Promethazine induced acute dystonia: A case report

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Abstract
Promethazine is a first generation antihistaminic belonging to phenothiazine family. Because of its strong anticholinergic property, it is used for the treatment of drug-induced dystonia, which is characterized by sustained or repetitive involuntary muscle contractions associated with twisting or repetitive movements with abnormal postures. Promethazine, which is used to treat dystonia, can itself rarely cause dystonia as an adverse effect. Here, we present a rare case of promethazine induced acute dystonia.

Key words: Promethazine, antihistaminic, anticholinergic, dystonia.

Introduction
Acute dystonia is an extrapyramidal disorder seen as a side effect of neuroleptic drugs mainly with phenothiazine or butyrophenone antipsychotic medications; it is also reported with the intake of other drugs like antidepressant selective serotonin reuptake inhibitors (SSRIs), antiemetics (metoclopramide). Such drug induced movement disorders are treated with centrally acting anticholinergics like biperiden, benztropine or first generation antihistaminics like diphenhydramine, promethazine.

Here is a rare case of acute dystonic reaction seen with promethazine.

Case Description
A 15-year-old male weighing 40 kg was brought to the hospital with complaints of fever, vomiting, abdominal pain, and epigastric distress. Appropriate investigations revealed a diagnosis of urinary tract infection and acute gastroenteritis. He was treated with antibiotics, cefixime, and ornidazole, for five days along with dicyclomine, pantoprazole, tramadol, ondansetron SOS for three days. However, after stopping all the above drugs, vomiting did not subside and continued for the next two days. Therefore, 50mg of injection promethazine hydrochloride (Phenergan 50 mg) was given intravenously. Within 15 minutes of administering the above injection the boy became restless with excessive twisting and repetitive movements, abnormal posture, and spasm of all the limb muscles. All baseline blood tests results (full blood count, electrolytes) were within normal limits. He was diagnosed to have acute dystonic reaction secondary to promethazine administration.

He was immediately treated with an injection pheniramine (avil) and hydrocortisone. But the symptoms continued for the next one hour. Later 1mg of lorazepam was injected i.v. and the patient became calm within a few minutes and slept. The patient woke up without any of the above symptoms. His vitals were stable and was discharged.

Discussion
Acute dystonia is bizarre muscle spasm, mostly involving linguo-facial muscles presenting as grimacing, tongue thrusting, torticollis, locked jaw; occurs within a few hours of a single dose or at most in the first week of therapy mostly with typical

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antipsychotic medications. Dystonic reactions are mostly seen in the younger age group with higher prevalence among males.

The pathogenesis of acute dystonia is still unclear. Since the antipsychotics bind to D2 dopamine receptors, it has been suggested that blockade of these receptors results in overactive striatal acetylcholine activity, which may be responsible for acute dystonia.

Promethazine is a first generation antihistaminic belonging to phenothiazine family. It has strong anticholinergic property due to which it is used for the treatment of drug induced movement disorders. However, it is also found to have weak D2 receptor blocking action. This property might have been the cause of dystonia. The dose of promethazine given might have been higher for the patient’s bodyweight, which could have added to the above reaction. Though this is a rare occurrence, similar cases of promethazine induced dystonias were reported previously by Darwish H et al and De Grandi T et al. In the above case, the patient was treated immediately with pheniramine, a first generation antihistaminic but he did not respond to it. Hence, he had to be treated with lorazepam, a benzodiazepine which is generally used to treat dystonia refractory to anticholinergic/antihistaminic.

**Conclusion**

Acute dystonic reactions are common with antipsychotic (phenothiazine, haloperidol) and antiemetic (metoclopramide) medications. Clinicians need to be aware of such rare reactions. It should be differentiated from hysteria and other psychiatric conditions. It would be better to seek opinion from a psychiatrist and treat the patients appropriately.

**References**