Metoclopramide-induced Acute Dystonic Reaction: A Case Report

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ABSTRACT

Background: Acute dystonic reaction (ADR) is a fatal emergency condition. Drugs that have been implicated to induce ADR include metoclopramide.

Aim: This study documents an interesting case of a young woman who had metoclopramide-induced acute dystonic reaction, ADR.

Methods: This study reports a case of a patient who was managed for enteric fever and subsequently developed ADR following exposure to intravenous metoclopramide.

Results: A 24-year-old female being managed as a case of enteric fever and placed on intravenous antibiotics and metoclopramide following persistent vomiting. She developed ADR after 24 hours of metoclopramide administration. 10 mg intravenous diazepam was given as a bolus, and the offending drug was discontinued. A second bolus was repeated after 10 minutes when ADR manifestations failed to resolve. Manifestation subsequently resolved with no recurrence.

Conclusion: It is important to monitor patients on metoclopramide for features of ADR. This will help in the rapid diagnosis and prompt management of ADR. Diazepam, 10 mg, given as bolus intravenously has been shown to be useful in the management of this emergency condition. A second bolus can be given after 10 minutes if patient does not respond. Two doses of 10 mg of intravenous diazepam given 10 minutes apart was shown to be effective.

Keywords: Acute dystonic reaction, autonomic, extrapyramidal, metoclopramide, Nigeria, spasm

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INTRODUCTION

Drug-induced-acute dystonic reaction, an extrapyramidal side effect of antipsychotics, is a fatal medical emergency that requires immediate therapeutic intervention. It has been reported to occur in patients on antipsychotics, antidepressants, antiemetics, antihelminthics, antimalarials, and various antiepileptic drugs (1–3). It occurs in about 33% of patients on antipsychotics (4), and 0.5–1% of patients on metoclopramide or prochlorperazine (5).

Metoclopramide, an anti-emetic, is a peripherally and centrally-acting dopamine receptor antagonist (6, 7) commonly used in the management of emesis, migraine and gastroparesis. Its common adverse effects include but not limited to drowsiness, diarrhoea, hypotension and hypertension. It also causes extrapyramidal manifestations such as neuroleptic malignant syndrome, tardive dyskinesia, drug-induced parkinsonism, akathisia and acute dystonic reaction (8). Manifestation of acute dystonic reaction include upper airway obstruction from pharyngeal muscle spasms or laryngospasm, oculogyric crisis, torticollis, trismus, dysarthria, dysphonia, opistotonus, oropharyngeal dysphagia, temperomandibular joint dislocation, slurred speech, tongue protrusion and neck-stiffness (9–12). Male gender, children, young adults, and high dose are established risk factors for metoclopramide-induced acute dystonic reaction (13, 14).

There are only a few studies that reported metoclopramide-induced acute dystonic reaction, hence its management remains a challenge due to misdiagnosis. We thus present a case of acute dystonic reaction following intravenous administration of metoclopramide, which was subsequently recognized and managed successfully.

CASE REPORT

A 24-year-old female undergraduate who presented on account of recurrent abdominal pain of two months duration, fever, persistent vomiting and passage of loose stool which episodes could not be ascertained. On examination, patient was calm and oriented, febrile, anicteric, not pale, not cyanosed and well-hydrated. There were no significantly enlarged peripheral lymph nodes, and no pedal oedema. Other vital signs were normal. Systemic examinations were essentially normal, except the abdominal examination which revealed a full abdomen that moves with respiration. There was generalized abdominal tenderness, the liver and spleen were not palpably enlarged and the kidneys were bilaterally non-ballotable. Bowel sound was hypoactive.

An assessment of enteric fever was made and she was subsequently placed on 5% dextrose saline 1 litre eight hourly, ciprofloxacin 200 mg 12 hourly, metronidazole 500 mg eight hourly, and paracetamol 1 g eight hourly. All medications were administered intravenously. With persistent vomiting, she was given intravenous metoclopramide 10 mg eight hourly.

After about 24 hours on admission, patient developed painful contraction of the neck muscles, tongue twisting and slurring of speech. A spot diagnosis of acute dystonic reaction was made. Intravenous diazepam 10 mg was given as bolus and a quick examination was done. She was conscious, afebrile, anicteric, not pale, not cyanosed and well-hydrated. Interestingly, vital signs were within normal limits. However, features of acute dystonic reaction did not improve, hence a second bolus of intravenous diazepam 10 mg was administered after 10 minutes. Manifestation subsided and she was noted to be sleeping. Metoclopramide was discontinued.

Patient was reviewed half-hourly for eight hours to particularly evaluate for the signs of acute dystonic reaction. There was no recurrence.

Patient was subsequently discharged on oral medications and seen as an out-patient.

DISCUSSION

All drugs have their side effects. Sometimes, the side effects could be useful in the management of some medical conditions, however, some side effects are fatal. A rare and fatal adverse effect of medical emergency is acute dystonic reaction (ADR). Acute dystonic reaction may affect any muscle groups, however, it commonly affects the head and neck region. Drugs that have been implicated to cause acute dystonic reaction include metoclopramide, chlorpromazine, haloperidol flunarizine, olanzapine, phenytoin, chloroquine, buspirone, albendazole, and cocaine (3, 11, 15, 16). Although, the pathogenesis seems unclear, it has been postulated that it is due to the compensatory dopamine release from the synaptic terminals in response to blockade of postsynaptic dopamine receptors and up regulation or enhanced sensitivity of postsynaptic receptors in response to diminished dopamine level (1, 17).

Benztropine, 1–2 mg by slow intravenous injection, has been established to be useful in the management of ADR. It has been documented that most patients will respond to benztropine within five minutes and become symptom-free by 15 minutes (4). However, this dose can be repeated after 10 minutes if the patient does not respond. Alternatively, diphenhydramine, an antihistamine, has also been reported to be useful in the management of ADR at a dose of 1–2 mg/kg and up to 100 mg by slow intravenous injection (18–20). Promethazine, 25–50 mg given intravenously or intramuscularly has also been reported useful though not commonly used

(4). In rare conditions where patients do not respond to the commonly used drugs, intravenous diazepam at 5–10 mg, has been documented useful (4).

This case seems interesting as ADR commonly occurs in males. Although it can occur after a single dose, it is usually seen in high doses. This study reports a case of ADR in a young female after three doses of metoclopramide (10 mg each). The diagnosis and management of ADR has been a challenge in clinical practice due to poor recognition of the manifestation.

Hence, a high index of suspicion is pertinent in the management of ADR. When in doubt, it is reasonable to treat as 'possible medication-induced ADR', but if patients fails to respond to the antidote, then the diagnosis is probably wrong. Close monitoring of the patient and vital signs are important in the management. This will help in the rapid treatment of a recurrence.

CONCLUSION

Despite the wide use of metoclopramide as an anti-emetic, clinicians should put it in mind that this drug has a high potential of inducing ADR. Close monitoring of patients on metoclopramide and other drugs that have been implicated to induce ADR is important for the rapid diagnosis and prompt management. Intravenous administration of 10 mg of diazepam has been shown to be useful in the management of this fatal emergency condition. A second bolus of 10 mg of intravenous diazepam can be given after 10 minutes if patient does not respond to the first.

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