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Atropa Belladonna Intoxication

Atropa Belladona Zehirlenmesi

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ÖZ

Giriş: Atropa belladona geniş bir coğrafyada ulaşılabilir olan, görünümü birçok meyve ile karışabilen ölümcül etkileri olabilen bir bitkidir. Bu çalışmada hastanemiz acil servisine başvuran dokuz olgunun verileri ışığında Atropa Belladonna zehirlenmesine dikkat çekmeyi amaçladık.
Gereç ve Yöntemler: 2021 Eylül ayı içinde hastanemizin acil servisine başvuran Atropa belladonna zehirlenmesi tanısı konulan dokuz hasta çalışmamıza dahil edildi. Kayseri Şehir Hastanesi acil servisine çeşitli antikolinerjik zehirlenme bulguları ile gelen hastaların ayrıntılı fizik muayeneleri yapılarak kan basıncı, nabız, elektrokardiyogram ile hematolojik ve biyokimyasal kan parametrelerine bakıldı.
Bulgular: Hastaların çoğu Atropa belladonna'yı diğer meyvelere benzeterek tüketmişti. Bir hasta kasten yutmuştu. İki hasta, hastaneye ulaşmaya çalıştığı sırada antikolinerjik etkiler nedeniyle trafik kazası geçirmişti. En sık bildirilen semptomlar ağızda kuruluk ve konuşma bozukluğu iken bunu dudaklarda parestezi, bulantı, iki taraflı alt ekstremitelerde güç kaybı, ajitasyon ve geçici bilinç kaybı gibi diğer semptomlar izledi. Olguların sekizi yoğun bakıma yatırıldı, biri ayaktan taburcu edildi.
Sonuç: Doğada ulaşması kolay olan bu bitki ve meyvesi hakkında toplum bilinçlendirilmelidir. Özellikle yaz mevsiminde sağlık çalışanları benzer klinik ile gelen hastalarda hikayeyi ayrıntılı sorgulanmalıdır.
Anahtar Kelimeler: belladonna alkaloidleri, zehirlenme, doğa

ABSTRACT

Objective: Atropa belladonna is an available plant in a wide geographical area that has an appearance that can be confused with many fruits and potential lethal effects. In this study, we aimed to draw attention to Atropa Belladonna poisoning in the light of the data of nine cases who applied to the emergency department of our hospital.
Material and Methods: Nine patients diagnosed with Atropa belladonna poisoning who applied to the emergency department of our hospital in September 2021 were included in our study. Detailed physical examinations of the patients who came to the Kayseri City Hospital emergency department with various signs of anticholinergic poisoning were performed, and blood pressure, pulse, electrocardiogram, and hematological and biochemical blood parameters were examined.
Results: Most of the patients consumed Atropa belladonna as if it were other fruits. One patient had ingested deliberately. Two patients had experienced traffic accidents due to anticholinergic effects during attempt to appeal to the hospital. The most commonly reported symptoms were xerostomia and incoherent speech followed by other symptoms such as paresthesia in lips, nausea, loss of strength in bilateral lower extremities, agitation and temporary loss of consciousness. Eight of the cases were admitted in the intensive care unit one case was discharged as outpatient.
Conclusion: The society should be made aware of this plant and its fruit, which is easy to reach in nature. The history should be questioned in detail in patients who come to health professionals with similar clinics, especially during the summer season.
Keywords: belladonna alkaloids, poisoning, nature

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INTRODUCTION

Atropa belladonna is a plant from the family Solanaceae which has blackberry-like fruits and contains atropine, hyocyamine and scopolamine in both fruits and roots (1). The ancestral documents have shown that the persons aware of the effects of this plant have used this plant occasionally for looking attractive and occasionally maliciously (2). It is known that anticholinergic effects; agitation, delirium, hallucinations and comatose may be encountered due to blockade of parasympathetic muscarinic receptors as a result of deliberate or accidental ingestion of the plant fruit. Besides this, physical examination findings such as mydriasis, dry skin and tachycardia may be seen (3). We aimed to draw attention to Atropa belladonna poisoning in the light of the data of 9 cases who appealed to the emergency department of our hospital within 7 days. Atropa belladonna plant is located in the geographical area where our hospital is located, but it is not common appeal because of poisoning.

MATERIAL AND METHODS

The patients appealed to the emergency service of Kayseri City Hospital due to various findings of anticholinergic intoxication, detailed physical examinations and medical histories of the patients indicated Atropa belladonna intoxication. In the study, the age, gender, examination findings, admission complaints, suspected substance, treatment and discharge status of the patients were noted. The study was carried out in September. Patients who received follow-up and treatment with the diagnosis of atropa belladonna poisoning were evaluated.

The patient data was obtained from the hospital automation system. The study was carried out after taking consents of the patients and obtaining approval from the Ethics Committee of the Kayseri City Hospital, Decision Date/Number: 18.02.21-303.

RESULTS

A total of 9 cases appealed to the emergency department in September. Of the cases, 3 cases were female and 6 cases were male. Mean age of the cases was 61.3 (48-79) years at female and 65.5 (52-86) years at male. It was identified that 3 cases had ingested Atropa belladona 24 hours before the hospital admission whereas 6 cases had ingested the plant on the same day of hospital admission. Of the cases who ingested the plant on the same day of hospital admission; 2 cases appealed to the emergency service because of intravehicle traffic accident due to loss of vehicle control caused by central nervous system effects on the way to hospital for admission whereas 7 appealed to the emergency service with internal symptoms. The most commonly reported symptoms were xerostomia and incoherent speech followed by other symptoms such as paresthesia in lips, nausea, loss of strength in bilateral lower extremities, agitation and temporary loss of consciousness. Body temperatures of the patients were normal. Bowel sounds were reduced in 6 patients. Mydriasis was detected by the opthalmological examination of 5 patients. All the patients had a sensation of urinary urgency. Agitation was present in one patient and this patient was the case who had traffic accident. This clinical picture was found regressed at the time of hospital arrival and anamnesis of this patient was obtained from the other intoxicated patient.

