Bottle gourd (Lagenaria siceraria) juice poisoning

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BACKGROUND: Bottle gourd (Lagenaria siceraria) is popularly known as lauki, ghia or dudhi in India. Its consumption is advocated by traditional medicine healers for controlling diabetes mellitus, hypertension, liver diseases, weight loss and other diseases. However, in last few years there have been reports of suspected toxicity due to consumption of its juice leading to severe vomiting and upper gastrointestinal bleeding. As emergency physicians we need to be aware of this very rare poisoning specially in India.

METHODS: We present a case of a 52-year-old woman who presented with multiple episodes of hematemesis and shock to the emergency department (ED) after consuming bottle gourd juice. The patient was resuscitated and stabilized with fluids, proton pump inhibitors and antiemetics and shifted to the intensive care unit (ICU) under the care of a gastroenterology team for urgent endoscopy and further management.

RESULTS: The patient received intravenous fluids, antibiotics, antiemetics, and antacids and underwent upper gastroenterologic endoscopy during the hospitalization. She was discharged in a stable condition 4 days later.

CONCLUSIONS: As a member of the Cucurbitaceae family, bottle gourd contains toxic tetracyclic triterpenoid compounds called cucurbitacins which are responsible for the bitter taste and toxicity. There is no known antidote for this toxicity, and clinicians treat such patients symptomatically only. It is important to educate the public about the harmful effects of this potentially life-threatening toxicity.

KEY WORDS: Bottle gourd; Shock; Toxicity

INTRODUCTION

The calabash or bottle gourd (Lagenaria siceraria) is popularly known as lauki, ghia or dudhi in India. In Ayurveda, bottle gourd is advocated for treatment of diabetes mellitus, hypertension, flatulence, cooling properties, liver diseases, weight loss and other conditions. It is part of complementary and alternative therapy which is widely prevalent in India. This kind of toxicity is extremely rare and very few cases have been reported. Though there are a few beneficial effects of bottle gourd extracts in animal models, human studies are few. In recent times it has been unearthed that bottle gourd juice with a bitter taste can cause severe toxic reactions and lead to symptoms such as abdominal pain, vomiting, diarrhea, hematemesis, hematochezia, shock and death. It is important for emergency physicians to be aware of this toxicity especially in India where bottle gourd is consumed a lot.

CASE REPORT

A 52-year-old hypertensive woman presented to the ED at 1720 hours with complaints of severe upper abdominal pain, multiple episodes of vomiting and fresh blood in vomitus since the morning. The episode had begun after she had consumed bottle gourd juice in the morning. She presented with weak pulse 70/minute, systolic BP 70 mmHg, respiratory rate 18/minute, room
DISCUSSION

We report a rare kind of poisoning that can occur in any population. Bottle gourd (Lagenaria siceraria) known as "Lauki" in northern India is a member of the cucurbitaceae family. It is cultivated throughout the tropical and subtropical regions of the world for its unripe edible fruit as a vegetable. Other members of this family include cucumber, colocynth, bitter gourd, watermelon, etc. The ethanolic extract of L. siceraria fruit showed anthepatotoxic and antihyperlipidemic activity in rats. Bottle gourd fruit contains trace amount of cucurbitacins specially types B, D, G, and H. Normally, the levels of cucurbitacins do not exceed 130 ppm. Cucurbitacins inhibit the bindings of cortisol to glucocorticoid receptor in He La cells at 37 °C in a dose-dependent manner, showing a strong correlation with cytotoxic activity. Cucurbitacin D enhances capillary permeability, which is associated with a persistent fall in blood pressure and accumulation of fluid in thoracic and abdominal cavities in mice.

There are a few reports of human toxicity due to cucurbits. In the period of 1981–1982, in Australia and Alabama, and in 1984 in California, 202 cases of human poisoning were reported by bitter zucchini, a cucurbitaceae member. Similarly, Khan et al reported 5 cases of bloody diarrhea due to colocynth toxicity.

One hour after ingesting bitter bottle gourd juice most patients can have onset of symptoms such as vomiting, diarrhea, upper gastrointestinal bleeding and hypotension. There is no known antidote for this poisoning, and management includes control of upper gastrointestinal bleeding and management of shock, for example, adequate isotonic fluid resuscitation and blood transfusions if necessary. Antibiotics are frequently administered to prevent and treat supervening infections.

In conclusion, it is important not only for the general population but for emergency medicine physicians to be aware of this uncommon presentation and recognize it without delay especially in our country where traditional medicine is widely prevalent. Patient and family education plays an important role in spreading knowledge about the possible harmful effects of traditional medicine. In current times where the internet has become an inseparable part of life, the role of social media in spreading such knowledge should be emphasized.

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