Case Report

Journal of Emergency Medicine Case Reports

Neuroleptic Malignant Syndrome in Puerperalwomen – Frozen in Summer

Sadesvaran Muniandy[1], Asmalia Khalid[1], Mohd Lotfi Hamzah[1], Hafidahwati Hamad @ Ahmad[1]
[1]Emergency and Trauma Department, Hospital Sultanah Nur Zahirah, Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu, Malaysia

Abstract

Neuroleptic malignant syndrome is an rare event, even more so among patient from puerperal period. The incidence risk is of 0.11%. It is often occurs when a patient is prescribed on antipsychotic for long duration of time. We report a case of a female patient, two weeks in post natal period presented with altered behaviour at home. She has prior admission being treated for post partum psychosis with anti psychotic. However antipschotic was withheld as she developed extrapyramidal symptoms while in ward. At home, she developed fever, altered sensorium and fitting-like-episode. On arrival patient was unresponsive and with features of impaired airway patency. She had unstable vital sign with elevated blood pressure, heart rate and temperature. Brain imaging came back normal, excluding brain pathology. She was diagnosed as neuroleptic malignant syndrome as fulfilled features of elevated creatine kinase. She was treated symptomatic by providing first aid to reduce temperature and started on benzodiazepines. She was subsequently admitted to intensive ward and responded well to treatment. Physician must be familiar and have high index of suspicious to identify and treat neuroleptic malignant syndrome. Without prompt treatment, it is highly fatal.

Keywords: Neuroleptic malignant syndrom, puerperal, anti psychotic, withdrawal

Introduction

"Syndrome malin des neuroleptiques," also known as neuroleptic malignant syndrome (NMS), was first described by Delay in 1960. NMS is an idiosyncratic adverse reaction related to the usage of antipsychotics (1). Antipsychotics have been widely used in recent days to treat psychiatric illness. First-generation antipsychotic (FGA)is well known to cause neuroleptic malignant syndrome (NMS), a rare adverse event. Thus, most psychiatrists opt for second-generation antipsychotics (SGA). The prevalence of NMS is extremely low in the general population, with an incidence risk of 0.11% (2). In the post-partum period, female patients have an increased risk of developing NMS (3). We discuss the challenges and limitations in managing a patient within a puerperal period presented with altered mental status.

Case

A 21-year-old female, para one, 15 days postpartum, with a history of prior admission for puerperal psychosis. On previous admission, she was started on tablet risperidone, to which she developed extrapyramidal symptoms after ten days of medication. Subsequent risperidone was withheld, and she was started on artane. Later, the patient was discharged well against medical advice. Three days later, the patient was brought in by her husband with the complaint of reduced consciousness, fever and stiffing of limb for two days, worsening on the day of presentation.

On arrival, the patient was unresponsive with a blank stare (E4V2M1), the presence of stridor and increased oral secretion but saturating well on high flow mask oxygen. Her heart rate was 180bpm, showing extreme sinus tachycardia with normal blood pressure (121/59mmHg), and her hyperpyrexia with temperature of 42.8 degrees Celsius. Neurological examination reveals areflexia with limb tonic rigidity and non reactive pupil of 6mm bilaterally. She was intubated uneventfully for airway protection and maintenance. Initially, the impression was neuroleptic malignant syndrome, given her history of being started on antipsychotics.

Blood panels were sent, and computed tomography (CT) of the brain was performed to exclude intracranial haemorrhage. Immediate first aid management was performed to decrease the temperature with ice packing and sponging. She was then started on boluses of midazolam and subsequently midazolam infusion with maintenance fluid. Her blood investigation reveals elevated creatinine kinase 4890 U/L and LDH 854 UL. Her other blood parameters and CT brain were normal. She also tested negative for NMDAR encephalitis.

She was admitted to the intensive care unit (ICU). Her condition improved tremendously upon being initiated

Corresponding Author: Sadesvaran Muniandy
e-mail: mds1904@yahoo.com
Received: 15.01.2024 • **Accepted:** 05.06.2024
DOI: 10.33706/jemcr.1420313
©Copyright 2020 by Emergency Physicians Association of Turkey - Available online at www.jemcr.com

Cite this article as: Muniandy S, Khalid A, Hamzah ML, Hamad @ Ahmad H. Neuroleptic malignant syndrome in puerperalwomen – frozen in summer. Journal of Emergency Medicine Case Reports. 2024;15(2): 56-58

on bromocriptine. She was warded in ICU for six days, subsequently extubated and discharged to general ward. We have obtained consent from the patient to publish the case.

Discussion

Risperidone has been closely associated with the highest cases of atypical antipsychotic causing NMS (1). Despite risperidone being an atypical antipsychotic, it causes NMS symptoms similar to typical antipsychotics. Previously, it was thought that(SGA)was safe from causing NMS; however, several cases have been reported recently (4). SGA is still strongly associated with causing NMS, with a threefold higher chance of developing (5). Interestingly, NMS caused by SGA lacks the usual cardinal features. This is a belief due to the different pharmacological properties of SGA (4). Risperidone is specifically known to cause marked extrapyramidal syndrome and is followed by NMS (6). This is true in our patients. A shorted duration of antipsychotic was observed among patients taking risperidone who developed NMS. Our patient was prescribed SGA for eight days. At that time, the patient was treated for psychosis. However she was not investigated further for anti-NMDAR encephalitis. An author summarised that anti-NMDAR encephalitis may present with psychiatric symptoms during the early phase (7,8). An author explained that as rare as NMS in pregnancy, it should be considered and investigated in depth among patients diagnosed with postpartum psychosis (9).

