

## **Case Study**

### **Delirium due to Datura Stramonium Ingestion: A case report**

#### **Abstract**

#### **Introduction**

*Datura stramonium*, known as devils apple or *tatula* by the people of Turkey, is a plant known member of a belladonna alkaloid family contains atropine, *hyoscyamine* and scopolamine having hallucinogenic and anticholinergic effects. In our study we described a case presented by delirium to our emergency department later diagnosed as *Datura stramonium* poisoning.

#### **Presentation of Case**

19 years old male patient admitted to our emergency department by his relatives with the complaints of altered mental status, yelling, and meaningless speech. He was conscious at the time of his presentation but place, time, person orientation was altered with no cooperation. 2 mg physostigmine were administered intravenously to patient because he was further harm caused by him to himself and environment. After further monitorisation for 8 hours patient were discharged safely.

#### **Discussion and Conclusion**

Herbal wealth of Turkey is more. Turkish people are traditionally more prone to usage of herbal medicine. Also drug abuse is a growing problem in the country

**KEY WORDS:** *Datura stramonium*, delirium, physostigmine, Emergency department

## 27 INTRODUCTION

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29 *Datura stramoniumun (DS)* is a common plant found in all regions of Turkey especially in  
30 Central Anatolia. *DS* is commonly known as pipe flower, garden clove, magic herb, jinn  
31 herb, stinking herb, devil's apple, tatula. This plant is about 20-100 cm height, stiff  
32 stemmed, 7-14 branched, and has green fruits around 3-4 cm containing black seeds. this plant  
33 is about 20-100 cm height, stiff stemmed, 7-14 branched, and has green fruits around 3-4 cm  
34 containing black seeds. *DS* flowers have a shape of cone usually white colored (Figure 1). All  
35 parts of plant contains variable amounts of belladonna alkaloids namely atropine,  
36 hyoscyamine and scopolamine. Mainly seeds of the plant contain high concentrations of  
37 atropine. *DS* is commonly used as an herbal medicine traditionally to treat asthma, bronchitis,  
38 hemorrhoids, eczema; moreover has an important part in drug industry [1,2].

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## 40 CASE

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42 19 years old male patient admitted to emergency department (ED) by his relatives with the  
43 complaints of altered mental status, yelling, and meaningless speech. He was conscious at the  
44 time of his presentation but place, time, person orientation was altered with no cooperation.  
45 He had no chronic illness in the history. Deeply agitated; patients vitals were recorded as  
46 tension arterial; 142/75 mmHg, heart rate; 122/min, fever; 37,5°C breath rate; 20/dk. ECG  
47 shows sinus tachycardia without any abnormal morphology. His pupils were isochoric with  
48 bilateral mydriasis. Skin and mucous membranes were dry, Intestinal motility was hypoactive.  
49 Complete blood count, renal and liver function tests and arterial blood gas analysis and ph  
50 were within normal range. Drug could not be determined in toxicological screening. In the  
51 light of these signs and symptoms, anticholinergic toxidrome was suspected and only

supportive therapy was started. Due to patient's general medical condition and consciousness level, gastric lavage was not performed and active charcoal was not administered due to aspiration risk. For symptomatic treatment of agitation 10 mg midazolam was administered intravenously. Agitations were ceased and reoccurred in a brief period. Further story exposed that patient had consumed "*Datura stramonium*" for entertainment about 4 hours ago. National Referral Centre for Poisoning was called for further information and treatment options. To case further harm caused by him to himself and environment 2 mg physostigmine were administered. Due to known arrhythmogenic and epileptogenic effects of physostigmine patient were monitored before administration. 2 minutes after administration of physostigmine patient responded to the drug and immediately regained consciousness, also disorientation and incooperation ended very rapidly. After further monitoring for 8 hours patient was discharged safely.

## DISCUSSION

*DS* is commonly known as pipe flower, garden clove, magic herb, jinn herb, stinking herb, devil's apple, tatula [2]. This plant contains atropine, scopolamine, and hyoscyamine responsible for anticholinergic effects. Each of the seed contains 0.1 mg atropine. 100 seed contains potentially fatal 6-10 mg atropine [3-6]. Ingestion of a capsule containing 50 to 100 seeds can lead to severe anticholinergic toxicity [4]. Due to potential Psychedelic and euphoric effects on central nervous system, although rare, abuse can be observed in young population as in our case report. Symptoms usually start in 30-60 minutes after oral use. First symptoms are usually hallucinations, dryness in mucosal membranes, dehydration, pupil dilatation, accommodation and speech disorders accompanying tachycardia, urinary retention and ileus. In the literature, some authors have reported cases of delirium due to *DS* [2,4,5].

Rarely hyperthermia, respiratory arrest and convulsions can be encountered. Due to decreased gastrointestinal motility toxin elimination is delayed and symptoms may last in 24-48 hours. Treatment of anticholinergic toxidromes is conservative and supportive and specific antidote is physostigmine. Kurzbaum et al suggested that Physostigmine has used in DS toxicity [5]. Physostigmine can easily pass blood-brain barrier and inhibits anti-cholinesterase enzyme reversibly [7]. Hori K, et al reported that exogenous anticholinergic burden was not ameliorated by the upregulation of cholinergic system, which caused the toxicity of anticholinergic [8]. Hori K, et al reported that upregulation of cholinergic system cause by the injection of physostigmine might deny the anticholinergic activity [9]. Most of the patient's mental and hemodynamic status can be managed safely with supportive and benzodiazepine therapy but administration of physostigmine must be considered when patient is hemodynamically unstable due to arrhythmias, respiratory arrest and convulsions resistant to standard therapy. Also physostigmine can be applied if the patient is severely agitated and causes harm to him and environment. Adult dose is 2 mg and must be applied in no shorter than 5 minutes [7,10].

## CONCLUSION

Turkish people are traditionally more prone to usage of herbal medicine. When a young patient with delirium is encountered in ED specifying story and physical examination can lead to rare toxidromes as in our case.

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### **Competing Interest**

Authors have declared that no competing interests exist.

### **Authors' Contributions**

'Author BI, MB and MSY' designed the study, wrote the first draft of the manuscript. 'author CK, GK'  
and 'author AGS' managed the literature searches. All authors read and approved the final  
manuscript



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143 Figure-1. *Datura stramonium*

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