Seizures due to high dose camphor ingestion

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Abstract

Camphor is a cyclic ketone of the hydro aromatic terpene group. Today it is frequently used as a prescription or non-prescription topical antitussive, analgesic, anesthetic and antipruritic agent. Camphor which is considered an innocent drug by parents and physicians is a common household item which can lead to severe poisoning in children even when taken in small amounts. Neurotoxicity in the form of seizures can occur soon after ingestion. A two-year old female patient who presented with a complaint of generalized tonic-clonic seizures after oral ingestion of camphor is presented. (Turk Pediatr Ars 2015; 50: 248-50)

Keywords: Child, camphor, seizure, poisoning

Introduction

While camphor is naturally obtained from camphor tree (*Cinnamomum camphora*), currently it is artificially obtained from turpentine oil. This substance has been used for centuries as antipruritic, topical vasodilator, inducer of miscarriage, aphrodisiac, contraceptive, anti-common cold drug, moth repellent, inhibitor of lactation and antiseptic. In medicine, it is most commonly used as topical antitussive, analgesic, anesthetic and anti-pruritic (1). If camphor is used at inappropriate doses and with inappropriate methods, it leads to intoxication. Camphor intoxication usually occurs by oral ingestion, nasal or cutaneous absorption and inhalation of its vapor. Intoxication with high doses leads to damage in the liver and central nervous system. Death usually occurs with respiratory arrest (2, 3). In this article, a two-year old patient who presented with seizure after ingestion of high dose camphor is presented. Informed consent was obtained from parents.

Case

A two-year old female patient presented with a complaint of having seizure. In her history, it was learned that she did not have any known disease, was given a teaspoon of camphor (66 mg/kg) (VapoRub Vaporizing cream, Vicks. India) by her mother to "help her to go to sleep" with the recommendation of the family members, had generalized

tonic clonic seizures one hour after ingestion (the first one lasted for 3-4 minutes and stopped spontaneously and the second one could be stopped only after 10 minutes with eight mg diazepam) and was referred to our hospital after the case was reported to the legal authorities. On physical examination at the time of presentation at the emergency department, her consciousness was open, she was oriented and cooperated and her neurological examination and examination of the other systems were found to be normal. In addition, there was no trace or finding of trauma which could suggest battered child syndrome on physical examination. Cranial computerized tomography performed in terms of rapidly developing intracranial pathologies was found to be normal in the patient who had afebrile seizure for two times. It was reported that she had no fever and fever was not found during the follow-up period. She was hospitalized in the pediatric neurology ward with a prediagnosis of seizure due to ingestion of camphor.

In her personal history, it was learned that she was born by optional cesarean section with a birth weight of 3350 g and her motor and mental development was normal. In her familial history, there was no consanguinity between the mother and father and there was no history of any known disease.

On physical examination, her weight was found to be 14.8 kg (90-97 p), her height was found to be 90 cm (75-90 p),

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Received: 01.07.2013 **Accepted:** 16.01.2014

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DOI: 10.5152/TurkPediatrArs.2015.1360

Figure 1. Two year-old girl: sleep EEG

her head circumference was found to be 50 cm (90-97 p) and all system findings were found to be normal. The complete blood count, hepatic function tests, electrolytes and bilirubin levels of the patient were found to be normal. There was no pathology on sleep-awakeness electroencephalogram EEG (Figure 1). The patient had no seizure during her hospitalization period and was discharged after a 48-hour follow-up period.

Discussion

Camphor is a neurotoxic compound which can be easily absorbed in the mucosa, gastrointestinal system, skin and respiratory system because of its property of attracting oil (4, 5). Depending on the dose ingested, findings related with the gastrointestinal system including, nausea and vomiting are observed primarily and findings related with the central nervous system including hyperactivity, tremor, headache, hallucinations, dizziness, delirium, clouded consciousness, seizure, apnea, respiratory arrest and coma may be observed subsequently. In addition, elevated transaminase levels, hepatic damage, hepatosteatosis, urinary retention, albuminuria and sinus tachycardia may be observed. Death occurs as a result of respiratory arrest and unstopable seizures (6, 7).

In children, ingestion of a total dose of 500 mg-1 000 mg and a dose above 30 mg/kg is defined as toxic and high dose camphor ingestion (3, 4). Signs including nausea, vomiting, headache and heartburn which are not life-threatening are observed below these doses. It is recommended that these patients should be discharged after a 2-4 hour follow-up period in the emergency department (4, 5).

Side effects emerge in 5-90 minutes in cases of ingestion of high doses. The side effects are generally observed in 15-20 minutes after ingestion by the gastrointestinal system, whereas signs related with the central nervous sys-

tem are observed in 30-60 minutes. Life-threatening side effects are usually finalized in 24 hours, while residual effects may last for days and even weeks (5).

In the literature, it has been reported that side effects do not develop in later hours, if no side effect is observed in the first four hours after ingestion of any amount (toxic dose or less) (4).

If the dose ingested is 30 mg/kg and above, more severe side effects are observed. In the literature, three patients who had recurrent seizures after oral ingestion of 41 mg/kg, 59 mg/kg and 68 mg/kg respectively and patients who had generalized tonic clonic seizures after oral ingestion of 1-1,5 teaspoon (1 000-1 500 mg) have been reported (8). Generalized tonic clonic seizures were observed two times after ingestion of 66 mg/kg in our patient.

There is no antidote which can be used in camphor intoxication. Symptomatic treatment is administered. In case of contact by the cutaneous route, washing is recommended. In case of ingestion by the gastrointestinal system, no benefit of emesis, gastric lavage or active charcoal has been observed (9). Benzodiazepines and phenobarbital are beneficial for treatment of seizures (10). In our case, the first seizure stopped spontaneously in a short time and intravenous diazepam was administered for the second seizure.

In conclusion, each pharmacological agent has a toxicity risk depending on the dose and route of administration as well as benefits. Our case was a case of acute intoxication, because the patient was completely healthy before, had vomiting and recurrent seizures after ingestion of camphor and normal laboratory and imaging findings. Users should be enlightened to prevent such potential toxicities of such non-prescription pharmacological agents.

Informed Consent: Written informed consent was obtained from patient's parent who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - H.G.T., S.G., G.S.; Design - H.G.T.; Supervision - S.G.; Materials - H.G.T., G.S.; Data Collection and/or Processing - H.G.T., G.S.; Analysis and/or Interpretation - H.G.T., G.S.; Literature Review - H.G.T.; Writing - H.G.T.; Critical Review - S.G.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

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