



A CASE REPORT ON METOCLOPRAMIDE CAUSING ACUTE DYSTONIA

Pharmacy

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ABSTRACT

Dystonia is an extrapyramidal motor function disorder characterized by intermittent spasmodic or sustained involuntary muscle contraction of the face, neck, trunk, pelvis, and extremities resulting in repetitive movements and abnormal posture. Dopamine antagonist metoclopramide is used most frequently for nausea and vomiting. metoclopramide does not increase gastric acid production. Drug-induced dystonic reactions are most commonly caused by metoclopramide. Only a few cases of drug-induced dystonia have been reported in the literature. A 52yr male patient causing dystonia due to oral administration of 30 mg metoclopramide. This case report aims to draw attention to the frequent occurrence of metoclopramide induce acute dystonia.

KEYWORDS

Dystonia, Metoclopramide, chlorpheniramine, oculogyric crisis

The Food and Drug Administration (FDA) approved metoclopramide, a prescription antiemetic medication, in 1979. As a result, it is often used as a treatment for esophageal reflux disease, dyspepsia, gastrointestinal motility abnormalities and to increase the speed of stomach emptying [1]. In the central nervous system, metoclopramide acts as a dopamine receptor antagonist that blocks both D-1 and D-2 dopamine receptors in the chemoreceptor trigger zone, preventing nausea and vomiting caused by a variety of stimuli [2]. Dystonia is a condition characterized by involuntary, sustained, or spasmodic contractions of muscles which result in twisting, repetitive and abnormal movements of the muscles [3]. There are a variety of symptoms that it can present, including unexplained limb movements, facial grimacing, torticollis, oculogyric crisis, vocal titters, a bulbar type of speech, trismus, opisthotonus (tetanus-like reactions), and rarely stridor, dyspnea which can result from laryngitis [2]. The antagonistic effect of metoclopramide on dopamine receptors in the basal ganglia causes an alteration in the dopaminergic-cholinergic balance, resulting in a deficit in central dopamine transmission; hence an excess release of acetylcholine over dopamine may produce rare movement disorders, such as acute dystonic reactions [3]. Patients who take metoclopramide or prochlorperazine consistently demonstrate acute dystonic reactions during their treatment, with the incidence of the acute dystonic reaction being estimated to range from 0.5–1% [4]. Here, we present a rare case of metoclopramide-induced acute dystonic reaction (MIADR).

Case Presentation

A 52-year-old female patient was suffering from a burning sensation and pain in the chest after eating and multiple episodes of vomiting for 2 days, so she was taking metoclopramide 10 mg (orally, three times daily) and pantoprazole 40 mg (orally, one time daily) medications from the local medical store for 2 days. After 2 days she developed difficulty in pulling her neck, cramping foot, pain in the muscle, difficulty in speaking, upward rolling of the eyes, a short period of relaxation, her head and eyes turned again in the direction of compulsion.

After that, she came to Gandhi hospital, as the symptoms above are characteristic of a specific type of dystonic reaction known as an oculogyric crisis. On examination, the patient was conscious, coherent, and afebrile. Her Blood pressure was 120/80 mmHg. Her pulse rate was 70 beats per minute, and Her partial pressure oxygen saturation (SpO₂) is 99% on room air. The laboratory investigations revealed that the decrease in sodium level i.e 130 mEq/L (normal-135-145 mEq/L), and potassium level was 3.2 mmol/L (normal - 3.5-4.5 mmol/L). The Naranjo Adverse Drug Reaction Probability Scale scored 6 and classified as a "probable" adverse drug reaction.

The prognosis of metoclopramide causing acute dystonia was made

based on the aforementioned clinical, previous drug-taken history, and laboratory findings. She was administered 8 mg of oral chlorpheniramine, and four hours later, her dystonic symptoms as well as nausea and vomiting both subsided. No further dystonic reactions were observed after discontinuation of metoclopramide. She was discharged from the hospital after two days and advised not to take metoclopramide in the future.

DISCUSSION

In the postrema of the brain, metoclopramide inhibits dopamine D2 and serotonin 5-HT₃ receptors. The drug induces prokinetic effects by inhibiting D2 receptors at presynaptic and postsynaptic sites, antagonizing 5-HT₄ receptors and antagonistically inhibiting muscarinic receptors. As a result, the lower esophageal sphincter (LES) and gastric tone are increased, accelerating gastric emptying. It antagonizes dopamine D2 receptors by binding to muscular D2 receptors, dopamine relaxes the gastrointestinal tract [5]. So metoclopramide is most widely used in peptic ulcer disease, diabetic gastroparesis, and gastroesophageal reflux disease (GERD).

A 52 yr female patient used metoclopramide for burning sensation, pain in the chest and vomiting. During the second day of her metoclopramide treatment, she experienced an acute dystonic reaction.

Metoclopramide reaches its peak pharmacological activity after 1 to 3 minutes following an intravenous dose, 10 to 15 minutes following an intramuscular injection, and 30 to 60 minutes following an oral dose; the effects last for 1 to 2 hours [6].

Generally extrapyramidal symptoms associated with metoclopramide are exhibited within the first 24 to 48 hours of the drug's usage and manifest as acute dystonic reactions [7]. Acute dystonia also developed in this patient 48 hours after she was given metoclopramide for the first time.

A recent study reported that MIADR is linked to the daily administration of more than 30 mg of metoclopramide daily during the course of the study [8]. A 30-mg dose of metoclopramide has also been administered to this patient after being diagnosed with acute dystonia. Furthermore, antihistamines have shown to be effective in treating dystonia as well as in reducing allergic manifestations [9]. This patient has successfully treated with oral chlorpheniramine 8 mg.

A study was conducted on the oral route of chlorpheniramine and it has been found that oral chlorpheniramine undergoes extensive gut first-pass metabolism, with a bioavailability as low as 25% and a mean peak time of up to four hours [10]. In this patient dystonic symptoms was

subsided after 4 h later with the use of metoclopramide. The patient was discharged from the hospital two days later and was advised not to use metoclopramide again in the future.

CONCLUSION

The purpose of this case report is to bring the attention of healthcare professionals on the potential adverse effects that may occur due to high dosages of metoclopramide usage which causes acute dystonia as described in the case report. Healthcare professionals need to recognize this side effect as well and provide their patients with the best possible care. Ensure that people follow a health care professional's instructions if they use medication.

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