

Türkiye'den Şifalı Otlar İle İki Zehirlenme Olgusu; Hemoroid Ağrısını Hafifletmek İçin Datura, Afrodisyak Etki İçin Mandragora

*Two Herbal Poisoning Cases From Turkey;
Datura For Haemorrhoidal Pain Relief,
Mandragora For Aphrodisiac Effect*

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ABSTRACT

Introduction: An altered state of mind is a common medical condition in emergency medicine. Among causes of this situation, toxic etiology due to an anticholinergic agent is not rare. We present two patients who were brought to our emergency department because of anticholinergic syndrome.

Case Report: The patients displayed agitative behaviour, confusion, urinary retention, and dilated pupils within 4 h of ingesting of Datura stramonium (Case 1) and Mandragora autumnalis (Case 2) which have been used as herbal medicines. They were discharged with a complete recovery after receiving conservative therapy.

Conclusion: Emergency medicine physicians should be mindful of anticholinergic syndrome due to herbal medicine when the patient with a history of altered state of mind is presented to a hospital.

Keywords: *Mandragora autumnalis, Datura stramonium, Herbal poisoning, Anticholinergic Syndrome.*

Received: 05.07.2010

Accepted : 15.09.2010

ÖZET

Giriş: Bilinç durumunda değişiklik acil serviste sık rastlanan bir sağlık sorunudur. Bu durumun sebepleri arasında antikolinerjik ajanlara bağlı olarak gelişen intoksikasyonlar nadir değildir. Burada acil servisimize antikolinerjik sendrom nedeniyle getirilen iki hasta sunulmuştur.

Olgu sunumu: Hastalar şifalı ot tedavisi için Datura stramonium (Olgu 1) ve Mandragora autumnalis (Olgu 2) tükettikten sonraki 4 saat içerisinde ajitasyon, konfüzyon, idrar retansiyonu ve dilate pupil ile acile başvurmuşlardır. Konservatif tedavi sonrası tam şifa ile taburcu olmuşlardır.

Sonuç: Acil servis doktorları, hastaneye bilinç durumunda değişiklik nedeniyle başvuran hastalarda, şifalı ot tedavisine bağlı gelişebilen antikolinerjik sendrom tanısını akılda bulundurmalıdır.

Anahtar Kelimeler: *Mandragora autumnalis, Datura stramonium, Şifalı ot zehirlenmesi, Antikolinerjik Sendrom.*

Alındığı Tarih: 05.07.2010

Kabul Tarihi : 15.09.2010

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INTRODUCTION

An herb is defined as a plant grown for culinary, medicinal purposes, and in some cases spiritual values. In botanic terms, an herb is a plant not producing a woody stem. Herbal medicines have been used world-wide for thousands of years. The purposes of medicinal herbal use may vary with the different cultures of each individual society, but can simply be considered as being either for the promotion of health or the relief of ailments. Traditionally, herbs have been considered to be gentle, non-toxic and even harmless, mainly because of their natural origin. However, both adverse drug reactions and poisonings associated with the use of herbal medicines have increasingly been reported in the last few decades^(1,2). In most situations, herbal medicines pose difficult diagnostic problems as a result of their heterogeneity and our very limited knowledge about their pharmacological properties.

We report two cases of herbal poisoning due to intentional consumption of *Mandragora* (for aphrodisiac effect) and *Datura* (for haemorrhoidal pain relief). Their presentations were classic for anticholinergic syndrome.

CASE REPORTS

CASE 1:

A 62-year-old man was admitted to our emergency department hallucinating, confused and agitated with obvious psychomotor impairment. For 1h before arriving at the hospital, he had been suffering from increasing abdominal pain and nausea and progressive behaviour disturbances, alarming his wife.

His skin was dry, and symmetrical unreactive mydriasis was present. The body temperature was 37°C. He was tachypneic and tachycardic (heart rate 120 beats/min) with a normal blood pressure of 130/80 mmHg. On physical examination, no pathologic findings and trauma signs except urinary retention were detected; 500 ml urine were withdrawn via catheter.

