

COVID-19 Induced Neuropsychiatric Behavioral Changes: A Case Report

Sana Sharma, MD¹, John Johnson, MD², Subani Maheshwari, MD¹

¹Department of Psychiatry, Christiana Care, Wilmington, Delaware

²Delaware Psychiatric Center

Introduction

- Infectious diseases are often met with neuropsychiatric sequelae during the acute phase of an infection or weeks or months that follow.
- While coronavirus disease 2019 (COVID-19) is widely recognized for its influence on the respiratory system, a few case reports have described neuropsychiatric manifestations of COVID-19.
- We present a case of a 36-year-old female with no significant medical or psychiatric history, who developed post COVID-encephalopathy and dystonic movements.
- Through her protracted hospitalization, she developed visual and auditory hallucinations and delusions.

Case report

- 36-year-old Caucasian female (add if any prior psych history) sought supportive treatment for COVID-19 infection.
- A few weeks later, she was admitted for pulmonary embolism and urinary tract infection.
- 2 months after the infection, the patient's family brought her to the emergency department due to sustained low mood with loss of interest in activities of pleasure and withdrawn behavior.
- Family reported severe functional impairment. She was dependent for all ADLs

Case Report

- She required inpatient psychiatric hospitalization for marked negativism suspected to be secondary to depression and transferred to Internal Medicine for prolonged delirium.
- Occasionally, the patient reported visual hallucination and confabulation.
- History of alcohol and substance use was absent
- Abnormal posturing of hands, muscular weakness, diminished reflexes, tremors and ataxia.
- Afebrile and hypertensive
- Nasopharyngeal swab was positive again for COVID-19.
- CMP positive for hypokalemia, ALT 98 U/L, AST 46 U/L, TP 5.9 U/L. CBC positive for elevated neutrophils, thrombocytosis, eosinophilia and low lymphocytes.
- Urine Drug Screen, TSH, testing for HIV, Hepatitis A, B and C, syphilis, lyme infections were negative. Vitamin B12 and folate levels were normal.
- Cardiac ultrasound, CT head and spine, MRI head and spine, CSF culture, paraneoplastic panel were satisfactory. EEG showed generalized slowing. Positive calcium channel binding antibody PQ type was positive although, CT chest was negative for any mass/malignancy.
- She was admitted to the psychiatric floor. Started on Lorazepam for suspected catatonia and fluoxetine for depression-titrated to discharge dose of 20mg.
- For psychosis she was started on aripiprazole 5mg. Her mental status did not improve, and she was discharged to the medical floor for further prolonged delirium and poor PO intake. Hypokalemia and abnormal liver function present again
- Lorazepam, fluoxetine and aripiprazole were stopped which improved her cognition.
- IVIG was given empirically for possible autoimmune pathology. This along with occupational and physical therapy helped improve her strength and tremor however, not yet at baseline.
- Patient was discharged to subacute rehabilitation for continued improvement.

Discussion

- This case illustrates “long-haul COVID,” neuropsychiatric symptoms emerging months after initial infection.
- Although our understanding of COVID-19 neuropathogenesis is still incomplete, the CNS dysfunction could be due to an autoimmune mediated hyperinflammatory process.⁽¹⁾

Conclusion

- Our findings suggest that post COVID-encephalopathy is a possible consequence of COVID-19 even months after resolution of the initial infection.

Reference

1. Stefano, G. B., Büttiker, P., Weissenberger, S., Martin, A., Ptacek, R., & Kream, R. M. (2021). Editorial: The Pathogenesis of Long-Term Neuropsychiatric COVID-19 and the Role of Microglia, Mitochondria, and Persistent Neuroinflammation: A Hypothesis. *Medical science monitor : international medical journal of experimental and clinical research*, 27, e933015. <https://doi.org/10.12659/MSM.933015>