



ACUTE DYSTONIC REACTION IN ADULT AFTER INGESTION OF COUGH SUPPRESSANT - A CASE REPORT

Bikashita Deka

Assistant Professor, Department of Psychiatry, T.S. Mishra Medical College and Hospital, Lucknow

Sriparna Bhattacharyya*

Registrar, Department of Psychiatry, Gauhati Medical College and Hospital, Guwahati

*Corresponding Author

ABSTRACT

Drug induced dystonia is a phenomenon most frequently linked with dopamine blocking agents and mostly in children. Though the exact mechanism of dystonia is still under study, it is mostly due to dopaminergic-cholinergic imbalance in the basal ganglia. We present a case report of segmental dystonia in a 25-year-old, otherwise healthy male after ingestion of therapeutic dose of cough suppressant containing chlorpheniramine and dextromethorphan. It involved cervical and truncal dystonia with difficulty breathing and apprehension. Though the mechanism of action of the said cough suppressants causing dystonia is unclear, it calls for having an open eye, careful evaluation and identification of the offending drug so that fair treatment is carried out.

KEYWORDS : Dystonia, Cough Suppressant, Dextromethorphan, Chlorpheniramine.**1. INTRODUCTION:**

Dystonia is defined as a syndrome of involuntary sustained or intermittent muscle contraction leading to twisting or repetitive movements or abnormal postures.^[1] The symptoms of drug induced dystonia can begin immediately or be delayed by hours or days following exposure to the inciting drug. Common causes of drug-induced dystonia (DID) are antiemetic and antipsychotic drugs. However, therapeutic ingestions of cough and cold preparations containing dextromethorphan or codeine with antihistamines, decongestants, expectorants, and antipyretics have also been associated with DID.^[2] Although dystonic reactions are rarely life-threatening, they cause significant distress to the patient. Here we report a case of drug induced dystonia following ingestion of therapeutic dose of cough suppressant. Written and informed consent was taken from the patient for reporting of the case.

2. Case Report:

A 25-year-old Hindu male hailing from a Southern Indian state and working as a cook in paramilitary services in lower Assam was admitted to our department via emergency with the complaints of sudden onset painful pulling of neck and torso to the left side (segmental dystonia) associated with difficulty in breathing and restlessness. The patient gave a history of ingestion of 1 tablet of amoxiclav 625mg and a cough suppressant containing chlorpheniramine maleate and dextromethorphan hydrobromide, 10 ml thrice daily. (roughly translates to total quantity of 50ml which equivalents to 100mg dextromethorphan and 40mg chlorpheniramine). The medications were taken for flu-like symptoms in the preceding 3 days and his painful neck and torso movement had precipitated 24hours following last dose of cough suppressant. The episodes lasted for approximately 30 mins and subsided within minutes of intravenous injection of lorazepam 4mg at emergency. Another two episodes lasting about 15 mins but lesser in intensity occurred in the course of the following day in the in-patient department which responded dramatically to Inj Promethazine 50 mg intramuscular administered at statim.

There is no history of loss of consciousness, involuntary passage of urine or confusion associated with the episode. No recent or past history of antipsychotic or antiemetic medication intake was noted.

He had a positive history of use of cough syrup due to cough and cold in the past without any adverse events. He is a user of alcohol 2-3 times a week amounting to about 180 ml since last 3-4 years. He takes nicotine containing cigarettes 2-3 times a week, one cigarette per occasion since the last 10 years.

On MSE, after the acute episodes had subsided, he appeared conscious, oriented, well groomed, athletic built with normal psychomotor activity and was co-operative. Rapport and eye contact was established. His speech was relevant however mood was anxious and he expressed concerns about the recurrence of similar episode in the future. There was no perceptual disturbance. His attention was drawn and well sustained with intact immediate, recent and remote

memories. His intelligence was average, judgement intact and insight Grade 5.

There was no abnormal finding in his routine blood work-up. MRI Brain, EEG and CT Brain were normal which were carried out to rule out any other cause of the dystonia.

The Naranjo score in this case was +9. The patient remained symptom-free for the following three days and was discharged without any medication but with a caution to report about his reaction to any further consultation with doctors for any ailments.

3. DISCUSSION:

Most cough suppressant preparations are a mixture of dextromethorphan or codeine with antihistamine, decongestants and expectorants.^[3] To our knowledge, there have been only few reports of acute dystonic reaction following therapeutic ingestion or overdose of cough suppressants, all of them being in children.^[3,4,5,6] We found one report of late-onset segmental dystonia in a 42-year old male with chronic dextromethorphan abuse.^[7] There are few reports of serotonin toxicity following overdose of cough suppressants containing dextromethorphan and chlorpheniramine.^[8]

Although rare, there have been case reports of dystonia with both chlorpheniramine and dextromethorphan in children in therapeutic dose.^[5,6] To our knowledge, this is the first reported case of acute dystonic reaction in an adult on therapeutic dose of dextromethorphan and chlorpheniramine.

Dextromethorphan is the d isomer of 3 methoxy N methylmorphinan, a synthetic analogue of codeine, and it mediates its anti-tussive action by activating the sigma-1 receptors in the central medullary cough center.^[9] The typical anti-tussive dose for adult is 30-40mg every 4-6 hours. It also binds to and inhibit N-methyl D-aspartate (NMDA) receptors at high doses (≥ 400 mg) producing 'dissociative' effect similar to ketamine and phencyclidine along with autonomic effects. In the short term, "robo-tripping" or using dextromethorphan in large amount to get high has cause euphoria, delayed response times, sedation, dissociation and hallucination. Sustained habitual use can result in effect on dopamine receptor resulting in agitation, delusions, mood changes such as depression and mania, problems with attention and memory. Other actions like serotonin transporter inhibitor, anticholinergic activity, norepinephrine transporter inhibitor and voltage-gated calcium channel inhibitor.^[10]

Chlorpheniramine is a first-generation anti-histamine which works by acting as inverse agonist at H1 receptors and is commonly used an over-the-counter drug for treating common cold. It also inhibits the serotonin transporter (SERT) and has weak anti-muscarinic activity. The usual adult dose is 4mg every 4-6 hourly.^[11] There have been reports of abuse of chlorpheniramine.^[12,13]

4. CONCLUSION:

This is the first report of acute dystonic reaction in adult with cough

suppressant containing dextromethorphan and chlorpheniramine in therapeutic dosage. Our report further ascertains the idiosyncratic nature of dystonic reactions. The mechanism of actions of chlorpheniramine and dextromethorphan is different from that in the conventional agents causing dystonia. This further complicates the understanding of the already unclear neurochemistry of occurrence of dystonia. This report also highlights the importance of having a cautious and vigilant mind while looking for the offending drug. The cases of drug-induced dystonia are usually attributed to antipsychotic medications whereas they may in reality be caused by cough suppressants or any other drug taken concurrently. In such cases, it may lead to unnecessary discontinuation of the antipsychotic medications.

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Author Contributions:

- Bikashita Deka – Conceptualization, data curation, original draft preparation
- Sripama Bhattacharyya- Visualization, original draft preparation, reviewing and editing

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