EAJM 2013; 45: 58-9 The Eurasian Journal of Medicine **Case Report**

Metoclopramide-Induced Acute Dystonic Reaction: A Case Report

Metoklopramidin İndüklediği Akut Distonik Reaksiyon: Olgu Sunumu

Gul Karagoz[1], Ayten Kadanali[1], Behiye Dede[1], Ulker Anadol[2], Muhterem Yucel[1], Mehmet Fatih Bektasoglu[1]

[1]Department of Infectious Disease and Clinical Microbiology, Umraniye Training and Research Hospital, Istanbul, Turkey
[2]Department of Neurology, Umraniye Training and Research Hospital, Istanbul, Turkey

Abstract

The aim of this case report is to draw attention to the frequent occurrence of metoclopramide-induced movement disorders. We report a case of an acute dystonic reaction to metoclopramide in a patient treated for hepatitis A. Metoclopramide can cause severe adverse events, such as an acute dystonic reaction, and should be used with caution in patients with infectious diseases.

Key Words: Metoclopramide, Oculogyric crisis, Dystonic reaction

Özet

Bu olgu sunumunun amacı metoklopramidin indüklediği hareket bozukluklarına dikkat çekmektir. Hepatit A nedeniyle tedavi edilen hastada metoklopramid kullanımına bağlı gelişen akut distonik reaksiyon olgusu sunulmaktadır. Metoklopramid akut distonik reaksiyon gibi ciddi yan etkilere sebep olduğundan infeksiyon hastalıklarının destek tedavisinde dikkatle kullanılmalıdır.

Anahtar Kelimeler: Metoklopramid, Okülojirik Kriz, Distonik Reaksiyon

Introduction

Metoclopramide, a dopamine-2 receptor antagonist used for various gastrointestinal disorders, may cause or exacerbate a variety of extrapyramidal movement disorders [1]. The anti-emetic action of metoclopramide is the result of its antagonist activity at D_2 receptors in the chemoreceptor trigger zone in the central nervous system; this action prevents the nausea and vomiting triggered by most stimuli [2]. Acute dystonic reactions, the most common type of extrapyramidal symptom associated with metoclopramide, occur in approximately 0.2% of patients (1 in 500) treated with 30 to 40 mg of metoclopramide per day [3]. Symptoms include involuntary limb movements, facial grimacing, torticollis, oculogyric crisis, rhythmic protrusion of the tongue, bulbar type of speech, trismus, opisthotonus (tetanus-like reactions), and, rarely, stridor and dyspnea, which possibly result from laryngospasm. We report a case of an acute dystonic reaction to metoclopramide in a patient treated for hepatitis A and draw attention to the frequent occurrence of metoclopramide-induced movement disorders.

Case Report

A 25-year-old female was diagnosed with hepatitis A. Because of persistent nausea, 10 mg of metoclopramide was prescribed (intravenous, three times daily). After two days, the patient felt painful arching of the neck and upward rolling of the eyes, and she had difficulty speaking. After a short period of relaxation, her head and eyes turned again in the direction of compulsion. She remained fully consciousness during this episode. The above symptoms were characteristic of an oculogyric crisis, which is a specific type of dystonic reaction. An acute dystonic reaction (oculogyric crisis) as a result of metoclopramide was diagnosed. The symptoms disappeared immediately upon the intravenous administration of 2 mg of biperiden. No further dystonic reactions were observed after metoclopramide was discontinued.

Discussion

Dystonia is a movement disorder characterized by involuntary, sustained muscle contractions that result in twisting

Received: August 16, 2012 / **Accepted:** November 12, 2012

Correspondence to: Gul Karagoz, Department of Infectious Disease and Clinical Microbiology, Umraniye Training and Research Hospital, 34773 Umraniye, Istanbul, Turkey Phone: +90 505 751 26 88 e-mail: gulkaragozmd@yahoo.com

doi:10.5152/eajm.2013.10

and repetitive movements or abnormal postures [4]. Dystonia can be classified by the age of onset, body distribution, and etiology. Classification by etiology separates the spectrum of dystonia into primary and secondary categories. Secondary dystonia is associated with a known acquired causes or additional neurologic signs, such as muscle weakness, spasticity, ataxia, ocular motility abnormalities, retinal abnormalities, cognitive impairment, or seizures. Secondary dystonia typically arises from a specific underlying condition, such as exposure to dopamine receptor-blocking drugs [5]. Metoclopramide is a dopamine receptor antagonist that blocks both D1 and D2 receptors in the central nervous system. When administered in higher doses, it also blocks serotonin receptors [6]. Metoclopramide is used primarily in the following situations: as an antiemetic agent and/or as a prokinetic agent for the treatment of gastroparesis and the postpyloric placement of enteral feeding tubes; the prevention and/or treatment of nausea and vomiting associated with chemotherapy or postsurgery; and to stimulate gastric emptying and the intestinal transit of barium during radiological examinations of the stomach/small intestine. The antiemetic properties of metoclopramide appear to be a result of its antagonism of central and peripheral dopamine receptors. Dopamine induces nausea and vomiting by stimulating the medullary chemoreceptor trigger zone, and metoclopramide blocks stimulation of the chemoreceptor trigger zone by agents such as L-dopa or apomorphine, which are known to increase dopamine levels and to possess dopamine-like effects. Metoclopramide also abolishes the slowing of gastric emptying caused by apomorphine [7, 8]. The onset of the pharmacological action of metoclopramide is 1 to 3 minutes following an intravenous dose, 10 to 15 minutes following intramuscular administration, and 30 to 60 minutes following an oral dose; the pharmacological effects persist for 1 to 2 hours [9].

Metoclopramide may cause extrapyramidal symptoms that generally manifest as acute dystonic reactions within the initial 24-48 hours of use. The risk of these reactions is increased at higher doses and in pediatric patients and adults <30 years of age.

Metoclopramide is an antiemetic drug that can cause severe adverse events, such as an acute dystonic reaction, and should be used with caution in patients with infectious diseases. Doctors should be familiar with its bizarre possible side effects. The most rapid treatment of an acute dystonic reaction caused by metoclopramide is the intravenous or intramuscular administration of anticholinergics.

Conflict of interest statement: The authors declare that they have no conflict of interest to the publication of this article.

References

1. Miller LG, Jankovic J. Metoclopramide-induced movement disorders. Clinical findings with a review of the literature. Arch Intern Med 1989; 149: 2486-92.
2. Rang, HP, Dale MM, Ritter JM, et al. Pharmacology (5th ed.). Edinburgh: Churchill Livingstone. ISBN 0-443-07145-4, 2003
3. Guala A, Mittino D, Ghini T, Quazza G. Are metoclopramide dystonias familial? Pediatr Med Chir 1992; 14: 617-8.
4. Geyer HL, Bressman SB. The diagnosis of dystonia. Lancet Neurol 2006; 5: 780-90.
5. Bressman SB. Dystonia genotypes, phenotypes, and classification. Adv Neurol 2004; 94: 101-7.
6. Herrstedt J. Development of antiemetic therapy in cancer patients. Acta Oncol 1995; 34: 637-40.
7. Albibi R, McCallum RW. Metoclopramide: pharmacology and clinical application. Ann Intern Med 1983; 98: 86-95.
8. DiPalma JR. Metoclopramide: a dopamine receptor antagonist. Am Fam Physician 1990; 41: 919-24.
9. Halac G, Ergunes M, Kocael P. Metoclopramide induced acute dystonic reaction: a case report. Parkinson Hast Hareket Boz Der 2009; 12: 35-8.