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Caso clínico

Treatment of Catatonia in a Young Adult with COVID-19 Infection; Case Report and Review of the Literature on Electroconvulsive Therapy During the Covid-19 Pandemic

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Abstract

Purpose: Infection with COVID-19 has presented diversely in patients, including neuropsychiatric symptoms such as akinetic mutism. Most of these cases involve patients of middle-to-late age or with other health comorbidities. This is a unique case of a long hospitalization for severe catatonic symptoms in a patient with covid-19 infection in which ultimately, ECT helped produce rapid improvements in catatonia. Access to prompt ECT has been limited during the ongoing pandemic, and this case illustrates the importance of managing contamination risk and maintaining access to psychiatric treatment resources.

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Introduction

Since the beginning of the COVID-19 pandemic, increasing attention has been given to the impact of this virus on neuropsychiatric presentations. Various pathologies have been proposed to link COVID-19 to neuropsychiatric symptoms including: activation of inflammatory cascades, direct invasion of CNS by the virus, and neuronal injury via hypoxemia.1 Multiple cases of delirium and toxic metabolic encephalopathy have been appreciated in COVID-19 positive patients. However, the existing literature has suggested that symptoms in COVID-19 positive patients may present atypically compared to usual hospital delirium cases.2 Furthermore, management of these symptoms remains in the exploratory phase, thus far, following general protocols for management of catatonia. Literature is limited, however, by a lack of cases demonstrating use of ECT.

Cases reported thus far of catatonia in COVID-19 patients vary widely by demographics, predominantly in those with either medical comorbidities or middle-to-late-adult onset.3–5 Use of ECT is generally reserved as a later treatment option for catatonia. It is a very effective...
treatment, yet has been limited during the pandemic in many facilities due to multiple factors, such as limiting elective procedures and decreased anesthesiology resources. However, ECT may play a critical role in improving prognosis and clinical outcomes in medical and psychiatric settings.

This case report is unique in that it describes a case of sudden onset catatonia in a COVID-19 positive patient, in an otherwise healthy young male, refractory to lorazepam and antipsychotic treatment, that responded adequately to ECT. We address the issue of limited ECT resources during the COVID-19 pandemic and the possible implications on patients' clinical course when presenting with certain severe psychiatric presentations including catatonic symptoms.

**Patient case**

Mr. C, a 19-year-old Spanish-speaking male with unknown past medical and psychiatric history, was transferred from an outside hospital for evaluation of “anorexia.” He was incarcerated when he became withdrawn, stopped to intake, and exhibited new-onset urinary and bowel incontinence. He tested positive for COVID-19 via nasopharyngeal swab PCR and was admitted to the inpatient medicine service with a diagnosis of catatonia. Additional history could not be obtained due to altered mental status and mutism. Initial vital signs were unremarkable including oxygen saturation of 97% on room air. He exhibited a fixed stare, eyes closing to threat inconsistently and not tracking. He did not respond to verbal or painful stimuli, nor follow commands in English or Spanish. He exhibited intermittent, waxy flexibility and flaccidity. Initial labs were remarkable for RBC: 4.44 (L), Hb: 12.7 (L), Hct: 38.2 (L), Sodium 134 (L), CT of the head with contrast revealed no acute intracranial process. His anemia, hyponatremia, and hypomagnesemia, were corrected, attributed to poor oral intake.

Lumbar puncture yielded no remarkable abnormalities. Video electroencephalogram (EEG) was negative for seizure-like activity, indicating diffuse cerebral disturbance of nonspecific etiology. A lorazepam challenge for suspected catatonia was started with gradual up titration to 4 mg intravenously every 6 hours. Minimal improvements were appreciated with intermittent communication with staff, but Mr C remained otherwise unresponsive to verbal or tactile stimuli. Trials of higher doses of lorazepam did not increasingly sedate nor provide significant improvement in mental status.

By day 25 of admission, the patient had exhibited minimal improvement. He demonstrated intermittent volitional behavior, rising from bed to eat, then returning back to bed with no acknowledgment of individuals in the room and minimal active repositioning of his limbs.

