

## Comorbidity of Coronavirus disease (COVID-19) and the first episode of bipolar disorder and its treatment challenges: A case report

Fatemeh Kashaninasab<sup>1</sup>, Reza Panahi Dashdebi<sup>2</sup>, Mir Farhad Ghalehbandi<sup>\*2</sup> 

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### Abstract

This study attempted to diagnose and examine the treatment challenges of a 25-year-old patient with the first episode of bipolar I disorder (BD-I) who also had Coronavirus disease 2019 (COVID-19) at the same time. This patient was admitted to the general ward of the hospital, along with other COVID-19 patients, and was treated with electroconvulsive therapy (ECT). Our results showed that it is important to pay attention to the comorbidity of psychiatric disorders in patients with COVID-19 to evaluate and treat them completely and avoid drug interactions.

**Keywords:** COVID-19, Bipolar disorder, Case report

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### Introduction

Bipolar disorder (BD) is one of the most common psychiatric disorders (1). Genetic and biological factors play an important role in the etiology of this disorder (2). In some research studies, stressful life events have been mentioned as one of the important reasons for the onset or recurrence of this disorder (3). One of such recent traumatic events is the outbreak of acute and severe pneumonia caused by Coronavirus disease 2019 (COVID-19), which was first identified in Wuhan, China, in December 2019 and spread rapidly around the world (4). The psychological effects of COVID-19 include mild to severe depression, obsessive-compulsive disorder, and anxiety (5). Conditions

such as changing lifestyles, quarantine, social isolation, reducing social and economic activities, and maintaining social distance were also factors influencing people's mental health in this pandemic (6). On February 19, 2020, Iran reported 2 cases of death because of COVID-19. Thereafter, the disease spread very quickly in Iran and by March 5, 2020, all 31 provinces were infected (7). This case report examined the co-occurrence of BD and COVID-19 and the associated challenges in the treatment process. A written consent was obtained from the patient's father prior to conducting the study.

**Corresponding author:** Dr Mir Farhad Ghalehbandi, [ghalehbandi.m@iums.ac.ir](mailto:ghalehbandi.m@iums.ac.ir)

<sup>1</sup> Mental Health Research Center, Tehran Institute of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Mental Health Research Center, Psychosocial Health Research Institute, Iran University of Medical Sciences, Tehran, Iran

#### ↑What is “already known” in this topic:

The COVID-19 pandemic may be associated with psychiatric symptoms that are attributable to, or worsened by, COVID-19. It is important that mental health facilities be prepared for patients with Covid-19.

#### →What this article adds:

Paying attention to the comorbidity of psychiatric disorders, the side effects of each drug, and drug interactions in patients with COVID-19 is of high importance. Patients with COVID-19 and severe psychiatric symptoms who do not respond to pharmacotherapy may require electroconvulsive therapy (ECT).

### Case report

A 25-year-old single man with a bachelor's degree serving in the military was hospitalized in Tehran's General Hospital due to COVID-19 disease and psychiatric symptoms. About 3 weeks after the announcement of COVID-19 disease in Iran (1 month before the patient was hospitalized), the patient suddenly showed psychiatric symptoms. These symptoms included irritable mood, decreased need to sleep, talkativeness, psychomotor agitation, and grandiosity delusion. He practiced religious rituals more than usual, claiming that he communicated with God and received inspiration from Him. He considered lightning and rain as a sign of the end of the world, often talking to himself at home or laughing unreasonably. Meanwhile, since the patient had such symptoms as dry coughs, weakness, and shortness of breath, he was referred to a physician by his family. Based on clinical examinations and a computerized tomography (CT) scan from the lungs, a possible diagnosis of COVID-19 disease was made. He was sent home with a recommendation for self-quarantine and the use of hydroxychloroquine, but he did not take his medication regularly. It should be noted that psychiatric symptoms were present before the use of any drug for the treatment of COVID-19 disease. When the patient realized that he had COVID-19 disease he became more irritable and repeatedly disinfected his body. He kicked his parents out of the house and walked down the street naked, not allowing anyone to approach him. Then, the patient was brought to the hospital by emergency medical services (EMS) due to psychotic symptoms and aggression. At the time of admission, there was no separate psychiatric ward for patients with comorbidity of COVID-19 disease and psychiatric disorder, and the patient was admitted to the general COVID-19 ward.

The patient was visited by an infectious disease specialist and a psychiatrist. According to the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5), the patient was diagnosed with bipolar I disorder (BD-I), current episode manic, severe, with psychotic features. Also, he was diagnosed with COVID-19 and was prescribed to use Lopinavir-Ritonavir tablets (KALETRA) 400 mg twice a day. In the early days of hospitalization, to control the aggressive behaviors of the patient, Injection of haloperidol (20 mg), biperiden (10 mg), and chlorpromazine (100 mg) were administered daily; physical restraint was used to restrict freedom of movement. During his hospitalization, he was very aggressive; he physically quarreled with medical staff, stripped naked several times, and locked himself in his room, not allowing the nurses and doctors to enter. Since the symptoms could not be controlled, the patient was treated with electroconvulsive therapy (ECT) on the third day of hospitalization; after 6 sessions, the psychotic and mood disturbance were controlled. CT scan was performed on the brain area and the result was normal. During the hospitalization, the injectable drugs were gradually replaced by the oral ones and 1500 mg of sodium valproate was prescribed per day; the patient was discharged from care unit of COVID-19 patients.

