International Medical Case Reports Journal

Dovepress

Open Access Full Text Article

CASE REPORT

Acute Torticollis Reaction Following Metoclopramide Use in a Pediatric Patient: A Comprehensive Case Report and Appraisal of Current Knowledge

Mohamed Farah Gabobe Nor[1], Rayan Mohamed Salah[2], Mohammed AM Ahmed[3], Sakariye Abdullahi Hassan[4], Mohamed Farah Yusuf Mohamud[1,5,6]

[1]Faculty of Medicine, Mogadishu University, Mogadishu, Somalia; [2]Department of Pediatric, Kalkaal Hospital, Mogadishu, Somalia; [3]Department of Pediatrics, Faculty of Medicine and Surgery, Mogadishu University, Mogadishu, Somalia; [4]Department of Infectious Disease, Kalkaal Hospital, Mogadishu, Somalia; [5]Tayo Institute for Research and Development, Mogadishu, Somalia; [6]Somali Society for Emergency Medicine, Mogadishu, Somalia

Correspondence: Mohamed Farah Yusuf Mohamud, Department of Medicine, Mogadishu University, Mogadishu, Somalia, Tel +252615591689, Email m.qadar59@gmail.com

International Medical Case Reports Journal downloaded from https://www.dovepress.com/
For personal use only.

Abstract: Dopamine receptor antagonists like metoclopramide are frequently used in a variety of clinical contexts to treat gastrointestinal disorders and control nausea and vomiting. However, it is associated with a high incidence of extrapyramidal side effects (EPS) in children, including dystonic movements and torticollis. This is the instance of a 9-year-old girl who developed abnormal movements of the neck and tongue, along with torticollis, within 48 hours of receiving intravenous metoclopramide for gastroenteritis. The metoclopramide therapy was discontinued, and supportive measures, including diphenhydramine, were initiated, resulting in the resolution of symptoms. This case highlights the importance of recognizing and managing metoclopramide-induced EPS in pediatric patients.

Keywords: metoclopramide, extrapyramidal side effect, dystonic movements, torticollis emergency department

Introduction

The Food and Drug Administration (FDA) has approved metoclopramide, a chlorobenzamide that acts as a dopamine receptor antagonist, to treat nausea and vomiting in patients with diabetic gastroparesis and to improve stomach motility or gastroesophageal reflux disorders.[1] Additionally, it helps chemotherapy patients manage their nausea and vomiting.[2] Furthermore, when nasogastric suction is not available or is contraindicated, metoclopramide can be administered prophylactically to prevent nausea and vomiting in postoperative patients. It has also shown unexpected benefit in treating migraines.[3] In July 2013, the European Medicines Agency (EMA) officially recommended changes to the use of metoclopramide in children due to the high incidence of serious neurological side effects, particularly extrapyramidal disorders.[4] Extrapyramidal side effects (EPS), which encompass various movement disorders such as acute dystonia, rigidity, dyskinesia, hypokinesia/akinesia, akathisia, paraesthesias, tremor, and neuroleptic malignant syndrome, are commonly observed as adverse effects of dopamine-receptor blocking medications such as metoclopramide. These drug-induced movement disorders were first documented in 1952 when symptoms resembling Parkinson's disease were observed after the administration of chlorpromazine.[5] Metoclopramide is reported to have an EPS incidence of 4% to 25% when used as an antiemetic with a dopamine D2 receptor antagonist effect.[6,7]

We report the case of a 9-year-old girl who, after getting a single intravenous dosage of metoclopramide for gastroenteritis, experienced aberrant motions of the neck and tongue, as well as twisted neck (Torticollis), within 48 hours.

Received: 26 July 2024
Accepted: 15 December 2024
Published: 17 December 2024

© 2024 Gabobe Nor et al. This work is published and licensed by Dove Medical Press Limited. The full terms of this license are available at https://www.dovepress.com/terms.php and incorporate the Creative Commons Attribution – Non Commercial (unported, v3.0) License (http://creativecommons.org/licenses/by-nc/3.0/). By accessing the work you hereby accept the Terms. Non-commercial uses of the work are permitted without any further permission from Dove Medical Press Limited, provided the work is properly attributed. For permission for commercial use of this work, please see paragraphs 4.2 and 5 of our Terms (https://www.dovepress.com/terms.php).

