



CASE REPORT

Delirium as an Initial Presentation of COVID-19: Implications in Diagnosis and Possible Long-Term Effects

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Introduction

Most patients with coronavirus disease 2019 (COVID-19) experience fever, cough, and malaise. Neurologic manifestations are receiving more recognition. One systematic review found the most frequent findings included headache (20.1%) and smell and taste dysfunction (59.2% and 50.8%, respectively). Impaired consciousness, defined as agitation or confusion, occurred 5.1%, and was more common in severe or critical patients (11.9%) [1]. Further, cases of asymptomatic infection may be as high as 40% to 45% [2]. Recognizing subtle signs and symptoms in the absence of typical COVID-19 respiratory symptoms therefore have important implications on diagnosing COVID-19 and instituting appropriate isolation precautions.

Further, new case reports are starting to explore the outcomes of COVID-19 patients after discharge from hospitalization. One French study assessed 120 patients post-discharge symptoms 110.9 days post admission, at a mean age of 63.2-years-old. Some of the most frequently reported symptoms included fatigue (55%), loss of memory (34%), attention disorders (26.7%) and sleep disorders (30.8%) [3]. In patients with cognitive impairment or dementia at baseline, COVID-19 recovery may therefore be detrimental to their functional status and quality of life.

Case Description

This patient is an 82-year-old male with a history of coronary artery disease, hepatocellular carcinoma,

hypertension, and mild cognitive impairment. His wife noticed he was increasingly confused and scheduled a videoconference with his primary care physician (PCP). He could interact and converse, was alert and oriented, and there no concern for systemic illness, so the PCP and family observed him at home. Over the next two days, he grew increasingly confused, weak, and had a fever on home monitoring of 100.4 °F. He was referred to the hospital for sepsis evaluation.

In the emergency department, he was afebrile with normal vital signs, and saturating 98% on room air. Physical exam was unremarkable except for being oriented to only his name. Platelets were 152 k/mm³ (normal range 160-410 k/mm³), lactate dehydrogenase 242 U/L (normal range 125-220 U/L), C reactive protein 7.90 mg/dl (normal range 0.0-0.50 mg/dl), ferritin 705 µg/L (normal range 18.0-370.0 µg/L). White blood cell count, hemoglobin, vitamin B12, folate, thyroid stimulating hormone, urinalysis were all normal. COVID-19 and respiratory viral multiplex nasopharyngeal swab were performed, and only positive for COVID-19. Electrocardiogram showed normal sinus rhythm. Chest radiograph showed mild haziness at the lung bases, similar to prior exams. Head Computed Tomography (CT) showed no acute findings. He also became agitated and was given oral haloperidol.

He was observed for 24 hours, cognition mildly improved, and was discharged on azithromycin and hydroxychloroquine per hospital policy since there was no other inpatient hospital needs. One week later he



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returned to his baseline mental status. However, on follow up 4 months later, he was brought back to his PCP by his son with worsening cognitive decline and orientation, and no longer independent in driving and in some activities of daily living. The two children who helped care for him also developed COVID-19 infection and were appropriately quarantined.

Discussion

It has long been a paradigm of geriatric care that any acute change to the body (i.e. infection, medications, pain) may present only with cognitive decline, weakness, and falls [4]. During the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003, there were reports of falls, poor appetite, and delirium without typical febrile responses, especially in older adults [5]. Further, in one retrospective study of 6,057 patients aged 60 or older and hospitalized for pneumonia or coronary artery disease, symptoms on presentation were analyzed as typical or atypical of the diagnosis. 21.2% of total patients presented with atypical symptoms. Increasing age and comorbidities were factors associated with atypical presentation [4].

Our patient's cognition and functional status declined on his 4 month follow up. Unfortunately, little is known about the longer-term cognitive sequelae of COVID-19. In one small study of 29 patients age 30 to 64 who recovered from COVID-19 and were negative for 2 to 3 weeks, cognition was compared to healthy subjects in neuropsychological assessments. Patients with previous infection had poorer sustained attention, and a significantly increased reaction time for parts of the exercise. There was also a positive correlation between reaction time and C reactive protein levels, indicating a possible link between the severity of inflammation and higher-level processing [6]. The geriatric population, or those with cognitive impairment at baseline, are likely to suffer the most from this possible post COVID-19 sequelae just being recognized.

As mentioned above, elderly patients are more like-

ly to present with subtle changes, often different than what would be expected from younger patients. With asymptomatic transmission possible, it is crucial to recognize these manifestations for diagnostic and isolation purposes of COVID-19. There may also be a link between cognitive decline and previous infection, raising concern for long-term neurologic impairment. Larger studies are needed to further categorize these findings.

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Statement of Authors Equal Contribution

DG contributed to writing and literature search; CC contributed to revision of the manuscript.

Conflicts of Interest

None.

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