Table 3. Plasma inflammatory protein levels.

| Variables | Mean | Median | Upper Quartile | Lower Quartile | Std Dev | P-value |
|-----------|------|--------|----------------|----------------|---------|---------|
| sIL-6      | 3.03 | 2.95   | 3.10           | 2.85           | 0.57    | 0.014   |
| IL-10      | 3.25 | 3.20   | 3.30           | 3.10           | 0.55    | 0.014   |
| IL-15      | 1.01 | 0.97   | 1.03           | 0.95           | 0.05    | 0.007   |
| IL-17A     | 2.59 | 2.50   | 2.70           | 2.40           | 0.52    | 0.009   |
| IL-6       | 5.90 | 5.85   | 5.95           | 5.80           | 0.85    | 0.013   |
| TNF-α      | 3.02 | 2.95   | 3.10           | 2.85           | 0.57    | 0.014   |
| IL-10R     | 0.52 | 0.46   | 0.54           | 0.43           | 0.35    | 0.028   |
| IL-13       | 1.10 | 1.07   | 1.13           | 1.05           | 0.12    | 0.004   |
| IL-16       | 0.26 | 0.25   | 0.27           | 0.24           | 0.03    | 0.001   |
| IL-18       | 0.32 | 0.31   | 0.33           | 0.30           | 0.04    | 0.001   |

Plasma inflammatory protein levels were measured using multiplex ELISA (MDS) and Proximity Extension Assay technology (Olink) recorded during follow-up visit for PCS vs Non-PCS subjects, revealing IL-10 (P=0.0379) was associated with development of PCS.

Conclusion. This study identifies initial clinical and biomarker predictors of PCS in a cohort that is 55% African American.

Figure 2. Antibody ResSARS N IgG

ReSARS N IgG measured in post-covid patients is significantly associated with post-COVID syndrome (P=0.0159). X axis: number of months from symptom onset to blood draw. Y axis: N IgG U/mL.

Figure 3. Spike amino acid mutations

Spike amino acid mutations detected in SARS-CoV-2 from acute-phase respiratory isolates. Nasal swab/saliva samples were collected from subjects with acute COVID-19 at time of enrollment into ClinSeqSer, stored at -80°C followed by RNA isolation and SARS-CoV-2 qRT-PCR. Samples with Ct value of ≤30 were then sequenced using NextSeq (Illumina). All sequences are deposited on GISAID and under BioProject (ID PRJNA681020). X axis: subject ID, with ID number increasing chronologically. Y axis: amino acid position of each mutation moving from N- to C-terminus.

Disclosures. Robert Garry, PhD, Zalgen Labs (Shareholder)

290. Persistence of Long COVID in SARS-CoV-2 Confirmed Cases One-Year Post-Infection

Harrison L. Howe, BS⁠; Danielle A. Rankin, MPH, CIC⁠; Sean M. Bloos, MPH⁠; Kailee N. Fernandez, BS⁠; Seif E. Salih, MD⁠; Rana Tali, MD⁠; Danya Waqfi, MD⁠; Jessica Villarreal, BS⁠; Ahmad Yanis, MD⁠; James Chappell, MD, PhD⁠; Leigh Howard, MD, MPH⁠; Natasha B. Halasa, MD, MPH⁠; Natasha B. Halasa, MD, MPH⁠; Vanderbilt University Medical Center, Goodlettsville, Tennessee; Vanderbilt University Medical Center; Division of Pediatric Infectious Diseases, Nashville, TN

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

Background. Regardless of severity of acute SARS-CoV-2 illness, adults infected with SARS-CoV-2 are at risk for post-acute sequelae of COVID-19. Long COVID is typically classified as symptoms lasting greater than four weeks post-infection. We aimed to evaluate the frequency of resolved and unresolved long COVID symptoms in adults residing in greater Nashville, TN.

Methods. We conducted a longitudinal cohort study of SARS-CoV-2-positive and exposed individuals from March 20 to May 15, 2020. Participants for this analysis were included if 1) ≥18 years; 2) SARS-CoV-2 positive by molecular or antibody testing; and 3) completed a one-year visit. Demographic and illness information were collected at enrollment, and long COVID symptoms were systematically collected at the one-year survey. Long COVID symptoms are defined as an adult experiencing at least one of the following symptoms four weeks post-infection: fatigue, confusion, loss of smell or taste, shortness of breath, chest pain, cough, muscle aches, inability to exercise, or heart palpitations. Unresolved symptoms are defined as an individual with long COVID still experiencing symptoms at the one-year visit.