One week later, the decision was made to begin risperidone 0.5 mg PO QHS. Four days after starting risperidone, Mr. C developed a mild fever, tachycardia and hypotension, was no longer speaking or eating, and exhibited immobility, mild rigidity and stupor with mutism. No posturing, echolalia, stereotypy, or mannerisms were appreciated. Labs revealed CCK of 344. A sepsis protocol was initiated and risperidone was discontinued with concern for malignant catatonia. After lorazepam dose was lowered due to the possibility of excess sedation, catatonic symptoms worsened, and lorazepam was re-titrated. A trial of Ziprasidone 10 mg IM nightly for one week was also ineffective and discontinued due to continued autonomic instability.

For the next two months, Mr. C’s presentation remained largely unchanged. Contact was finally established with the patient’s brother, who reported that prior to admission, Mr. C had been under significant stress regarding financial strain and, “disappeared”: Past psychiatric, substance and medical history were deemed non-contributory to his recent presentation. Electroconvulsive therapy (ECT) was consented by the patient’s brother and parents who were living in Mexico.

Bi-temporal ECT was performed in 5 sessions which were well-tolerated, without complications, and followed by significant improvement in activity. Bush-Francis Catatonia Rating scale score decreased rapidly from 17 to 6. Patient was ultimately discharged.

**Discussion**

This case was unique, in part, given Mr. C’s young age and lack of comorbidities. Existing cases in the literature report catatonic symptoms in the setting of COVID-19 have largely presented in individuals with either additional health comorbidities or middle-to-late-adult onset. Sheiner N. et al. presented a case series which included two females in their 50’s and one female in her 20’s who presented with catatonia related to SARS-CoV-2 with comorbid mental health diagnoses in two of the cases. Caan et al. published a case of a 43 year-old male, with no past psychiatric history, experiencing neuropsychiatric manifestations attributed to COVID-19. They described cerebrospinal fluid studies and imaging to be unremarkable and residual hypo-volition after hospital discharge. Torrico et al. demonstrated two cases in which a 36 y/o female with pancreatic mass and a 64 y/o female s/status post bypass surgery presented with post infectious COVID-19-related catatonia. In the case of Mr C described above, the patient was a young, healthy male with similar catatonia symptom presentation in the context of COVID-19 infection. This might lend credence to the direct role of COVID-19 virus in predisposing infected individuals to neuropsychiatric symptoms. The actual pathophysiology of this link, however, remains in the investigatory stage.

Mr. C. initially presented with limited historical information, necessitating decisions for his care be made based on presentation and laboratory findings. Multiple diagnoses were considered. No obvious etiology was found in terms of illicit substances, TBI or, later discovered, psychiatric history. Catatonia in the setting of COVID-19 was the primary working diagnosis. Dr Beach and colleagues from Harvard appreciate catatonia-like symptoms as part of a delirium presentation in COVID-19 positive patients. Atypical symptoms have included higher incidence of agitation, increased muscle tone and akinetic mutism, and other catatonia-like symptoms. The pattern of suppression and slowing of cerebral activity indicates that Covid-related persistent delirium or other unspecified encephalopathy are a reasonable inclusion in the differential diagnosis for Mr. C. Throughout his early hospitalization, his situational awareness and interaction with his surroundings fluctuated. Additionally, with the arrival of his brother, he became more interactive and relating to nursing staff in Spanish, perhaps demonstrating similar benefit to reorienting patients with delirium in hospital settings. Given recent legal charges and the patient’s situational anxieties, malfunctioning was also considered. However, when it was conveyed in both English and Spanish to Mr C that his legal charges had been dropped, his presentation remained unchanged. After the arrival of his brother, he was discharged. He reported limited recollection of events over the past few months including somewhat low mood and feeling anxious, as well as instances of memory loss during months prior to admission. He described new-onset command auditory hallucinations as hearing God’s voice telling him when to perform his ADLs. He denied self-harm or suicidal thoughts. Thus, additional considerations for Mr. C’s primary diagnosis included dissociative fugue and unspecified psychosis in the setting of COVID-19 infection.

