JSTMU Journal of Shifa Tameer-e-Millat University

https://j.stmu.edu.pk

Open Access

CASE REPORT

An afebrile neuroleptic malignant syndrome with hyponatremia: A case report

Muhammad Shoaib*[1], Ainan Arshad[2], Midrar Ullah[3], Sehrish Sajjad[4]

[1] MscN Scholar, School of Nursing and Midwifery, Aga Khan University, Karachi, Pakistan

[2] Assistant Professor, Department of Internal Medicine, Aga Khan University Hospital, Karachi, Pakistan

[3] Resident, Department of Internal Medicine, Aga Khan University Hospital, Karachi, Pakistan

[4] Senior Instructor, School of Nursing and Midwifery, Aga Khan University, Karachi, Pakistan

Author's Contribution

[1] Conception, design, Interpretation

[2-4] Conception, revising, drafting

Article Info.

Conflict of interest: Nil

Funding Sources: Nil

Correspondence

Muhammad Shoaib

shoaibaku94@gmail.com

A B S T R A C T

Neuroleptic malignant syndrome (NMS) is a rare, life-threatening situation in response to the adverse reaction of antipsychotic medications characterized by high-grade fever, altered Glasgow coma scale, autonomic dysfunction, and stiffness. We herein present a case with a typical presentation of stiffness and autonomic dysregulations along with the atypical symptoms of urinary incontinence and a history of falls. The patient was afebrile with hyponatremia, showing a similar presentation diagnosed as NMS and treated successfully according to the hospital protocol.

Cite this article as *Shoaib M, Arshad A, Ullah M, Sajjad S. An afebrile neuroleptic malignant syndrome with hyponatremia. A case report. JSTMU. 2023; 6(2):122-124.*

Keywords: *Neuroleptic malignant syndrome, Afebrile, Hyponatremia*

Introduction

A neuroleptic malignant syndrome (NMS) is a potentially life-threatening medical emergency due to the adverse effects of certain antipsychotic medications. Less likely, it occurs in the rapid withdrawal of antipsychotic medications or resulting in taking low-potency antipsychotic drugs. This condition is characterized by high-grade fever, muscle stiffness, altered Glasgow coma scale (GCS), and autonomic dysregulation. Typical laboratory findings include raised creatinine phosphokinase and leukocytosis.[1]

The global incidence of patients taking neuroleptic drugs ranges from 0.01 to 3.2%. The majority of the cases are reported in young adults. Men suffered more than women, with a ratio of 2:1.[2] However, the incidence rate in Pakistan is still underreported.[3] We herein describe a case of a 31-year-old female with a known case of depression who arrived in the emergency department with drowsiness, generalized stiffness, and a history of falls. She was diagnosed with NMS and was managed accordingly.

Case Presentation

A 31-year-old female patient with underlying depression was brought to the emergency department with abnormal behavior from the past two days, followed by loss of consciousness, generalized body stiffness, urinary incontinence, and a history of falls. Her husband witnessed the first time fall with rapid recovery, and then on the same day, she fell with the associated finding above. The history of seizures was unremarkable.

In detailed history, she was in a usual state of health one year back when she developed behavioral symptoms such as aggressive behavior, excessive talk, and depressive mood. She has been prescribed antipsychotic medications Risperidone 2 mg once a day and Procyclidine 2.5 mg once a day. Upon which half of the symptoms were

relieved. According to her husband, she had stopped the medications two weeks ago, and her symptoms worsened with increased aggressive and abnormal behavior. Upon arrival at the emergency department, she was vitally stable but drowsy, not oriented to time, place, or person, and agitated. On arrival, her vital signs were temperature 36.6 degrees Celsius, respiratory rate 21/min, blood pressure 113/62 mm/Hg, and pulse rate 96 beats/min. On further examination, the patient was well nourished, agitated, not following commands, moving all limbs, and not in respiratory distress with no hidden needle marks. The chest, abdomen, and cardiovascular systems were unremarkable.

On Neurological examination, she was disoriented in time, place, person, pupil bilateral equal, and reactive to light. Glasgow coma scale (GCS) was 13/15 (E4V4M5). She had increased muscle tone throughout the body, reflexes were normal, and bilateral plantar were downgoing with no signs of meningeal irritation. Her initial lab reports showed severe hyponatremia at 121 mmol/l, Potassium at 3.4 mmol/l, and magnesium at 1.3 mmol/l. Furthermore, her creatinine phosphokinase was increased to 3014 mcg/l, and her white blood cell count was also elevated to 17.6 mm3. Moreover, the computed tomography scan (CT scan) of the brain and cerebrospinal fluid detail report (CSF DR) were unremarkable.

