Psychosis Associated With COVID-19 Vaccination

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Patients with coronavirus disease 2019 (COVID-19) show higher rates of depression, anxiety, and posttraumatic stress disorder (PTSD) symptoms when compared with non-COVID controls.[1] There are case reports of various psychiatric symptoms in both psychiatric patients and patients with no history of psychiatric illnesses following COVID-19 infection that include manic-like symptoms,[2] insomnia,[3] brief reactive psychotic disorders,[4] affective psychosis,[5] suicide,[6] and delirium.[7] A review of the impact of the COVID-19 epidemic estimated that 0.9%–4% of COVID-19–infected individuals develop psychotic spectrum disorders.[8] This report describes a case of psychosis associated with COVID-19 vaccination and superimposed COVID-19 infection.

Case Report

The patient was a 20-year-old single woman in her final year of technical college, with no significant medical or psychiatric history and no family psychiatric history. She was brought to the emergency department by her family after having a single seizure-like episode at home preceded by a 4-week history of anxiety, sleep disturbance, and behavioral changes that started a few days after receiving the second dose of COVID-19 vaccine.

The patient reported feeling anxious and restless, having a reduced appetite, and hearing terrifying voices and seeing random people staring at her. She also complained of interrupted sleep with frequent nightmares and sleep terror. At the emergency department, the patient was anxious but settled and cooperative. The physical examination was unremarkable. The patient had no respiratory symptoms; however, a routine preadmission PCR (polymerase chain reaction) test was positive for COVID-19. Blood tests, computed tomography, and magnetic resonance imaging scans of the brain, pelvis, and abdomen were normal. Electroencephalography and the central nervous system examination were also unrevealing.

Initially, the patient was admitted to the medical ward for 1 week to rule out seizure disorder. While she was there, she suddenly became agitated and was aggressive and disoriented and complained of auditory and visual hallucinations. The mental state examination indicated that she had disjointed speech and grossly disorganized and disruptive behavior and was disoriented to time and person. She was started on intramuscular then oral olanzapine 10 mg twice/d and was transferred to the inpatient psychiatric unit.

While she was in the inpatient unit, she was noted to be aggressive against male hospital staff, which was clearly driven by her paranoid delusional beliefs. The olanzapine dose was gradually titrated to 25 mg/d. She became fully oriented to time, place, and person after a few days, but she continued to complain of auditory and visual hallucinations. Fourteen days later, her paranoia and suspiciousness, aggressiveness, and auditory and visual hallucinations started to improve. She remained in the hospital for a total of 28 days and was discharged home after complete remission of acute psychotic symptoms with some residual symptoms, mainly reduced concentration and motivation.

Discussion

Despite daily world updates, our overall understanding of COVID-19 remains unclear. COVID-19 was primarily considered a respiratory disease, and earlier guidelines and articles focus on such physical manifestations and their management. Nevertheless, there is a possible viral transmission to the nervous system that may occur via circulation, the olfactory bulb, or the conjunctiva, resulting in a rapid transneuronal spread of infection to connected areas of the brain.[9] It is well established that severe acute respiratory syndrome coronavirus 2 can infect and affect the human central nervous system, and it is one of its prime target tissues.[10,11] Recently, psychotic symptoms were described in a 31-year-old patient following mRNA-based COVID-19 vaccine administration.[12] Development of psychosis following COVID-19 vaccination is very rare and should not be a valid reason to not be vaccinated. However, we need to be cautious of such potential risk.

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