Case Report

A 9-year-old girl patient with a history of abnormal movements of the tongue (rapid or worm-like movements of the tongue) and twisted neck (Torticollis) presented to the emergency department (ED). She had been experiencing diarrhea and vomiting for the past two days and had received a single intravenous (IV) dose of metoclopramide 2.4 mg (0.08 mg/kg) at other healthcare facility. Within 48 hours of initiating metoclopramide therapy, the patient's parents noticed abnormal movements involving the face and neck. The movements were described as repetitive, purposeless, and involuntary. The patient also developed a twisted neck (Torticollis). The parents promptly brought the patient to our hospital for evaluation. The patient's medical history was unremarkable, with no prior history of neurological or psychiatric disorders. Her vital signs were as following: arterial blood pressure 110/70 mmHg, pulse 96 beats/min, respiratory rate 20/min, axillary temperature 37oC, Spo2 of 98%, and bed blood sugar of 93 mg/dl. On physical examination, the patient exhibited dystonic movements, including sustained contractions of the neck muscles causing torticollis, and abnormal movement of the tongue. No other neurological abnormalities were noted, and the rest of the physical examination was unremarkable.

Laboratory investigations, including complete blood count, electrolytes, liver function tests, and thyroid function tests, were within normal limits. No evidence of infection or metabolic abnormalities was found. Considering the temporal relationship between the initiation of metoclopramide therapy and the onset of abnormal movements, a diagnosis of metoclopramide-induced extrapyramidal side effect (EPS) was suspected. The metoclopramide therapy was already discontinued, and supportive measures were initiated including intravenous fluid and diphenhydramine {20 mg of via the intramuscular (IM)}, resulting in the cessation of the abnormal movements. Subsequently, she received diphenhydramine every 8 hours for 1 day. Over the following 6 hours, the patient was closely monitored for any worsening of symptoms; fortunately, she returned to her baseline and was observed for 24 hours. Finally, approximately 48 hours after the presentation to the ED, no further intervention was required, and she was discharged uneventfully and advised to avoid metoclopramide and other medications that can induce EPS.

Discussion

Metoclopramide, a widely used medication for the treatment of gastrointestinal disorders and management of nausea and vomiting, is associated with a high incidence of EPS in children.[1,4] Extrapyramidal side effects associated with metoclopramide, such as dystonia, akathisia, and parkinsonism, occur due to the drug's antagonistic effects on dopamine D2 receptors in the nigrostriatal pathway of the brain.[6,7] This disruption of dopaminergic signaling can result in the manifestation of various movement disorders. Children, in particular, appear to be more susceptible to these adverse effects, which can be attributed to their developing central nervous system and differences in drug metabolism compared to adults. Acute dystonic reactions manifest as oculogyric crisis, trismus, opisthotonus, torticollis, involuntary extremity movements, protruding tongue, bulbar-type speech (mumbling, slurred, soft speaking with difficulty swallowing), and infrequently, stridor and dyspnea due to laryngospasm.[4,5] The case presented here describes a 9-year-old girl who developed acute torticollis and abnormal movements of the tongue and torticollis within 48 hours of receiving a single intravenous dose of metoclopramide for gastroenteritis. In a manner similar to the current case, Diab MJ et al documented a 9-year-old boy who experienced a rare acute dystonic reaction (ADR) after receiving metoclopramide for vomiting associated with pertussis, underscoring the challenges of managing medication side effects in young patients.[8] Özel BA et al reported a 20-year-old female patient to the emergency department (ED) who complained of involuntary bilateral upward medial deviation of the eyes, widespread muscle spasms, and an uncontrollable cry.[9] The patient exhibits every symptom associated with dystonic reaction, such as oculogyric crises, trismus, torticollis, opisthotonus, and spasms of the face, neck, back, and extremities. The medical history disclosed that a metoclopramide intake of 40 mg. About 100 cc of saline was used to infuse 5 mg of biperiden. The symptoms were totally gone, and she was discharged from the ED.

The management of metoclopramide-induced EPS typically involves the immediate discontinuation of the offending medication and the administration of anti-parkinsonian medications, such as diphenhydramine or benztropine and effective for most dystonic reactions within 5 minutes.[10]

Antihistamine, benzodiazepines, beta-adrenergic antagonists (propranolol), beta-adrenergic agonists (clonidine), or dopamine agonists (amantadine) may also be used. The prompt identification of the adverse reaction and the immediate discontinuation of metoclopramide, along with the administration of diphenhydramine (since it was readily available in the emergency department), led to the rapid resolution of the patient's symptoms.

