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Case Report

Psychiatry/Mental Health Section

COVID-19 Infection Induced Mania

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ABSTRACT

Coronavirus Disease-2019 (COVID-19) infection or Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) infection, is associated with various psychiatric consequences, which are because of various types of stressors, may be due to fear of infection or social isolation, hospitalization, death and so on. In the present case report, a 44-year-old female with a history of pentazocine addiction and no known history of previous psychiatric illness was admitted to the Emergency Department with vacant, withdrawn look, unnatural fixed posture, mutism, refusal to eat. These symptoms developed after discharge from another hospital where she was treated for COVID-19 induced severe pneumonia (resolving). The very next day, the patient demonstrated excessive talkativeness and jovial mood with echolalia. The patient was treated symptomatically and recovered without the use of any antipsychotics. This report highlights the probability of the mania like symptoms being linked to COVID-19 (SARS-CoV-2 infection) highlighting the need for assessment of various psychiatric manifestations during COVID-19 infection.

Keywords: Coronavirus disease-19, Echolalia, Venlafaxine

CASE REPORT

A 44-year-old female divorcee, currently unemployed, residing with her uncle's family (patient's parents passed away 5 years ago), and a known case of hypertension, diabetes mellitus, hypothyroidism (under medication-controlled) was admitted to the Emergency Department on account of mutism, withdrawn, with vacant look, reduced movements and unnatural fixed posture and refusal to eat for more than 12 hours on that day. A written informed consent was taken from the patient's guardian, as the patient was mentally unstable to give her consent.

A discharge summary from previous hospital revealed that the patient was discharged two days prior from the said hospital, where the patient was admitted with severe respiratory distress and fever, later diagnosed with severe COVID-19 induced pneumonia. She was treated with tablet ivermectin, capsule doxycycline (100 mg), tablet paracetamol, oxygen therapy by mask and other supportive care as Oxygen Saturation (SpO_2) was gradually decreasing. The patient was started on tablet prednisolone which was to be tapered over three weeks. The patient was discharged after two and a half weeks with a tapering dose of prednisolone when the target SpO_2 level was reached.

The family members also revealed that the patient was addicted to pentazocine for past 12 years. The patient's average intake was approximately 15 ampules/day but she had reduced it to 2-3 ampules/day in the last six months by herself. During the patient's prolonged hospital stay in the previous hospital, there was abrupt abstinence of pentazocine use which continued till now. According to the family, there was no such similar episodes in the past or presence of any other mood symptoms. None of the family members suffered from similar problems. The patient was admitted from the Emergency Department to the Intensive Care Unit.

On the second day, the general examination and psychiatric evaluation revealed that the patient was oriented to time, place, and person. She was alert and conscious. The patient's facial expression was vacant, impassive and indifferent. Rapport could be established but with difficulty. The patient was withdrawn but did not have mutism, that was mentioned by the Emergency Department on day 1 of examination. Clinically, she did not fulfill the criteria of catatonia, hence no structured scale to test catatonia was administered. Neurological examination did not reveal any features of facial dystonia or any abnormalities like drooping of eyelids. The patient did not demonstrate any withdrawal symptoms to pentazocine during hospital stay.

Vitals including blood pressure, pulse rate and temperature were normal, though respiratory rate was slightly increased. Occasionally falling SpO_2 was maintained with intermittent oxygen therapy by oxygen mask. Hypoxia was avoided and patient was monitored. On physical examination of the respiratory system showed bilateral apical crepitations and diminished air entry in lower lobes of both the lungs. There was no abnormality detected in the central nervous system, cardiovascular and gastrointestinal systems.

Baseline investigations were done and there was no abnormality detected in the patient's electrolyte levels, Liver Function Tests (LFT), Kidney Function Tests (KFT), thyroid function tests (T3, T4, TSH), Fasting Blood Sugar (FBS) and postprandial blood sugar levels. Complete Blood Count (CBC) was normal. Chest X-ray showed resolving pneumonia. Cerebrospinal Fluid (CSF) study showed no abnormality. Magnetic Resonance Imaging (MRI) of brain was non contributory. Administering Electroconvulsive Therapy (ECT) as a treatment was considered but, the idea was abandoned in view of the resolving respiratory symptoms after COVID-19 induced severe pneumonia.

In view of the patient's respiratory condition and other co-morbidities there were limited treatment options available. The patient had initially presented with refusal to eat, withdrawn and apathetic demeanor. Hence, venlafaxine (75 mg) was started thinking that it is a case of severe depression [1].