The history obtained from the patient's wife, revealed that 3 h earlier, the patient had eaten *Datura* seeds for haemorrhoidal pain. The plant and seeds were brought to the emergency department by one of his relatives and confirmed that it was *Datura stramonium*. Three doses of 5 mg diazepam were administered intravenously (iv) to control agitation and tachycardia. No repeat dosing of diazepam or any new drug administration was required during the observation period. The patient was asymptomatic 24 h later and discharged.

CASE 2:

A 69-year-old man, who was confused and very agitated, was admitted to our emergency department. On admission, he was tachycardic (heart rate 130 beats/min), his skin was dry, his pupils were widely dilated and not reactive to light. His body temperature was 38.3 °C. He had high blood pressure of 160/100 mmHg. Abdominal examination indicated the presence of a large bladder due to urinary retention.

All signs were suggestive for anticholinergic syndrome, so a detailed clinical history from his wife was taken. No drug history was taken, but 4 h earlier the patient had eaten a plant picked up near his home to increase sexual desire. This plant was brought to the emergency department, it was *Mandragora autumnalis*.

His treatment included cardiac monitoring, intravenous fluids,

insertion of urinary catheter and repeated doses of diazepam to control his agitation. Treatment with diazepam did not control his agitation, hypertension and tachycardia; therefore, physostigmine 2 mg iv by slow infusion was administered. After clinical observation for 36 h in the hospital, the patient was asymptomatic and discharged healthy.

DISCUSSION

Datura stramonium and *Mandragora autumnalis* are members of the Solanaceae plant family. The family Solanaceae includes a number of plants that have been used since ancient times for food (tomato, potato), medicines or poisons (*Atropa belladonna*, *Mandragora officinalis*) or licit (*Nicotina tabacum*) or illicit enjoyment (*Datura stramonium*). These plants contain tropane belladonna anticholinergic alkaloids that have different actions and clinical effects.

The alkaloids of the tropane group, principally atropine, scopolamine, and hyoscyamine, act on the peripheral and central nervous systems. Hyoscyamine is the principal alkaloid in the genera *Atropa*, *Datura* and *Hyoscyamus*, whereas scopolamine is found in *Mandragora* and *Scopolia*. These substances have parasympatholytic properties, producing similar peripheral effects (mucosal dryness due to inhibition of sweat, salivary and bronchial gland activity, urinary retention, reduced gastrointestinal motility) while having different central actions: hyoscyamine stimulates the cerebral cortex, whereas scopolamine is a depressant and produces sedative and hypnotic effects^(3,4). Jimsonweed (*Datura stramonium*) is known by many local names, including thorn apple, locoweed, devil's trumpet, stink weed, and Jamestown weed. Jimsonweed grows in the wild throughout the world, especially in the Mediterranean area and can be found in open fields bloom throughout the summer. The plant grows to approximately 1.5 m tall and has a solitary white, trumpet-shaped flower (Fig 1). In autumn, a spiny capsular fruit that contains up to 50 small black seeds is produced. Although all parts of the plant are toxic, the seeds contain the highest concentration of atropine. One hundred seeds can contain up to 6 mg atropine. Historically, jimsonweed was used by Native Americans for medicinal and religious purposes and has been used therapeutically to treat asthma. The Chinese have been using it to treat asthma, chronic bronchitis, pain, and flu symptoms. In Mexico, *Datura* is taken by Yaqui women to lessen the pain of childbirth. In Africa, a common use is to smoke leaves from *Datura* to relieve asthma and pulmonary problems. Many cultures worldwide add this plant to alcoholic beverages to increase intoxication. Recently, *Datura* has been used as a recreational hallucinogen among adolescents in many countries^(5,6).

Mandragora autumnalis is a solanaceous plant that grows wild in the Mediterranean area. *Mandragora autumnalis* is an annual herb with oblong ovate leaves, blue violet flowers that bloom in September-October (rarely in April) and thick rhizome (Fig 2). Since ancient times, this plant was believed to be an aphrodisiac and to have magic properties, because of the "human body" shape of its root and its narcotic and poisonous effect, and it is still known as witch's or devil's herb^(7,8). The exact toxic dose of these plants is indeterminable, because the alkaloid content of vegetables is variable due to factors that affect growth (season, characteristics of soil, and climate), genetic features of the particular species and individual variability. Moreover, the alkaloid concentration differs



Figure 1: Datura Stramonium



Figure 2: Mandragora Autumnalis

in different parts of the same plant.