Results. A total of 115 adults enrolled and completed the one-year survey, of which 63 (54.8%) were SARS-CoV-2-positive symptomatic adults, 33 (29.6%) were female, 5 (8.8%) were of Hispanic ethnicity, and 58 (92%) were white. At the one-year visit, 33 (52%)

Spike amino acid mutations detected in SARS-CoV-2 from acute-phase respiratory isolates. Nasal swab/saliva samples were collected from subjects with acute COVID-19 at time of enrollment into ClinSeqSer, stored at -80°C followed by RNA isolation and SARS-CoV-2 qRT-PCR. Samples with Ct value of ≤30 were then sequenced using NextSeq (Illumina). All sequences are deposited on GISAID and under BioProject (ID PRJNA681020). X axis: subject ID, with ID number increasing chronologically. Y axis: amino acid position of each mutation moving from N- to C-terminus.

Disclosures. Robert Garry, PhD, Zalgen Labs (Shareholder)
reported having long COVID, of which 17 (52%) reported having unresolved symptoms. Fatigue (89%), headache (89%), muscle aches (79%), and cough (77%) were the most common symptoms reported at illness onset (Figure 1). Among 33 adults with long COVID, fatigue (42%), loss of smell (39%), and loss of taste (33%) were most common (Figure 2A). In the 17 individuals with unresolved symptoms, loss of smell (29%) and loss of taste (24%) were commonly reported (Figure 2B).

Figure 1. COVID-19 symptoms reported at enrollment (n=62)

Figure 2. Long COVID (symptoms lasting ≥ 4 weeks) (n=33) (A) and unresolved long COVID symptoms one-year post-infection (n=17) (B) reported on the one-year survey

Conclusion. Half of the adults in our cohort reported long COVID symptoms, with more than quarter of symptoms persisting one-year post-illness. Our findings support that prolonged symptoms up to year after SARS-CoV-2 exposure occur, and future studies should investigate the residual impacts of long COVID symptoms and conditions.

Disclosures. Natasha B. Halasa, MD, MPH, Genentech (Other Financial or Material Support, I receive an honorarium for lectures - it’s a education grant, supported by genetech); Quidel (Grant/Research Support, Other Financial or Material Support, Donation of supplies/kit); Sanofi (Grant/Research Support, Other Financial or Material Support, HAI/NAI testing) Natasha B. Halasa, MD, MPH, Genentech (Individual(s) Involved: Self): I receive an honorarium for lectures - it’s a education grant, supported by genetech, Other Financial or Material Support, Other Financial or Material Support; Sanofi (Individual(s) Involved: Self): Grant/Research Support, Research Grant or Support

Table 1. Characteristics of Candidemia patients in the pre-COVID (January 2019-May 2019) and during-COVID periods (January 2020-May 2020)

Table 2. Incidence of Candidemia in the Pre-COVID-19 (January 2019-May 2019) and During-COVID (January 2020-May 2020) periods

Background. Fungemia is associated with high rates of morbidity, mortality and increase in length of hospital stay. Several studies have recognized increased rates of candidemia since the COVID-19 pandemic.

Methods. A retrospective cohort study was conducted at a tertiary healthcare system in Detroit, Michigan to evaluate the impact of the COVID-19 pandemic on incidence of candidemia. The “pre COVID-19” timeframe was defined as January – May 2019 while the “during COVID-19” timeframe was January – May 2020. To compare incidence and patient characteristics between cohorts, t-tests and chi-square analysis was used. Additional sub-analysis was performed in candidemia patients during COVID-19 timeframe comparing outcomes of patients based on COVID-19 status.

Results. Overall, 46 cases of candidemia were identified in both the pre COVID-19 and during COVID-19 periods. Pre COVID-19, the average number of cases was 3.0 ± 1.2 per month. The incidence more than doubled during COVID-19 to 6.2 ± 4.2 cases per month (p = 0.14) (Figure 1). No significant differences in patient demographics were detected between cohorts, however, patients in the COVID-19 cohort had higher rates of corticosteroid use, mechanical ventilation and vasopressors (Table 1). In the 2020 period, 31 patients developed candidemia and 12 (38.7%) patients tested SARS-CoV-2 positive. On average, COVID-19 patients developed candidemia 12.1 days from admission, compared to 17.8 days in the COVID-19 negative cohort (p = 0.340). Additionally, COVID-19 patients with candidemia confection were significantly more likely to expire; 83.3% (n=10) COVID-19 patients expired compared to 36.8 (n=7) in the COVID-19 negative cohort (p = 0.025) (Table 2).