

Selected Topics: Toxicology



MAD HONEY POISONING–RELATED HYPOTHERMIA: A CASE SERIES

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Abstract—Background: Mad honey–related intoxication frequently leads to bradycardia, hypotension, and syncope. Hypothermia is a potentially life-threatening condition if not identified early and treated appropriately. **Case Report:** Three patients are reviewed. Patient 1 was a 66-year-old man who presented to the emergency department with nausea, vomiting, and faintness beginning 2 h after consuming honey. His temperature was 34°C, his blood pressure was 70/40 mm Hg, and his heart rate was 30 beats/min. Patient 2, a 57-year-old man, presented to the emergency department with headache, feeling cold, and faintness beginning 3 h after consuming honey. His temperature was 35°C, his blood pressure was 60/40 mm Hg, and his heart rate was 46 beats/min. Patient 3 was a 79-year-old woman who presented with nausea, vomiting, and headache 2 h after consuming honey. Her temperature was 35°C, her blood pressure was 70/40 mm Hg, and her heart rate was 40 beats/min. All 3 patients were discharged in good condition after appropriate therapy. **Why Should an Emergency Physician Be Aware of This?:** Bradycardia and hypotension are frequently encountered in mad honey intoxication. However, intoxication accompanied by hypothermia has attracted little attention to date. © 2016 Elsevier Inc.

Keywords—bradycardia; grayanotoxin; hypotension; hypothermia; mad honey

INTRODUCTION

Grayanotoxin is a toxin found in honeys produced from nectars and pollens from flowers of the genus *Rhododendron* from the family Ericaceae (1). Intoxication resulting from honeys containing the toxin is known locally in Turkey as “mad honey” poisoning. This form of poisoning particularly occurs with honeys from the Eastern Black Sea region of Turkey. This intoxication is more prevalent in certain parts of the world; however, cases of intoxication associated with consumption of honeys produced in this region in other parts of the world and also with the distribution of the *Rhododendron* genus in nature have been reported. Although there is no routine test available for definitively revealing exposure and measuring grayanotoxin levels in the blood, a history of honey consumption and clinical findings typical of intoxication are sufficient for diagnosis, especially in regions where such intoxication is common. Patients with mad honey poisoning frequently present to the emergency department (ED) with bradycardia, hypotension, nausea, vomiting, and syncope. Other symptoms that may be seen include sweating, dizziness, an altered mental state, diplopia, blurred vision, and hypersalivation (2).

Hypothermia is defined as a core temperature <35°C. However, the most recent studies refer to hypothermia as body temperature decreasing to <36°C in traumatic patients (3). Hypothermia is classified by severity as mild (32–35°C), moderate (28–32°C), or severe (<28°C).

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Severe hypothermia is a potentially life-threatening condition if it is not identified early and treated appropriately (4).

To the best of our knowledge, hypothermia associated with mad honey poisoning has not previously been reported. The purpose of this report was to describe cases presenting with mad honey poisoning and with mild hypothermia accompanying hypotension and to discuss these in the light of the current literature.

CASE REPORT

Case 1

A 66-year-old man was brought to the ED with vertigo, nausea, vomiting, and faintness. There was no history of disease or any drug or alcohol use. Anamnesis revealed that the symptoms had begun 2 h after the consumption of mad honey. The patient was mentally healthy and reported that he consumed 1 or 2 teaspoons of this honey daily, and that he knew that excessive consumption can lead to symptoms such as nausea and dizziness—in spite of this risk, he continued to consume this honey for health purposes. He reported that he had experienced previous similar honey-related symptoms, but that they had not ever been so severe. The patient's blood pressure was 70/40 mm Hg, his heart rate was 30 beats/min, his respiration rate was 20 breaths/min, and his temperature was 34°C. Other systemic examinations and laboratory tests were normal, including blood glucose, sodium, potassium, calcium, C-reactive protein, and thyroid hormones. Sinus bradycardia was detected during an electrocardiogram (ECG). The patient's clothing and nutrition were adequate. No environmental exposure or metabolic or endocrinologic pathology that might account for the hypothermia was determined. The patient was placed under monitoring, began saline and fluid therapy, and was given atropine 1 mg. Thirty minutes after administration of atropine, his blood pressure was 110/70 mm Hg, his heart rate was 65 beats/min, and his body temperature was 35°C. External heating was applied. Hourly body temperature and blood pressure monitoring was performed. The course of the patient's fever in the ED is shown in Figure 1. The clinical and ECG findings resolved during his next monitoring. His temperature at hour 4 of monitoring was 36.5°C, and external heating was stopped. By hour 6, his clinical findings were stable and the patient was discharged.

Case 2

A 57-year-old man was brought to the ED with a loss of consciousness, chills, and a headache. There was no history of disease or any drug or alcohol use. Anamnesis revealed sudden-onset sweating and feelings of faintness 3 h

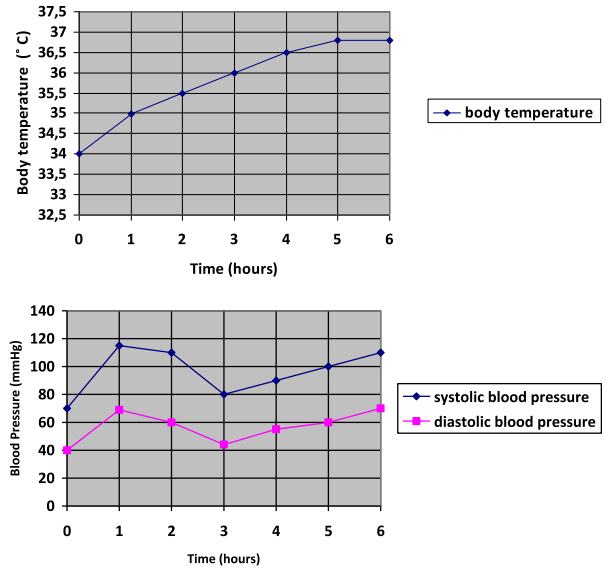


Figure 1. Case 1 body temperature (°C) and blood pressure (mm Hg) in the emergency department follow-up schedule.

after consumption of 2 dessert spoonfuls of honey, soon followed by a loss of consciousness. The patient reported that the honey used had a sharper taste and that, in contrast to other regular honeys, was more medicinal in nature. He consumed it in the belief it would keep him healthy and bestow benefits on the body. He reported that he had never experienced any previous adverse effects. His chills and headache appeared subsequently. The physical examination revealed a man in good general condition who was conscious, oriented, and cooperative. His blood pressure was 60/40 mm Hg, his heart rate was 46 beats/min, his respiration rate was 20 breaths/min, and his temperature was 35°C. Other system examinations were normal, and he was wearing adequate clothing. His capillary blood sugar was 72 mg/dL, and other laboratory tests were normal, including sodium, potassium, calcium, C-reactive protein, and thyroid hormones. Sinus bradycardia was present at the time of the ECG. The patient was placed on monitoring and given intravenous atropine 1 mg. After atropine administration, his heart rate was 95 beats/min and his blood pressure was 110/75 mm Hg. The patient was administered intravenous rapid normal saline 1000 cc (at 39°C). External heating was also applied because the patient was hypothermic. His body temperature and blood pressure were monitored hourly. There was again no environmental exposure, mental, or metabolic or endocrinologic pathology that might explain the patient's hypothermia. Occasional hypotension and bradycardia occurred during monitoring but were not symptomatic. Data concerning body temperature and blood pressure monitoring in the ED are shown in Figure 2. The patient was monitored for 20 h in the ED, and his vital

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