It is crucial to remember that the European Medicines Agency (EMA) has advised against using metoclopramide in children because of the high risk of severe neurological complications or side effects, such as extrapyramidal disorders.[4] This case report underscores the need for healthcare professionals to be vigilant when prescribing metoclopramide, especially in the pediatric population, and to closely monitor patients for the development of EPS.

Conclusion

This case report underscores the potential for metoclopramide to induce acute torticollis and other extrapyramidal side effects in pediatric patients. Moreover, this case serves as a reminder of the broader responsibility healthcare practitioners have in monitoring their patients closely—especially in pediatric populations. Continuous education on the side effects of medications and maintaining awareness of the latest clinical guidelines will empower clinicians to make informed decisions that prioritize patient safety. Clinicians must remain vigilant for these adverse reactions, particularly in patients at risk for acute dystonic reactions. When alternatives are available, the use of metoclopramide should be avoided. Should an acute dystonic reaction occur, rapid intervention with anticholinergics or benzodiazepines, administered intravenously or intramuscularly, is essential. The successful management of this case highlights the critical importance of prompt recognition, appropriate treatment, and continuous monitoring to ensure optimal outcomes for pediatric patients.

Data Sharing Statement

We declared that we had full access to all of the data in this study, and we take complete responsibility for the integrity of the data. Data for this study are available upon reasonable request from the corresponding author.

Ethics Approval

According to the Declaration of Helsinki, the study was carried out. Approval of case reports by the institutional review board was not necessary, according to the guidelines of the Kalkal Hospital review board.

Consent for Publication

Written informed consent had obtained by the patient's father to have the case details and any accompanying images published and understanding that all identifying information will be removed to protect her privacy.

Acknowledgments

We are grateful to the patient, and her family whose permission was obtained to publish this case report.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of case, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

We certify that we do not have any sources of funding.

Disclosure

We now state that we have no conflicting interests.

References

1. Lee A, Kuo B. Metoclopramide in the treatment of diabetic gastroparesis. *Expert Rev Endocr Met*. 2010;5(5):653–662. doi:10.1586/eem.10.41
2. Adel N. Overview of chemotherapy-induced nausea and vomiting and evidence-based therapies. *Am J Manag Care*. 2017;23(14):S259–65.
3. De Oliveira GS Jr, Castro-Alves LJ, Chang R, Yaghmour E, McCarthy RJ. Systemic metoclopramide to prevent postoperative nausea and vomiting: a meta-analysis without Fujii's studies. *Br J Anaesth*. 2012;109(5):688–697. doi:10.1093/bja/aes325
4. European Medicines Agency. European Medicines Agency recommends changes to the use of metoclopramide. *Eur Med Agency Sci Med Health*. 2013.
5. Rifkin A. Extrapyramidal side effects: a historical perspective. *J Clini Psych*. 1987;48:3–6.
6. Ganzini L, Casey DE, Hoffman WF, McCall AL. The prevalence of metoclopramide-induced tardive dyskinesia and acute extrapyramidal movement disorders. *Arch Int Medi*. 1993;153(12):1469–1475. doi:10.1001/archinte.1993.00410120051007
7. Parlak I, Atilla RI, Cicek M, et al. Rate of metoclopramide infusion affects the severity and incidence of akathisia. *Emer Med J*. 2005;22 (9):621–624. doi:10.1136/emj.2004.014712
8. Diab MJ, ZainAlAbdin S, Aburuz S, et al. Prevalence of key potentially inappropriate drugs use in pediatrics: a cross-sectional study. *BMC Pediatric*. 2024;24(1):440. doi:10.1186/s12887-024-04921-w
9. Özel BA, Aksel G, Kılıçlı E, et al. Metoclopramide-induced acute dystonic reaction misinterpreted as conversion disorder and seizure. *European J Gener Med*. 2017;14(4).
10. Van der Padt A, van Schaik R, Sonneveld P. Acute dystonic reaction to metoclopramide in patients carrying homozygous cytochrome P450 2D6 genetic polymorphisms. *Neth J med*. 2006;64:160–162.

International Medical Case Reports Journal Dovepress

Publish your work in this journal

The International Medical Case Reports Journal is an international, peer-reviewed open-access journal publishing original case reports from all medical specialties. Previously unpublished medical posters are also accepted relating to any area of clinical or preclinical science. Submissions should not normally exceed 2,000 words or 4 published pages including figures, diagrams and references. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit http://www.dovepress.com/testimonials.php to read real quotes from published authors.

Submit your manuscript here: https://www.dovepress.com/international-medical-case-reports-journal-journal