

## COVID-19 Evidence Digest 03/19/21

### [Genomic Evidence of SARS-CoV-2 Reinfection Involving E484K Spike Mutation, Brazil \(Emerging Infectious Diseases\)](#)

**Bottom Line:** Reports of SARS-CoV-2 infection have been reported in patients who have previously recovered from COVID-19 which are likely caused by emerging mutant variants.

**Details:** This article reports a case of SARS-CoV-2 reinfection in a 45 year old female healthcare worker in Brazil with no comorbidities. She developed COVID-19 in May 2020 with symptoms including diarrhea, myalgia, and asthenia. Her symptoms lasted for 7 days was treated with prednisone for 5 days. She was back to her regular activities in 21 days. In October 2020, she was reinfected with COVID-19 but with more severe symptoms, which included headache, malaise (feeling unwell) diarrhea, cough, sore throat, insomnia, and shortness of breath, and had a longer duration of disease this time. Both times of infection, her disease course was considered to be mild and did not require hospitalization. Analysis showed that she had a higher SARS-CoV-2 viral load when she was reinfected in October. She had antibodies 4 weeks after reinfection. Additional analysis showed that the first incident of COVID-19 was caused by the B.1.1.33 lineage and the second one by the P.2 lineage (E848k mutant).

#### Key Takeaways:

- There is still uncertainty about how long immune response against SARS-CoV-2 can last, especially with reports of reinfection due to new variants.
- With the risk of new COVID-19 variants becoming the more dominant strains, it is important to continue to monitor these variants given the implications on public health policies and vaccine strategies.

### [Are vaccines safe in patients with Long COVID? A prospective observational study \(MedRxIV\)](#)

**Bottom Line:** In a cohort of patients who had persistent symptoms 8 months after COVID-19 hospitalization, those who received COVID-19 vaccine were less likely to report worsening symptoms and more likely to report symptom improvement.

**Details:** In this prospective observational study, patients hospitalized with COVID-19 were recruited and followed up at 3 (June-July 2020) and 8 months (Dec 2020-Jan 2021) after hospitalization. Those who received COVID-19 vaccination (Pfizer-BioNTech BNT162b2 or Oxford-AstraZeneca ChAdOx1 nCoV-19) during January—February 2021 were matched 2:1 within the same cohort to patients who were not vaccinated, and all were assessed 1 month post vaccine injections (or matched timepoint for those who were not vaccinated). Forty-four patients within the cohort were vaccinated and 22 matched unvaccinated patients were evaluated. Eighty-two percent in both groups had at least 1 persistent symptom at 8 months after hospital admission with the most common symptoms being fatigue and breathlessness. There was no worse quality of life reported post vaccination as compared to prior to vaccination. Those who received a COVID-19 vaccine were less likely to report worsening of long-COVID symptoms (5.6% vs. 14.2% in the unvaccinated group), and more likely to report resolution of long-COVID symptoms (23.2% vs. 15.4% in the unvaccinated group) (p=0.035).

#### Key Takeaways:

- In a small group of patients who had been hospitalized with COVID-19 and had persistent symptoms 8 months after hospitalization, those who received either the Pfizer-BioNTech or

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Oxford-AstraZeneca COVID-19 vaccines were less likely to report worsening and more likely to report resolution of long-COVID symptoms.

- There were no safety concerns with either vaccine used in this cohort.

### [Association of Acute Symptoms of COVID-19 and Symptoms of Depression in Adults \(JAMA\)](#)

**Bottom Line:** In a nonprobability online survey of US adults conducted between June 2020 and January 2021, 3,904 respondents reported a prior COVID-19 illness diagnosed by a clinician or positive test result. Of those respondents, 2,045 (52.4%) had a Patient Health Questionnaire-9 (PHQ-9) score of 10 or greater, indicating moderate to severe depressive symptoms. The probability of moderate to severe depression symptoms was greater for those with the presence of a headache and with greater COVID-19 severity.

**Details:** This is a nonprobability survey study of US adults from 8 waves of an internet-based survey from Qualtrics with multiple panels of respondents conducted between June 2020 and January 2021. A total of 3,904 respondents completed the Patient Health Questionnaire-9 (PHQ-9), reported prior COVID-19 illness diagnosed by a clinician or positive test result, stated the date of infection, and answered questions about their symptoms and perceived COVID-19 illness severity. The primary analyses assessed the odds of having a PHQ-9 score of 10 or greater (i.e. moderate depression) with a logistic regression model incorporating indicator variables for COVID-19 symptoms and severity and adjusting sociodemographic variables. The study population was 44% female, mean age of 38.05 (SD = 12.39) years old, it had been an average 4.18 ( $\pm$  SD 2.74) months since a respondent's COVID-19 illness, and 71.4% of respondents were White, 10% Hispanic, 11% Black, 3.6% Asian and 3.0% Other. A total of 2,046 participants (52.4%) had a PHQ-9 score of 10 or greater (i.e. symptoms of moderate to severe depression). In the fully adjusted model, the probability of moderate to severe depression symptoms was greater for those with presence of a headache (adjusted odds ratio [OR], 1.33; 95% CI, 1.10-1.62), and overall COVID-19 severity (somewhat vs not at all severe: adjusted OR, 2.59; 95% CI, 2.04-3.30; very vs not at all severe: OR, 5.08; 95% CI, 3.93-6.59). Women were also less likely to have depressive symptoms (adjusted OR, 0.72; 95% CI, 0.61-0.84) as well as those with older age (adjusted OR by decade, 0.76; 95% CI, 0.72-0.81). Note, this study is unable to decipher between newly onset depressive symptoms vs those with pre-existing depressive symptoms. Regardless, results highlight the importance of considering ways to relieve elevated risks of depressive symptoms following infection.

### **Key Takeaways:**

- 52.4% of respondents reporting a prior COVID-19 illness had a PHQ-9 score of 10 or greater, indicating moderate to severe depressive symptoms.
- The probability of moderate to severe depression symptoms was greater for those with the presence of a headache and with worse COVID-19 severity.
- Note, this study is unable to decipher between newly onset depressive symptoms vs those with pre-existing depressive symptoms.
- Results highlight the importance of considering ways to relieve elevated risks of depressive symptoms following infection.