Toxicity from plants containing tropane alkaloids manifests as classic anticholinergic poisoning. Following ingestion, effects generally develop within 1 to 4 hours and may continue for 24-48 hours because tropane alkaloids delay gastric emptying and absorption. Generally ingestion of a few leaves, seeds, berries or pieces of roots can produce poisoning. Consumption of a kind of tea prepared from the seeds or smoking the seeds results in a more rapid onset of symptoms. Patients initially develop xerostomia, blurred vision and pupillary dilation. Dry skin, erythema, flushing, tachycardia, mild hyperthermia and hypertension are common. The patient can develop confusion, disorientation, restlessness and sometimes agitation later in the intoxication. Hallucinations are often described as grasping or picking at imaginary objects, and amnesia of events after ingestion is common. The Anglo-Saxon refrain containing the most important characteristics of anticholinergic syndrome is "hot as hades, blind as a bat, dry as a bone, red as a beet, mad as a hatter". Anticholinergic intoxication can rarely result in seizures, coma, death, but mortality is more commonly related to trauma and not direct toxic effects^(4,9).

The duration of clinical effect is dose dependent but can last from a few hours to several days. Treatment remains primarily symptomatic. If ingested recently, activated charcoal may be beneficial for gastrointestinal decontamination, but this has not been proved. Agitation should be treated with benzodiazepines while avoiding neuroleptics. The patient should be kept in a nonthreatening

and nonstimulating environment. Other necessary supportive care may include treatment of hyperthermia, hypertension, urinary retention and dehydration. Patients who have mild symptoms that have resolved after 4 to 6 hours of observation can be discharged, but otherwise patients need admission until symptoms resolve. Physostigmine, a short acting acetylcholinesterase inhibitor, has been used as an antidote for severe anticholinergic poisonings. Physostigmine is effective in treating delirium and agitation attributable to anticholinergic substances. Repeated doses may be required because of a shorter duration of effect than anticholinergic alkaloids, and the patient should be observed carefully for any signs of excessive secretions and bradycardia indicating cholinergic excess^(4,10).

A differential list for anticholinergic syndrome should include viral encephalitis, Reye's syndrome, head trauma, postictal state, neuroleptic malignant syndrome, acute psychiatric disorder, withdrawal from alcohol or sedative-hypnotics, and drugs that cause serotonin syndrome and intoxication of drugs with anticholinergic properties. The most frequently encountered drugs with anticholinergic properties that result in evaluation in emergency department are antihistamines, tricyclic antidepressants, phenothiazines, antipsychotics, neuroleptics, cyclobenzaprine, antiparkinson drugs, cycloplegics, and gastrointestinal and genitourinary antispasmodics⁽⁴⁾.

In both cases presented above, the plants were used for medical purposes (as pain killers and sexual enhancement), but resulted in poisoning. Fortunately, owing to accurate intervention, both patients recovered. Hallucinogenic or euphoric effects of plants are not well known in our country; but poisoning due to plants has been previously reported⁽¹¹⁾. People in Turkey, especially those living in rural areas, frequently consume various plants and herbs as a vegetable meal or as a herbal remedy⁽¹²⁾.

In most parts of the world, plants as herbal medicines are still being used, especially in poor areas where health care services fail to operate, and as hallucinogen in rich countries where health care services are sufficient. In countries like ours, where discussing certain issues (e.g. sexuality) and diseases related to some body parts (anal and genital regions) or examination or treatment of these body parts is still a taboo, it will not be surprising to observe the use of plants for medicinal purposes. For this reason, it will be a great benefit to our patients if we, physicians, know the regional characteristics of the places we work in, together with the most frequently used herbal plants and their side effects.

In conclusion, herbs have been considered to be gentle, non-toxic and even harmless, mainly because of their natural origin. In daily practice, many herbal poisonings are not diagnosed or treated correctly. Health care professionals especially emergency physicians should be familiar with toxicological problems associated with the use of herbs. For proper handling of a herbal poisoning, more information about herbal toxicology is urgently needed.

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