On the next day, the patient started demonstrating excessive talkativeness, showed overfamiliarity. The patient was extremely jovial and seemed to be in high spirits. The individual under consideration was alert, conscious and oriented to time but not co-operative. Rapport was established with difficulty. Eye contact was initiated but not maintained. Psychomotor activity was increased. The mood and affect were elated and there was emotional lability, pressure of speech, echolalia, perseverance, clang associations. There was also presence of flight of ideas and loosening of associations. The case under review had mood congruent manic delusions concerning her God gifted powers of saving the world. Higher mental functions could not be assessed. There were no signs of meningeal irritation- no neck rigidity, no photophobia,

Kernig's sign was negative, and Brudzinski's sign was negative [2]. The neurological findings were corroborated by the Neurology team of the hospital where treatment was going on. Patient's changed mental status gave rise to confusion as of whether it was venlafaxine induced or it was because of post COVID-19 infection complication. The Naranjo Adverse Drug Reaction Probability Scale was administered [3]. The total score of the scale was computed to be 1. Thus, assigning it to a probability category of doubtful (<1). This determined that, the drug venlafaxine was not the cause of the signs, the patient had shown. However, as a precaution, venlafaxine was withdrawn even though there was no conclusive evidence suggestive of it being the offending agent. Drug interactions were also reviewed and none were found to be the strong contenders for the patient's present condition.

The patient was treated and managed by the medical COVID-19 expert team units for the resolving COVID-19 infection as a continuation of what was being given in the previous hospital and was discharged without any psychiatric treatment since the psychiatric symptoms resolved by themselves. The patient was advised to attend Psychiatry Outpatient Department after discharge. However, the patient has not come for follow-up.

DISCUSSION

With the advent and spread of COVID-19 infection, correlation between COVID-19 infection and psychiatric morbidity is getting highlighted gradually day-by-day. In the present case report, patient's age of onset being mid-life, a correlation with viral infection, a very limited short course of illness, history of pentazocine addiction but no other substance abuse, no family history of psychiatric disorder, it was suspected that this episode of the patient demonstrating manic symptoms could probably be a neuropsychiatric sequalae of COVID-19 infection.

The case illustrates an association of neuropsychiatric symptoms with COVID-19 infection with a significant pulmonary involvement. While vasculitis and encephalitis can be possible mechanism, neuro examination and investigation ruled out those diagnoses. COVID-19 infection can have neuropsychiatric sequalae and there are pathological mechanisms which can explain them. There are reports which corroborate direct viral infiltration into central nervous system as neurotropism and neuro-invasive potential has been demonstrated by many strains of coronavirus [4,5].

The route is believed to be the migration of coronavirus from the respiratory tract via retrograde axonal transport from the olfactory bulb to brain [5,6]. Haematogenous dissemination into the central nervous system via infected leucocyte can be another possible route [5,7]. Another interpretation of link between COVID-19 infection and manic like symptoms can be the effect of inflammation. Previous findings have demonstrated that infection associated immune activation and subsequent release of inflammatory factors was one of the potential pathogenesis of bipolar disorder [8,9]. It was found that patients infected with COVID-19 produced high amounts of pro-inflammatory factors and chemokines probably leading to activated T-helper-1 [10].

A nation-wide surveillance study from UK using online case report portal yielded 18% of new onset neuropsychiatric syndromes which included 10 cases with psychosis, six cases with dementia like symptoms and four cases with affective disorders post COVID-19 infection [11].

In the last couple of years, COVID-19 infection and post COVID-19 psychiatric sequalae resulted in substantial number of morbidity amongst individuals along with stretching of healthcare system structure. Many aspects of this disease are still unknown. Urgent study and clinical research are needed to correlate the disease mechanism with existing therapeutics and maybe finding out newer solutions in a more meaningful manner to improve long-term management of both medical and psychiatric complications of COVID-19 infection. From another point of view, one may consider this like a 'mania like symptom' rather than a 'maniac switch'. However, the authors feel that the latter description fits less well into the case.

CONCLUSION(S)

Antidepressant induced manic episode is a known entity, however, it's occurrence in the treatment of depression in a COVID-19 infected patient is rarely reported in literature. As the fight with COVID-19 infection continues the realization that, apart from physical illness, long-term psychiatric morbidities are also a cause of concern, and the management should be tailor made in the light of concurrent COVID-19 infection. This case documents a severe depressive episode in a COVID-19 infected patient who rapidly changed over to manic episode probably due to venlafaxine. Clinicians need to be cautious about such phenomenon when treating a COVID-19 infected patient with depression and addictive illnesses.

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