapy was used as the standard of care in patients with severe COVID-19.

Methods. We performed a pre/post retrospective study of patients with severe COVID-19 pneumonia admitted from May to July 2020 to Harbor-UCLA Medical Center. 126 patients were evaluated. 64 received dexamethasone and 62 did not. To quantify the effect of dexamethasone on diabetic vs. non-diabetic patients, we documented the average blood glucose and frequency of correctional insulin doses required by each patient group (diabetic with and without dexamethasone, non-diabetic with and without dexamethasone).

Results. While dexamethasone was associated with higher median blood glucose and increased correctional insulin dosing in diabetic patients, there was minimal effect of dexamethasone on hyperglycemia in non-diabetic patients. Furthermore, while non-diabetic patients receiving dexamethasone required more doses of correctional insulin per day vs non-diabetic patients not receiving dexamethasone (0.3 doses per day vs 0.1 doses per day), the frequency of correctional insulin doses required by non-diabetics on dexamethasone remained low at 0.3 doses per day.