

Original article:

Acute dystonic reaction induced by metoclopramide in a post cardiac surgery patient

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ABSTRACT

Metoclopramide is antiemetic, antinauseant and gastric prokinetic. It is used in post operative period frequently for nausea and vomiting. But sometimes the patient may develop dramatic extrapyramidal side effects in form of face and extremity muscles spasms, trismus, opisthotonus and extreme agitation. If not familiar with these side effects of metoclopramide we can easily incorrectly interpret these symptoms and diagnose it as tetany, convulsions, encephalitis, food poisoning, intoxication and in cardiac surgery as a neurological complication. Individual susceptibility to metoclopramide and the cumulative effect of repeated doses of the drug may also be important. Symptoms are usually self limiting but may require critical care in severely symptomatic cases. Detailed previous medical and drug use history is necessary for avoiding misdiagnosis, and for timely recognition and adequate treatment of metoclopramide side effects.

Keywords: Metoclopramide, Extrapyramidal side effects

INTRODUCTION

Metoclopramide (chemical name: 4-amino-5-chloro-N-2-diethylaminoethyl-2-methoxybenzamide hydrochloride monohydrate) is antiemetic, antinauseant and gastric prokinetic. By blocking dopamine (D2) receptors, and affecting 5HT-3 receptors as antagonist and 5HT-4 receptors as agonist, metoclopramide inhibits brain vomiting center, accelerates gastric emptying and increases the resting tone of the lower esophageal sphincter. Metoclopramide administered intravenously expresses its effects after 1-3 minutes. The effect occurs 10-15 minutes after intramuscular administration, and 15-20 minutes after oral dose. Metabolism takes place in the liver, and about 80% of the drug is excreted in the urine in the first 24 hours after intake. Half-life vary from 2.5 to 6 hours. Dose of metoclopramide in

children should not exceed 0.10-1.15 mg/kg/8h, or 0.5mg/kg/day.

Sometimes the use of metoclopramide in children may induce serious and common neurological side effects, especially extrapyramidal disorders (acute dystonia, rigidity, hypokinesia/akinesia, dyskinesia, akathisia, tremor and paraesthesias, neuroleptic malignant syndrome). Acute dystonia is most frequent side effect in children. It includes tonic muscular contractions (face and extremity muscles), trismus, oculogyric crisis, torticollis, opisthotonus, pharyngeal muscle spasm or laryngospasm (**Table 1**). These side effects may not be dose and duration related. The incidence of some of these side effects in children is 6 times higher than in adults. Extrapyramidal disorders can occur even at minimal dosage level, usually within 24-72 hours after taking

this medicine. Typical medical history and clinical signs are sufficient for diagnosis.

Table: 1

Oculogyric crisis	spasm of extra- orbital muscles, causing upward and outward deviation of eyes, Blepharospasm
Torticollis	Head held turned to one side
Opisthotonus	Painful forced extension of the neck. In severe form patient arches off the bed
Macroglossia	The Tongue gets protruded and appears swollen
Buccolingual crisis	May be accompanied by trismus, risus sardonicus, dysarthria and grimacing
Laryngospasm	Uncommon
Spasticity	Trunk muscles and less commonly limbs can be affected

CASE REPORT

A 4 year old boy diagnosed as a case of atrial septal defect (ASD) on echocardiography was operated after all routine investigations. The defect was closed under cardiopulmonary bypass and post operatively the child was extubated on the same day as per the institute protocol. The child was getting iv antibiotics, lasix, ecosprin and metoclopramide (0.5 mg/kg/day in three divided doses) post operatively as

treatment. Child developed typical acute dystonic reactions (**Figure 1 and 2**) on 2nd day, which were promptly understood and treated with intravenous promethazine and discontinuing metoclopramide. Child recovered from the symptoms very well and discharged on 7th day after explaining the parents about the side effects of metoclopramide and not to use it in future. Child is doing well and is under opd follow up.



Figure 1



Figure 2

DISCUSSION

Metoclopramide causing Acute dystonic reactions is rare. The Incidence is 0.2%. We use metoclopramide routinely in our postoperative patients for its antiemetic effects. The Acute Dystonic reactions are really worrisome and pose a diagnostic challenge as it mimics neurological symptoms of cardiopulmonary bypass in a post cardiac surgery patient. Fortunately, acute reactions are usually self limited, respond well to the treatment and do not need any further evaluation and follow-up. In children most frequent neurological reactions are face and extremity muscle contractions, torticollis, opisthotonus, oculogyric crisis. These symptoms may be incorrectly interpreted and diagnosed as tetany, convulsions, encephalitis, food poisoning, intoxication

Recommended treatment in acute phase is to secure airway in case of upper airway obstruction because of

pharyngeal muscle spasm or laryngospasm, otherwise Diphenhydramine hydrochloride (1.25 mg/kg/dose, maximum 300 mg/day with 6 hour intervals), or benztropine mesylate (0.02-0.05 mg/kg/ dose, maximum 2 mg/kg/day and once or twice per day), or biperiden lactate (0.04 mg/kg, maximum four doses with 30 minute intervals) can be used. Midazolam can be administered in patients with convulsions, in common anticonvulsive doses.

CONCLUSION

The acute dystonic reactions should be diagnosed promptly and managed as per the severity of the symptoms . Moreover, these symptoms has to be differentiated from the neurological complications of post cardiopulmonary bypass, as the treatment for the conditions are different and directly affects the mortality and morbidity of the patient.

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