Catatonia has been intellectualized in the literature since 1874 as a separate disorder of its own, part of other psychiatric illnesses, and as sequelae of viral or bacterial infections, inflammatory processes or pharmacological agents. The DSM-5 suggests that given the wide array of possible etiologies, it should be viewed as part of a disease process, rather than a syndrome on its own. In the setting of ongoing COVID-19 pandemic, a new potential etiology presents that may be worth considering acutely as well as post-syndrome. Regardless of Mr. C’s primary diagnosis being catatonia or delirium with catatonie features, treatment of similar cases referenced in literature continue to follow general protocol for catatonia. This includes identifying underlying conditions, a trial of benzodiazepines, use of antipsychotics, and/or the use of...
Electroconvulsive therapy (ECT), generally for refractory cases. Antipsychotics, however, have the potential to worsen clinical conditions of catatonia by inducing malignant catatonia.

For Mr. C, benzodiazepines were unsuccessful, antipsychotics resulted in NMS type symptoms and ECT was ultimately successful. ECT has been established as a safe and effective treatment regimen for catatonia, patients with suicidal ideation or rapid deterioration in clinical presentation. It is typically reserved as a later treatment option in catatonia, more promptly administered in cases of malignant catatonia. The authors propose if ECT had been utilized sooner, his projected hospital stay may have been shortened.

ECT is recommended as a first-line treatment in high-risk situations necessitating rapid response by the National Institute for Health and Care Excellence (NICE) and Royal College of Psychiatrists. They also recommend a valid form of consent and use of substitute decision makers in those without decision-making capacity. Mr. C's treatment options were cautiously advanced given the lack of his historical information and contacts, necessitating the need to consult the hospital ethics committee and more elaborate case management search for relatives to consent for additional treatments. Finding this consenting authority also ultimately aided in Mr. C's eventual discharge to the care of his parents with plans made for continued outpatient treatment. ECT has been found to be an even more efficacious treatment in some patients lacking capacity compared to those maintaining capacity. The American Psychiatry Association Committee on the Psychiatric Dimensions of Disaster and COVID-19 also recommended ECT “an essential procedure in urgent clinical situations for psychiatric patients during the COVID-19 pandemic.” They encourage continued use and availability of ECT during the pandemic in urgent cases. During 2020, anesthesiology services, a vital part of ECT, became limited. Additional restrictions to ECT included the necessity to prioritize infectious control measures, including aerosolizing contagions, a possibility with the use of non-invasive ventilation in ECT. However, when considering possible benefits of ECT in cases such as Mr. C, ECT may perhaps deter progressive clinical deterioration and improve clinical outcomes. Furthermore, the risks might yet be mitigated. Methods of categorizing priority of ECT cases have been proposed by the International Society of ECT and Neurostimulation (iSEN). Additional models have been proposed, such as ethically triaging ECT candidates. Taking precautions to limit contamination may well be worth diverting mental health fatalities, such as those recommended by Bellini et al. Recommendations include use of disposable bite blocks and exhalation filters, using decreased succinylcholine dosing, and replacing bag-mask ventilation with 100% oxygen. Additionally treatment frequency and anesthesiology techniques may be altered as appropriate.

Conclusions

This was a unique case of a long hospitalization for apparent COVID-related, severe catatonic symptoms. Presentation of neuropsychiatric symptoms, namely catatonic symptoms, have been noted to present atypically in COVID-19 positive patients. In the case of Mr. C, ECT appeared to be a safe and effective intervention, producing rapid improvement. It may then be of value to reprioritize the availability of ECT, not only during the ongoing pandemic, but also as an earlier treatment consideration in cases of infection-related catatonia and delirium. Many resources have been limited, however, during the pandemic, including ECT. The authors propose it may notably avert clinical deterioration of certain high-risk patients to consider more readily available ECT for earlier use with appropriate precautions and stratifications of patients’ risks and benefits. In following guidelines recommended by organizations such as APA and iSEN to limit spread of contagions and better utilize limited medical resources for better neuropsychiatric outcomes.

Author contributions

E.A. and L.A. consulted on the patient case in the hospital and wrote the greater part of the literature review and case report. AD reviewed, consulted on and revised the literature review and case report. The authors have no conflicts of interest to disclose.

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