CASE REPORT

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A Review of Literature in Neuroleptic Malignant Syndrome Triggered by Hyponatremia Which Mixed with COVID-19

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ABSTRACT Neuroleptic malignant syndrome, which is seen due to changes in the use of psychiatric drugs taken by psychotic patients and its pathophysiology has not been clearly clarified, is a medical emergency with a mortal prognosis. Coming of patients firstly to emergency service, all physicians who are likely to meet these patients should know the differential diagnosis and diagnostic criteria of the syndrome. Today, the coronavirus disease-2019 struggle, which covers almost all of our medical life, can be confused with many emergency and other medical diagnoses with different clinical presentations that we encounter every day, and it is seriously dealing with clinicians in this regard, so it is necessary to be careful for situations that may be confused with infectious causes such as neuroleptic malignant syndrome. We aimed to present this case in terms of contributing in this sense.

Keywords: Neuroleptic malignant syndrome; COVID-19

Neuroleptic malignant syndrome (NMS) is a rare clinical condition presenting with mental status changes, motor abnormalities such as rigidity and bradykinesia, autonomic dysfunction (such as blood pressure changes, tachycardia) and fever. However, although it is rare, it is a condition that requires urgent intervention and can lead to life-threatening complications.[1] Although the pathogenesis is not known exactly, diagnostic criteria have been established and it has been shown that it is associated with antipsychotic use and blockade of the dopaminergic system. Laboratory findings such as leukocytosis, creatinine kinase and elevated liver function tests frequently accompany the clinical picture.[2,3] Central dopaminergic hypoactivity due to the sudden discontinuation of dopaminergic agents or antipsychotics or the use of dopamine antagonists is the main cause of NMS.[2,4,5] Although NMS is mostly associated with the use of typical and high-potency antipsychotics (such as haloperidol), there are cases described with other low-potency antipsychotics and new atypical antipsychotics.[6] A small number of cases have also been reported due to the concomitant use of lithium and other antipsychotics or the combination of anticonvulsants such as carbamazepine and tricyclic antidepressants.[7,8] Coronavirus disease-2019 (COVID-19) is unfortunately today's pandemic, which has been on the world agenda since the beginning of 2020 and the medical world has to deal with this disease constantly. Since the announcement of the pandemic, the patients have had to struggle with the newly known and emerging symptoms, prognoses, prognostic criteria, differential diagnoses and treatment methods, complications and side effects due to drugs used for COVID-19, which are the subject of research and observation of science and health professionals situations.[9]

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A 45-year-old male patient was brought to the emergency room after sudden loss of consciousness and had falled at home. In his history, he has been diagnosed with psychosis for 15 years and has been using olazanpine 20 mg and was added to quetiapine 100 mg treatment 20 days ago. Considering the presence of COVID-19 positivity in their relatives and the patient's symptoms may be COVID-19-related embolism, when the patient was brought to the emergency room by 112 emergency service, his fever: 37.5 degrees, blood pressure: 140/80 mm/Hg, conscious was blurred, there was no orientation and cooperation. White blood cell (WBC): 26,300 10^3/mm^3, hemoglobin (Hgb): 13.54 g/dL, hematocrit (Hct): 36.9%, platelet (Plt): 359,000 10^3/mm^3, glucose: 207 mg/dL, urea: 18 mg/dL, creatinine: 0.7 mg/dL, glomerular filtration rate (eGFR): 114 mL/min/1.73 m^2, sodium (Na): 109 mmol/lt, potassium (K): 3.6 mmol/lt, calcium (Ca): 8.3 mg/dL, aspartate aminotransferase (AST): 40 U/L, alanine aminotransferase (ALT): 44 U/L, C-reactive protein (CRP): 0.8 mg/L. Infectious diseases, chest diseases, general surgery and neurology councils are made by emergency physicians, firstly cause infectional reasons, especially for the exclusion of COVID-19, by excluding COVID-19, internal medicine and nephrology councils are made. The patient was admitted to the intensive care unit by nephrology with the diagnosis of hypotonic euvolemic hyponatremia, with the condition of being an observer in other clinics. Hypertonic saline was started because of neurological symptoms. Basal cortisol, t4 and thyroid stimulating hormone (TSH) values sent from the patient, were normal.

NMS was considered because of creatine kinase (CK): 5,593 U/L, AST: 75 U/L, Na: 124 mmol/L in the intensive care follow-up with fever, lethargy, and extensive rigidity in the extremities and body. The patient, whose brain tomography was normal, was intubated and sedated electively. Psychiatry consultation was requested and the antipsychotic drugs he used were discontinued. When the patient's Na was 130 mmol/L, hypertonic sodium chlorid infusion was discontinued and isotonic saline was started. 7.5 mg of bromocriptine was started for NMS. His rigidity disappeared though after his sedation was stopped, which was observed as intubated for 2 days. The extubated patient was transferred to the nephrology service. Followed here and his laboratory values declined (Na: 143 mmol/lt and CK: 178 U/L to AST: 33 U/L). The patient, who was confirmed to have NMS, was discharged with bromocriptine 5 mg/day and psychiatry and nephrology outpatient control.

Patient's consent was obtained.

DISCUSSION

NMS is a rare condition that requires intensive care monitoring due to the use of antipsychotics and other medicines that affect the dopaminergic system in emergency service practice. Informing the physicians in other branches with the potential to meet these patients like emergency physicians, help these patients will be diagnosed fastly and accelerate the emergency response status.[1] The experiences should be transferred to the literature on behalf of the fact that the differences with other diseases considered in differential diagnoses should be stressed in the practitioner training process. Especially nowadays we struggle and see the different clinical presentations of the COVID-19. It leads to the late diagnosis of diseases that are interfering with other urgent. In the observation of psychiatric patients, the psychoses of favipiravir is a known subject for literature due to the use of favipiravir for COVID-19, it is important to observe more careful the psychiatric patients, by psychiatrists and being illuminated their relationships by psychiatrists in this process.[10,11]

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

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