

Loss of Consciousness in a Child after Consuming an Ointment: A Case Report

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Abstract

Objective: accidental ingestion of brimonidine can lead to serious adverse effects, especially in young children. We report the case of a 2.5-year-old child who ingested brimonidine ointment and experienced apnea and cyanosis.

Case Presentation: The case was a female patient with severe central nervous system depression and apnea as a result of brimonidine ointment ingestion. After administration of oxygen and high doses of naloxone, she improved.

Conclusion: Ingesting the alpha 2 adrenergic compounds is very dangerous for children, and in addition to medical staff, parents should also receive adequate training on this matter.

Key Words: Alpha 2 adrenergic compounds, Apnea, Brimonidine toxicity, Coma, Cyanosis, Poisoning, Respiratory depression.

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1- INTRODUCTION

Brimonidine ointment is a topical medication used for the treatment of rosacea acne in adults. However, accidental ingestion of this medication can lead to serious adverse effects, especially in young children. We report the case of a 2.5-year-old child who ingested brimonidine ointment and experienced respiratory depression, apnea and loss of consciousness.

2- CASE PRESENTATION

A 2.5-year-old female child was brought to the emergency room by her parents after ingestion of brimonidine ointment, which was being used by her mother for the treatment of rosacea acne. Upon arrival, the child had apnea and cyanosis. Her pupils were miotic. Her weight was 12 kg. Her vital signs were as follows: pulse rate of 120 beats per minute, RR 8/min then complete apnea, temperature of 36.8 °C, blood pressure of 100/80 and oxygen saturation of 78%. Oxygen and naloxone were immediately administered to the child, and she was admitted to the hospital for further management.

2-1. Paraclinical Findings after 1 Hour

CBC: WBC: 6.2×10^3 , PMN: 43.7%, LYMPH: 47.6, RBC: 4.23×10^6 /ml Hb: 11.7 gr/dl, HCT: 32.7%, PLT: 211×10^3 /mcl

BS:130 mg/dl, Urea:11.3 creatinine:0.5 mg/dl AST:20 U/L ALT:11 U/L ,CRP: 3.4 mg/L ESR:1mm, VBG: PH:7.35 PCO₂:35 HCO₃:18.5 ,PT:15 , INR:1 PTT:37

2-2. Treatment and Management

At the time of admission, a safe airway and venous access were established. Due to the complete apnea and the history of accidental oral consumption of the brimonidine ointment, oxygen was started at a rate of 5-8 liters per minute through a

nasal cannula, and at the same time, 0.2 mg of naloxone was administered intravenously and titrated up to 10 mg. The patient's respiratory rate improved and O₂ saturation was 95%; so, maintenance dose of naloxone started as follows:

Infusion 40 mg during 24 hours (1.6 mg/hr.)

At the same time, the patient's blood sugar was 130 mg/ dl.

The child was hospitalized for three days and closely monitored for any signs of respiratory depression. She was given supportive care including oxygen therapy, intravenous fluids, and close monitoring of her vital signs. Other diagnoses were ruled out. The child's condition gradually improved, so naloxone and oxygen tapered. After 3 days, the child was discharged from the hospital with good general health and normal vital signs.

3- DISCUSSION

Brimonidine is an alpha-2 adrenergic receptor agonist, topically used to treat eye diseases in the form of ophthalmic drops and as an ointment to treat acne rosacea. It causes vasoconstriction and decreases blood flow to the skin. In 2013, the FDA approved topical application of brimonidine as 0.33% gel for persistent facial redness of rosacea (1-3).

However, when ingested, it can cause systemic effects such as respiratory depression and hypotension and bradycardia. In children, accidental ingestion of brimonidine can lead to serious adverse effects, such as respiratory depression, hypotension, and coma (4-7). Early intervention with oxygen and naloxone, as well as close monitoring of vital signs, is crucial in the management of brimonidine toxicity. Previous studies have reported many cases of accidental ingestion of brimonidine eye drops, and there are articles which have mentioned poisoning with topical brimonidine

compounds; almost in all of these articles, the symptoms have been reported as loss of consciousness and bradypnea (5,6), but no experience has been provided regarding the ingestion of ointment.

The present patient is one of the few reports of Brimonidine ointment poisoning, whose clinical symptoms were severe and required high amounts of naloxone for treatment. In the present case, the symptoms were severe apnea and deep loss of consciousness, and the response to naloxone with high doses was excellent and dramatic.

4- CONCLUSION

a) Accidental oral consumption of alpha-2 adrenergic compounds should be included in the differential diagnosis list of children's bradypnea, apnea and loss of consciousness.

b) In the case of oral consumption of topical compounds, including Brimonidine ointments, the clinical symptoms may be very severe and accompanied by complete apnea, requiring the use of **large amounts** of naloxone.

3-Parents should receive adequate training on how to properly store medications, even topical drugs.

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