### Discussion

The report describes the comorbidity of COVID-19 and

the first episode of BD-I and its therapeutic challenges. To date, no drugs or vaccines have been found to definitively treat and prevent coronavirus infection. However, some protocols recommend the use of antiviral and anti-inflammatory drugs. Sometimes patients with COVID-19 disease at the same time have other physical and mental illnesses and may be receiving medication. Therefore, it is important to pay attention to the side effects of each drug, especially drug interactions. KALETRA is a type of antiviral drug and protease inhibitor used at a dose of 400 mg twice a day for COVID-19 (8). The side effects of this drug include nausea, diarrhea, headache, abdominal pain, skin rash, and dyslipidemia. Also, paying attention to drug interactions in patients taking KALETRA and neuroleptic drugs, such as haloperidol, at the same time is important. By increasing the concentration of neuroleptic drugs, KALETRA can cause cardiac arrhythmias and QT interval prolongation in electrocardiography. KALETRA is contraindicated with neuroleptics such as pimozide (9). Hydroxychloroquine (HCQ) is another drug used to treat COVID-19. Anorexia, diarrhea, nausea, QT prolongation, cardiac arrhythmia, hepatitis, pancreatitis, neutropenia, and sometimes induction of psychiatric symptoms, such as psychosis, suicidal ideation, and mood disorders, are important side effects that can occur following the use of HCQ (10, 11). It is recommended to avoid concomitant use of HCQ with antipsychotic and antidepressant drugs, which prolongs the QT interval and to interview patients for psychological disorders before prescribing HCQ (12). In severe cases of psychiatric illnesses, which threaten the life of the patient and others, the use of ECT can be a good option for treatment because it can help the patient recover faster. However, performing ECT on a patient with COVID-19 is a challenging issue. General anesthesia and noninvasive ventilation with the help of a mask bag are required to perform ECT. Close contact with the patient's mouth and airway secretions, production of aerosols and small droplets, and the need to repeat ECT sessions increase the possibility of virus transmission. Therefore, reducing the number of people involved in the ECT process and providing protective personal equipment (PPE), such as N95 masks, full surgical scrubs, gloves, eye protection, and shoe cover, are essential for all people involved in ECT. Disinfection of ECT device, anesthesia equipment, ECT room, and use of disposable tools, such as airways and dental bite blocks, are also recommended (13, 14). Physical facilities, staff training, and skillful staff are important factors in controlling the acute psychotic condition of patients (15). Managing the patient's irritability, aggression, and psychotic symptoms was one of the major challenges. In the ward where the patient was admitted, most medical staff did not have a history of caring for patients with severe psychiatric disorders. This caused 2 health personnel to be physically injured during the physical restraint. Most care givers were afraid to approach the patient. In addition, the room dedicated to the patient's bed did not have the necessary facilities to protect psychiatric patients. Hence, the physical situation endangered the safety of both the patient and the medical staff. Also, the stigma associated with psychiatric illness may cause these patients to be unable to receive appropriate treatment for

their psychiatric and physical problems at the same time. Some studies have shown that the way a doctor wears clothing and even the color of his/her clothing can affect the patient and the formation of a therapeutic relationship (16). In this regard, one of the main challenges was the special clothing of the physicians and treatment staff while caring for people infected with COVID-19. Wearing white scrubs, along with masks, glasses, hoods, and gloves influenced the patient's psychotic symptoms, in a way that he believed that he was dead, and that the people who wore this kind of clothing were angels who had come to help him. Finally, the treatment of patients with COVID-19 should consider the physical and biopsychosocial areas simultaneously. Psychiatric morbidity is one of the major concerns in this area. In COVID-19 disease, the central nervous system is likely to be affected. Also, the neuroinflammatory process may be formed following cytokine release, and cortical brain damage may occur following prolonged hypoxia, and cause functional brain damage which may be possible causes for cognitive defects, abnormal behaviors, and even psychosis. There is a strong link between systemic inflammation and depressive syndromes. Since infection can increase the risk of depression episode by up to 60% and due to the neurotropic properties of coronavirus (17) more studies are needed to reveal the possible effects of COVID-19 disease on the occurrence or exacerbation of psychiatric disorders. Despite the limited facilities and nonideal conditions, helping the patient was one of the greatest experiences gained during the treatment.

### Conflict of Interests

The authors declare that they have no competing interests.

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