The patient was admitted under the internal medicine services with psychiatry on board. Hyponatremia was managed through Intravenous (IV) 3% hypertonic saline, and for CPK, the patient was hydrated. Midazolam 5 mg was given on a need base for agitation. The patient, after that, received broad-spectrum antibiotics ceftriaxone 1 gm once a day, Haloperidol 2.25 mg intramuscular stat, Levetiracetam 500 mg twice a day, Levitirectam 500 mg twice a day as a prophylactic for the seizure but was discontinued on the second day after consulting with the neurology team. Pyridoxine 50 mg once a day, Omeprazole 40 mg before breakfast, and IV hydration. The patient's GCS improved; she tolerated the oral diet and resolved agitation.

Discussion

NMS is a rare but severe medical condition with a mortality rate of 10-30%. It has been classically characterized by high-grade fever, altered GCS, and stiffness.[4] NMS is also seen in patients due to withdrawal of antiparkinsonian medication. At the same time, the typical laboratory findings include elevated serum creatinine kinase. However, atypical or non-specific laboratory findings include leukocytosis, hypo- and hypernatremia, hyperkalemia, hypomagnesemia, hypocalcemia, metabolic acidosis, and mild abnormalities in liver function tests.[5]

Compared to the above literature, our patient falls in rare cases, most probably due to the withdrawal effect, as our patient is on risperidone and procyclidine and has not taken it for the past two weeks. Moreover, in the classical signs and symptoms, our patient has muscle stiffness, altered mental status, and high serum creatinine kinase. It is worth noting that our patient had atypical features, including urinary incontinence, hyponatremia, and raised leukocytosis. However, our patients remained afebrile.

The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV-TR) states that the existence of two or more of the following findings: hyperthermia and muscular stiffness (significant findings), tachycardia, raised white blood cell count, sweating, altered or generally elevated arterial tension, adjusted GCS, tremor, urinary incontinence, and increased CPK (minor findings) constitutes the diagnosis of NMS.[6]

Conclusion

In conclusion, the presented case study highlighted the critical importance of diagnosing and addressing Neuroleptic Malignant Syndrome as a rare medical severe emergency, particularly in patients who were previously on antipsychotic medications. The sudden discontinuation of antipsychotic medication led to the emergence of aggressive behavior, altered mental status, and other alarming symptoms. The patient's overall clinical conditions improved by promptly providing the recommended care. This emphasizes the vigilance monitoring and use of the proper management techniques in case of withholding antipsychotic medication to reduce the risk of NMS and ensure the best possible outcomes for the patient. The prevalence of mental disorders and the widespread use of antipsychotic medications in Pakistan implies that physicians and nurses must be familiar with the

warning signs, symptoms, and recommended course of care to manage patients promptly and avoid consequences.

References

1. Paul T, Karam A, Paul T, Loh H, Ferrer GF. A case report on neuroleptic malignant syndrome (NMS): how to approach an early diagnosis. Cureus. 2022; 14(3). DOI: https://doi.org/10.7759/cureus.23695
2. Simon LV, Hashmi MF, Callahan AL. Neuroleptic malignant syndrome. 2018. PMID: 29489248.
3. Zaidi S, Irfan N, Khalid Z. Neuroleptic Malignant Syndrome with Normal Creatine Phosphokinase Levels: An Atypical Presentation. J Coll Physicians Surg Pak. 2022; 32(4):S47-8. DOI: https://doi.org/10.29271/jcpsp.2022.supp1.s47
4. Berman BD. Neuroleptic malignant syndrome: a review for neurohospitalists. Neurohospitalist. 2011; 1(1):41-7. DOI: https://doi.org/10.1177/1941875210386491
5. Wijdicks EF. Neuroleptic malignant syndrome. UpToDate. (cited 01.01. 2017) Available from: https://www.uptodate.com/contents/neuroleptic-malignant-syndrome
6. Özdemir İ, Kuru E, Safak Y, Tulacı RG. A neuroleptic malignant syndrome without rigidity. Psychiat Investig. 2018; 15(2):226. DOI: https://doi.org/10.30773/pi.2017.06.05