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Persistent Neurocognitive Impairment and Neurological Complications Following COVID-19: Challenges of the Long COVID Syndrome

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SIGNIFICANCE

Coronavirus disease 2019 (COVID-19) is a highly contagious respiratory disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-COV-2)[1]. As of April 23rd, 2021, there are close to 150 million cumulative cases, with over 3 million deaths worldwide[2]. In terms of clinical presentation, individuals afflicted with COVID-19 vary greatly in terms of their disease progression and symptomatology[3,4]. During the acute phase of COVID-19, patients may experience flu-like symptoms including fever, cough, dyspnea, headache[5-7], though gastrointestinal, renal, hepatological, rheumatological, and neurological symptoms and complications have been reported[8,9]. Recently, there has been increasing interest in the chronic sequelae of COVID-19[10]. One study has estimated that over 87% of COVID patients continue to experience at least one symptom, two months after COVID symptom onset[11]. The etiology and clinical profile of the so-called long COVID[12] is still under investigation, but some studies have suggested that long COVID may involve respiratory, neuropsychiatric, cardiovascular, immunological symptoms[13-16]. With the likely devastating disease burden of long COVID, clinicians need to understand the presentation and management of patients suffering from long COVID symptoms.

CASE PRESENTATION

Patient is an 86-year-old male with unspecified psychiatric history, who was admitted to the hospital with the chief complaints of urinary retention and altered mental status. Psychiatry was consulted for possible delirium. During our initial assessment, patient's presentation was suggestive of delirium. However, in our discussions with the patient's family, they revealed that the patient has had a significant decline in his mentation during the past month. Patient was hospitalized 3 weeks ago for COVID-19; he was treated with IV steroids and remdesivir, and discharged home with supplemental oxygen. While his acute symptoms of fever and dyspnea have improved, family noticed that patient has not been able to regain his premorbid functional status.

Figure 1 – Patient's CT head imaging suggesting L occipital infarct

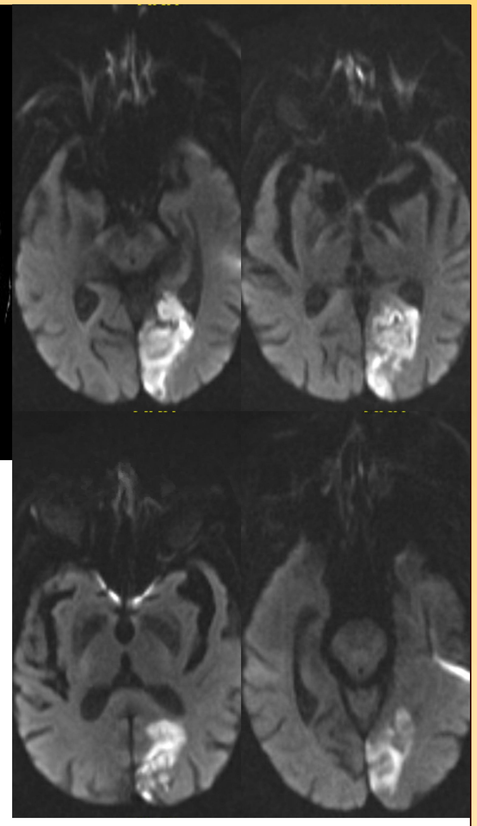

Figure 2 – Patient's MRI head imaging showing subacute L occipital lobe infarct

In particular, patient could not ambulate on his own in his wheelchairs, and more concerningly, patient could no longer converse meaningfully with family members. Psychiatry team has not been able to conduct a detailed neurocognitive assessment. During this hospitalization, patient was also found to have a subacute left occipital lobe infarct, which may have further contributed to the patient's presentation. Patient has a prolonged hospital course, complicated by multiple medical co-morbidities. The psychiatry team has managed the patient's delirium with quetiapine, risperidone, and haloperidol at different points during his hospitalization. Patient has been in the hospital for almost 1 month before he was medically stable for discharge home; however, based on input from his family, patient's mentation has yet to recover back to pre-COVID-19 level.

DISCUSSION

We reported here on a patient with persistent neurocognitive impairment and neurological complications following COVID-19. COVID-19 has been associated with a host of acute and long-term neurological symptoms and complications, including cognitive impairment, memory difficulties, psychiatric symptoms, and cerebrovascular events[17,18]. For our patient, he experienced a notable decline in his neurocognitive functioning since COVID-19, with minimal recovery over one month after initial infection. It is also possible that the stroke he suffered may be due in part to COVID-19. COVID-19 has had a devastating impact on his functional ability and cognitive status, and his decline is further felt by his family members who are his primary caregivers. Education of patient and family members is particularly important during these uncertain times. Patients with long COVID neuropsychiatric complications will further benefit from outpatient evaluations and follow-up as well.

CONCLUSION

The long COVID syndrome will have enduring impact on millions of individuals, causing lasting symptoms and complications long after the resolution of acute COVID-19. It will be paramount for healthcare providers to understand the devastating effects of long COVID, and be able to manage patients with long COVID in the future.

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