

COVID-19-Induced Catatonia in Patient with Cerebral Palsy and Intellectual Disability: Case Report and Review of Literature

Brittany N Goldstein, MD¹; Emily Diehl, BA;² Brandon Hamm, MD, MS¹

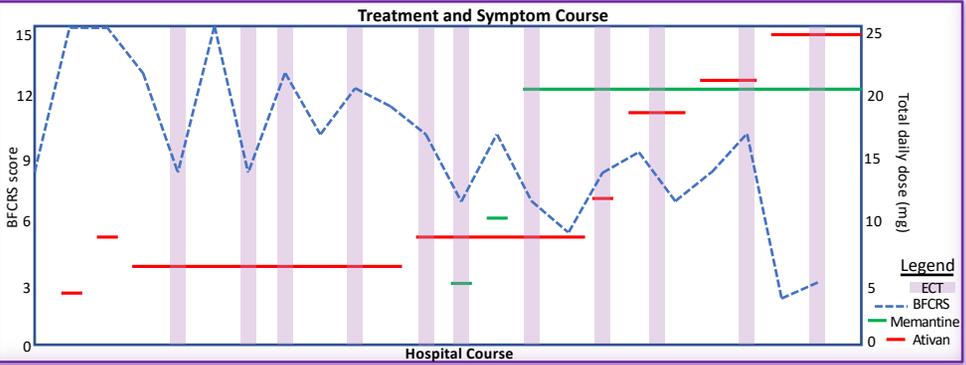
¹Northwestern University Department of Psychiatry and Behavioral Sciences. ²Northwestern University Feinberg School of Medicine

Background

- Catatonia has been reported as sequelae of COVID-19 infection, as well as associated with central and peripheral viral infections, such as HIV.^{1,2}
- Up to 1/3 of patients with COVID-19 have neuropsychiatric manifestations.³
- CNS inflammation and alteration of neurotransmission could predispose patients to catatonia:⁴ direct invasion of CNS via olfactory bulb, inflammatory cytokines crossing the blood brain barrier.³
- We present a case of a middle-aged woman with catatonia following COVID-19 pneumonia as well as a review of other reported cases of catatonia associated with COVID-19 infection. Literature review included case reports published in academic journals as well as abstracts or posters available online.

Case

- 48 yo female with cerebral palsy, mild intellectual disability, epilepsy, and remote catatonia episode requiring electroconvulsive therapy (ECT)
- Late 2020 hospitalization: COVID-19 status post corticosteroid treatment and supportive care, neurovegetative at discharge
- Re-hospitalization early 2021 due to worsening withdrawal, immobility, combativeness, impulsivity, and perseveration
- Unremarkable neurologic, metabolic, and infectious workups (MRI brain, CSF infectious and autoimmune/paraneoplastic studies), except for EEG with mild encephalopathy
- Initial Bush-Francis Catatonia Rating Scale (BFCRS) score was 8 (including neurovegetative symptoms, rigidity, occasional combativeness). Prior to admission olanzapine for baseline behavioral management was held. BFCRS score fluctuated to 15 (including hyperkinetic episodes, verbigeration, grasp reflex), and lorazepam challenge initially decreased BFCRS score to 13.
- Concurrent with uptitration of lorazepam, ECT (3x/week) was initiated. Given slow response and sub-therapeutic ECT seizures, augmentation with memantine was also initiated.
- The patient was discharged after a month with BFCRS score of 5 and guardian impression of patient at behavioral baseline with a regimen of lorazepam 8 mg TID, memantine 10 mg BID, and resumed prior to admission olanzapine 2.5 mg at bedtime.



Literature Review				
Case	PMH	Onset	Treatment	Outcome
Amouri et al, 2020 ¹⁰	T2DM, ESRD, HTN, CAD, CHF, hypothyroidism, TIA	17d s/p COVID symptoms	Lorazepam	Resolved
Caan et al, 2020 ¹¹	Negative	15d s/p COVID symptoms	Lorazepam	Gradual improvement
Deocleian de Araujo et al, 2020 ¹²	Intellectual disability, remote epilepsy	--	Diazepam, lorazepam, olanzapine; followed by ECT, sertraline, olanzapine	Gradual improvement after initiation of ECT
Gouse et al, 2020 ⁴	Schizophrenia, COPD, ILD, DM, HTN, AFib, essential tremor	9d s/p COVID symptoms	Lorazepam	Responded to lorazepam challenge but transitioned to comfort care measures
Huarcaya-Victoria et al, 2020 ¹³	Negative	Immediate	Midazolam Ziprasidone, olanzapine	Did not respond to initial midazolam trial. Catatonia resolved with concurrent psychosis treatment (antipsychotics)
Johnson et al, 2020 ¹⁴	NPH, polycythemia	Immediate	Midazolam, lorazepam, ECT	No significant response after 8 days of treatment (abstract reported prior to patient discharge)
Lavie et al, 2020 ¹⁵	Unspecified psychotic disorder, HTN	--	Lorazepam	Resolved
Mulder et al, 2020 ⁹	Negative	22d s/p COVID symptoms	Plasmapheresis, methylprednisolone, midazolam (transient), dexmedetomidine	Gradual improvement
Pattnaik et al, 2021 ¹⁶	Negative	1-2wk s/p COVID symptoms	Tofisopam	Improved
Scheiner et al, 2021 ¹⁷	Case 1. HTN, OA Case 2. Schizophrenia, CKD Case 3. Bipolar 1	1. 1.5wk s/p COVID symptoms 2. Immediate 3. Immediate	Lorazepam	Resolved
Zain et al, 2021 ¹⁸	COPD, T2DM, HTN	2mo s/p COVID	Lorazepam, clonazepam	Resolved
Zandifar et al, 2020 ¹⁹	schizophrenia	--	Lorazepam	Resolved

Discussion

Case

- Signs of catatonia shortly (weeks) after severe COVID infection
- Unlike some cases in the literature,⁵ there was no evidence of direct CNS infection on CSF studies
- Cases of catatonia in the setting of cerebral palsy or intellectual disability are scarce and often confounded by additional neurologic diagnoses,^{6,7} but may contribute increased risk of developing catatonia

Literature review:

- Onset of catatonia related to COVID-19 ranged from near-immediate to weeks after COVID-19 infection
- Majority of reported cases did respond to benzodiazepines; minority required ECT. Response timeline more variable.
- Most reported cases did not use augmenting agents
- COVID-induced catatonia can occur in patients without known predisposing factors to catatonia, even in those with negative past medical and psychiatric histories.

Other considerations:

- With such high rates of delirium among COVID-infected patients (>50% in most studies), it is important to consider the possibility that some cases of catatonia may be misidentified as delirium.^{3,8,9} The involvement of consult psychiatry to consider and facilitate accurate diagnosis between the two has significant consequences on outcomes given the differences in treatment.

Conclusions

- Consult psychiatrists must maintain diagnostic vigilance for infrequent precipitation of catatonia in patients with history of COVID-19 infection, even if the patient otherwise has no known risk factors for catatonia
- As with typical treatment of catatonia, benzodiazepines is often sufficient, but some cases will require ECT.

References