Seven patients noted confusion with harmless bush berries without knowing awareness of its effect while one patient indicated expectancy of pain relief (resembling a similar plant growing in the same region) whereas one patient reported deliberate ingestion with awareness of its hallucinogenic effect when consumed with alcohol.

Glasgow coma scale scores of all the cases were 15 at their admission to the emergency service. The vital sign measurements of the cases revealed a mean blood pressure value of 138/88 mmHg (98-178/70-110 mmHg), a mean pulse value of 86/min (70-112/min) and a mean saturation value of 94% (90-98%). Mean QTc values of the male and female cases were 446.6 ms (417-497 ms) and 441.3 ms (403-487 ms) according to the echocardiographic data, respectively. Laboratory examinations indicated high levels of WBC in two cases and low level of hemoglobin in one cases among complete blood count parameters, respectively, complete blood count parameter values of the other patients were within normal range. iochemistry test values were mostly normal whereas three patients had high levels of CK and CK-MB while high levels of ALT and AST were detected in one case (the patient who had traffic accident). No intraabdominal haemorrhage or contusion was encountered by the abdominal tomography of this patient. The coagulation parameters of all the patients were within normal range. Blood gas tests showed metabolic acidosis and high level of lactate in one patient whereas another patient had high level of isolated lactate, blood gas parameters of the other patients were within normal range. Vertebral fracture and pneumothorax were determined in one of the patients who admitted with trauma whereas the other patient had minor traumatic findings. Gastric lavage was not performed in the patients since time from ingestion to hospital admission was long in the patients. Eight of the cases were admitted in the intensive care unit one case was discharged as outpatient. Mean

length of ICU admission was 4 days (2-7 days) among the admitted patients. No complication was observed in the patients during the ICU monitoring. No need for physostigmine developed during monitoring the patients in the emergency service or intensive care unit. None of the patients was intubated. Symptomatic supportive treatment was administered.

DISCUSSION

Ingestion of Atropa belladonna may be accidental because of confusion with another delicious fruit, however, it may be also deliberately ingested as aware of its effects (4). In also our case series, most of the patients ingested accidentally without awareness. One patient consumed it together with alcohol to see hallucination and one patient consumed for pain-relief effect. The possible reason for this is unfortunately the wrong and common belief in our country that this plant has pain-relief effects (5). It is known that Atropa belladonna may be confused with many fruits because of its color and shape. However, it is also known that its ingestion may lead to lethal consequences when consumed in high amounts. Therefore, local authorities should instruct the public from time to time about avoiding ingestion of this plant, its morphological appearance and its morphological similarities that can confused with other plants. Informative brochores should be prepared.
One of our cases felt sick after ingestion of the plant, however, that patient preferred to go to the hospital through own means rather than calling ambulance. Temporary loss of consciousness and agitation developed due to the effect of Atropa belladonna, and our case had a traffic accident by losing vehicle control. Therefore, importance of the appeal to the closest health facility receiving the support of emergency healthcare services should be explained for the cases of such ingestions in the frame of informative studies.

The clinical picture of Atropa belladonna intoxication involves observation of peripheral and central effects of the contented alkaloids (atropine, hyocyamine, hyoscine etc.). Red skin due to cutaneous vasodilation, dry skin due to poorly functioning sweat glands, mydriasis and blurred vision because pupillary contraction and urinary retention due to the contraction of urinary bladder muscles may be seen as the typical findings of anticholinergic intoxication in the frame of Atropa belladonna intoxication, besides these, tachycardia, conduction impairments and reduced bowel sounds may be also observed (6). In our case series, particularly xerostomia, sensation of urinary urgency, mydriasis and reduced bowel sounds were prominent. We counclude that we could experience an excellent anticholinergic clinical picture if the patients could have admitted earlier.

It has been demonstrated that gastric lavage could be beneficial in these patients thanks to earlier admission to the hospital after the ingestion (6), however, time elapsed from ingestion to admission was longer than 1-2 hours in all of our cases. All the patients subjectively reported that not long time passed after ingestion. However, detailed anamnesis showed that time elapsed from their ingestion to hospital admission ranged between 12-30 hours.

The clinical picture of our patients did not worsen during monitoring and no need for antidote (physostigmine) treatment. The patients were admitted in the intensive care unit taking their ages into consideration. It has been determined according to the literature reivew that lethal dose for adults is approximately 100 mg (50 fruits) since a ripe fruit contains approximately 2 mg atropine (7). None of our patients reported an ingestion with this amount in their anamnesis. We can attribute their relatively mild clinical condition to this fact.

The treatment of these patients is symptomatic, administration of antidote is recommended if the clinical condition progresses to severe state (8). In case of agitation where the antidote cannot be reached, administration of benzodiazepines is recommended (9). Our cases received symptomatic treatment based on their clinical pictures. No additional medication was needed. This condition may be explained by elongated time to hospital admissions and low amount of ingestion.

CONCLUSION

The healthcare providers should evaluate the clinic of the patients with anticholinergic findings comprehensively and question the ingestion of the fruits picked from the nature in the anamnesis particularly in the summer season. The clinical picture of the elderly patients may be confusing because of comorbid diseases or medications. This fact should be considered meticulously and watchfully.

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Data Acquisition- ÖD.; Drafting Manuscript- OB-GY.; Critical Revision of Manuscript- OB.; Final Approval and Accountabil- ity- MB-BK.; Supervision- OB-GY

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