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Review Article

Cetirizine Consumption: When an Antihistamine Sparks an Unexpected Medical Twist in a Toddler – A Case Report of Somnolence and Bradycardia

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Abstract

We report the case of a 2½-year-old boy who ingested approximately half a bottle of cetirizine syrup (~15 mg total). Within one hour, the child developed notable somnolence and bradycardia (heart rate ~60- 76 bpm), though respiratory function and capillary refill time remained stable. He was managed with supportive care and admitted for close observation. Over a six-hour period, the somnolence and bradycardia gradually resolved without intervention. The child was discharged after 13 hours of monitoring in stable condition, having returned to baseline neurological and cardiovascular function. Although cetirizine has a wide therapeutic index, this case highlights that overdose in young children can cause transient cardiovascular and CNS effects. Timely recognition, conservative management, and observation are usually sufficient for complete recovery. Cetirizine poisoning in children is generally self-limiting, but may present with somnolence and bradycardia. Prompt observation and supportive care lead to favorable outcomes.

Keywords: Cetirizine; Antihistamine; Poisoning

Introduction

Cetirizine is a second-generation H1-antihistamine widely used to treat a variety of allergic conditions. It is the racemic mixture of levocetirizine and exhibits high specificity for peripheral H1 receptors, thereby minimizing central nervous system side effects such as sedation [1]. Cetirizine selectively blocks H1 receptors located on effector cells in the gastrointestinal tract, blood vessels, and respiratory tract. Its lack of significant blood-brain barrier penetration accounts for its relatively low sedation profile compared to first-generation antihistamines [1]. Cetirizine is indicated for Seasonal and perennial allergic rhinitis and rhinoconjunctivitis, Chronic idiopathic urticaria and adjunctive therapy in atopic dermatitis [2]. It provides symptom relief from sneezing, rhinorrhea, itching, and ocular symptoms associated with allergic inflammation. Most commonly reported side effects include Drowsiness (less frequent than with older antihistamines), Dry mouth, Headache, Fatigue [3]. Serious adverse effects are rare, but caution is advised in individuals with hepatic or renal impairment due to altered drug clearance. In overdose, symptoms may include marked sedation, irritability (notably in children), tachycardia, and tremor. Supportive care is the primary treatment as there is no specific antidote [3].

Case Report

Symptomatology and signs

A 2 and half year-old boy was brought to the casualty at 8.45 pm with alleged history of consumption of approximately half a bottle of cetirizine syrup of strength 5ml/5mg at home around 8 pm. At 0 and about half an hour, on examination in both the casualty and shifting to pediatric intensive care (PICU), he was conscious, alert, oriented to mother, PR: 86/min., RR: 20/min., Saturations: 100% Room air, no distress, and capillary refill time (CRT) was normal. Systemic Examination showed revealed no abnormalities. After 1 hour of admission the child showed symptoms of somnolence and evidence of bradycardia on multiparameter pulse oximeter with a range of 76-60/min with normal saturations and CRT. Quality of pulses was normal as well as no apex- pulse deficit was recorded clinically. Monitoring was continued to look for any further worsening of bradyarrhythmias which did not happen and after 4-6 hours of monitoring the pulse recovered on its own including the consciousness. By morning he was normal on examination, took orally and there was no bradycardia. The PR was recorded as 90-100/min. The case was discharged after 13 hours of admission. No specific follow-up was deemed necessary given the complete resolution of symptoms and normal clinical status.

Investigations and management

Peripheral Intravenous cannulation (IV) was established and samples were sent to the laboratory. Investigations showed only mild- moderate eosinophilia of 15% and no abnormalities on Renal Function, Liver Function, Electrolytes and Platelets. During his admission no gastric Lavage was performed as 1 hour was passed from consumption before reaching to the hospital, it was doubtful whether it would benefit for the child and it could worsen or confuse the picture of bradycardia noticed during PICU. Only maintainence fluids was given during the hospitalization.

Discussion

Cetirizine, a second-generation antihistamine, is widely used in pediatric populations for allergic rhinitis and urticaria due to its favorable safety profile and minimal sedation [1]. However, accidental ingestion or dosing errors can lead to poisoning, particularly in children under five years of age [4].

Clinical manifestations of cetirizine poisoning in children are generally mild but can include somnolence, irritability, tachycardia, and ataxia [5]. In rare cases, paradoxical CNS stimulation such as agitation or hallucinations may occur [6]. A retrospective study by Spiller., *et al*. found that most pediatric exposures resulted in minimal toxicity, with drowsiness being the most common symptom [7].

The therapeutic index of cetirizine is relatively wide, and serious toxicity is uncommon even at doses several times higher than recommended [8]. However, co-ingestion with other CNS depressants or underlying hepatic/renal impairment may exacerbate effects [9]. Management is largely supportive, including observation and symptomatic care [10]. Activated charcoal is rarely indicated unless ingestion is recent and the dose is significantly above therapeutic levels [11].

Preventive strategies include caregiver education, child-resistant packaging, and clear dosing instructions. Despite its safety, cetirizine should be stored securely, as even benign medications can pose risks in pediatric populations [12].

Conclusion

Cetirizine poisoning in children is generally mild and self-limiting, with drowsiness being the most common symptom. Serious toxicity is rare, and supportive care is usually sufficient in most cases. Prompt recognition and appropriate monitoring ensure safe outcomes in nearly all pediatric exposures.

Limitations

- Continuous ECG monitoring was not performed during the observation period.
- Follow-up blood investigations were not repeated to evaluate dynamic biochemical changes post-ingestion.
- No sequential clinical follow-up was conducted after discharge to assess for any delayed effects.
- Serum Cetirizine Levels were not measured.

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