Classical features of NMS are muscle rigidity, hyperthermia, involvement of autonomic dysfunction and elevated creatinine kinase (7). The study, noted that hyperpyrexia and autonomic gastrointestinal symptoms such as sialorrhea arethe first symptoms for patients who developed NMS after a few days from initiating antipsychotics (7). Besides, most patients become symptomatic 1-3 days before formal diagnosis (6). Despite that, patients develop symptoms gradually, may become severe, and rapids deteriorate within a few hours (10). In the early stage of NMS, it is difficult to diagnoseas symptoms are often subtle (9).

In rare occurrence, NMS can occur among patients whose neuroleptic has been discontinued. The reported case involved a long-term neuroleptic patient, and NMS is seen as abrupt neuroleptic withdrawal (11). Uniquely, our patient was only on antipsychotics for a brief period. A similar case was described where a puerperal patient developed NMS after ten days on antipsychotic (12).

NMS is managed primarily consist of support therapy which requires temperature control with cooling device, fluids and electrolyte correction. Study also show that treatment with bromocriptine gives rapid recovery (13). After cooling therapy, benzodiazepine is recommended as part of initial therapy. However trial with bromocriptine can be done if patient does not respond well with initial therapy (14). In our patient, even though she responded with benzodiazepine, she was started on bromocriptine to achieve complete recovery.

A close differential diagnosis for NMS is anti-NMDA receptor encephalitis, which will present almost similar to NMS but without elevated CK (7). Any patient diagnosed with NMS should also be investigated for autoimmune encephalitis. There is debate about NMS being a feature of anti-NMDA receptor encephalitis (7).

Conclusion

Most NMS being life threatening case are diagnosed in inpatient and emergency settings. Thus, we should have a high index of suspicion among patientstaking antipsychotics and developing extrapyramidal syndrome. We highlight that NMS is uncommon, and diagnosis is often missed. This is because the initial presentation is subtle. Clinicians should always consider NMS as adifferential diagnosis in patients who develop altered mental status, hyperpyrexia and rigidity, especially if they are started on dopaminergic antagonists. Efforts should be taken to identify early features among patients coming for follow-up aclinic setting.

References

1. Sarkar S, Gupta N. Drug information update. Atypical antipsychotics and neuroleptic malignant syndrome: Nuances and pragmatics of the association. BJPsych Bull. 2017;41(4):211–6.
2. Lao KSJ, Zhao J, Blais JE, Lam L, Wong ICK, Besag FMC, et al. Antipsychotics and Risk of Neuroleptic Malignant Syndrome: A Population-Based Cohort and Case-Crossover Study. CNS Drugs [Internet]. 2020;34(11):1165–75. Available from: https://doi.org/10.1007/s40263-020-00767-9
3. Alexander, Packacheril J; Thomas, Ranji M; Das A. Is Risk of Neuroleptic malignant syndrome increased in the Postpartum period. J Clin Psychiatry. 198AD;52(5):254–5.
4. Trollor JN, Chen X, Sachdev PS. Neuroleptic malignant syndrome associated with atypical antipsychotic drugs. CNS Drugs. 2009;23(6):477–92.
5. Su YP, Chang CK, Hayes RD, Harrison S, Lee W, Broadbent M, et al. Retrospective chart review on exposure to psychotropic medications associated with neuroleptic malignant syndrome. Acta Psychiatr Scand. 2014;130(1):52–60.
6. Belvederi Murri M, Guaglianone A, Bugliani M, Calcagno P, Respino M, Serafini G, et al. Second-Generation Antipsychotics and Neuroleptic Malignant Syndrome: Systematic Review and Case Report Analysis. Drugs R D. 2015;15(1):45–62.
7. Wang HY, Li T, Li XL, Zhang XX, Yan ZR, Xu Y. Anti-N-methyl-D-aspartate receptor encephalitis mimics neuroleptic malignant syndrome: Case report and literature review. Neuropsychiatr Dis Treat [Internet]. 2019;15:773–8. Available from: https://doi.org/10.2147/NDT.S195706

DOI: 10.33706/jemcr.1420313
Journal of emergency medicine case reports. 2024;15(2): 56-58

8. Koksal A, Baybas S, Mutluay B, Altunkaynak Y, Keskek A. A case of NMDAR encephalitis misdiagnosed as postpartum psychosis and neuroleptic malignant syndrome. Neurol Sci. 2015;36(7):1257–8.

9. Price DK, Turnbull GJ, Gregory RP, Stevens DG. Neuroleptic Malignant Syndromein a Case of Post-Partum Psychosis. Br J psychiatry. 1989;(155):849–52.

10. Ghafour I, Elyasi F. Metoclopramide-induced neuroleptic malignant syndrome: A review study. Iran J Psychiatry Behav Sci. 2020;14(3).

11. Amore M, Zazzeri N. Neuroleptic malignant syndrome after venlafaxine. Prog Neuro-Psychopharmacol Biol Psychiat. 1995;8(19):1323–34.

12. Stefanowski BW, Antosik-Wójcinska AZ, Jeschke J, Dominiak M, Święcicki Ł. Postpartum psychosis – case report on effective treatment of electroconvulsive therapy in a patient with a history of neuroleptic malignant syndrome. Pharmacother Psychiatry Neurol. 2019;35(1):75–80.

13. KV J, Gudimetla S, Sripada R, Simon A, Raja Y. A review on Neuroleptic Malignant Syndrome and Its Treatment Strategy: For Clinicians. World J Curr Med Pharm Res. 2019;1(1).

14. Rogers JP, Oldham MA, Fricchione G, Northoff G, Wilson JE, Mann SC, et al. Evidence-based consensus guidelines for the management of catatonia : Recommendations from the British Association for Psychopharmacology. 2023.