

Belladonna Delirium: Introduction, Overview and Literature Review

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Abstract

In this paper, we looked into the literature for data regarding delirium as a result of Atropa belladonna usage. We have found a number clinical scenarios pretraining to psychiatry as a direct result of misuse of AB.

Keywords: AB; Delerium; Anticholinergic Syndrome; Adverse effects of AB;

1. Main text

Article Type: Review Article

Introduction:

The first reported case of delirium as a result of belladonna usage we came across in our review dates back to 1821 in which Sarlandiere (1) reported the case of a 45-year old man and his 30-year old wife who, apparently, inadvertently, consumed belladonna. The doctor was called early morning to the couple's residence where he found the husband actively convulsing and his eyes fixed and open; the wife exhibited similar features, but was not convulsing.

In this paper, we aim to introduce belladonna and discuss its possible manifestations, with a focus on its possible delirium.

Delirium:

Also referred to as an 'acute confusional state', delirium is defined as 'Stereotyped response of the brain to a variety of insults' (2). It is well-known amongst the medical community that delirium is to be expected in certain clinical scenarios.

Atropa Belladonna:

Usually referred to as deadly nightshade, and in Turkey as the 'beautiful woman herb' (3). AB is a toxic plant composed of atropine, hyoscyamine, and scopolamine alkaloids; atropa belladonna (AB) is a poison everyone should be careful of as there are reported cases of intoxication (4–6), especially in children who may mistaken the plant for cherries or blueberries (4,7,8).

Cases of Belladonna-induced clinical manifestations:

At least 1 case report exist of anticholinergic syndrome manifesting following ingestion of AB (9). Another possible complication, as per a case report, is subdural hematoma (10). A peculiar case occurred in India in which an elderly gentleman manifested delirium following the use of 1% atropine sulfate eye-drops prescribed to him following cataract surgery (11). Atropine is an alkaloid that functions as an anticholinergic

and is derived from AB and Datura stramonium(12). It functions by competing certain muscarinic acetylcholine types (M1, M2, M3, M4, and M5) (13). Despite this, there is reason to believe that there are certain benefits associated with AB(4,10,14), these include, but are not limited to:

- Treatment of asthma
- Treatment of bronchitis
- Treatment of gastrointestinal (GI) issues

As per an analysis, AB poisoning is likely to present with the following (4):

- Flushing
- Xeroderma with mydriasis
- Tachycardia
- Tremor
- Abdominal Pain
- Fever.

The same paper reported that those who did not respond to therapy were relocated into the ICU and responded to physostigmine.

Another case report from Turkey illustrated delirium as a result of anticholinergic intoxication and physostigmine being used as an intervention successfully(15).

From Morocco, a case was reported in which an 11-year old patient was prescribed AB for jaundice and later presented with anticholinergic syndrome; she responded to symptomatic treatment (6).

In Turkey, a case was reported of an 8.5-year-old girl who presented with nonsensical speech for 12 hours PTA (3). Her case was as follows:

- 1) She started turning in bed at night, unable to sleep due to a bad dream
- 2) She reported the wardrobe in her room 'tipping over'
- 3) Visual hallucinations started to become manifest

A 2018 Saudi-based paper (16) analyzed the typical symptomatic presentation of AB poisoning to manifest the following:

- 1) Tachycardia
- 2) Dilated pupils
- 3) Confusion
- 4) Flushed dry skin
- 5) Hallucinations, and
- 6) Seizures (sometimes associated with a toxic megacolon)

Furthermore, the same paper illustrated the typical treatment as follows:

- Gastric lavage
- Use of physostigmine as an antidote

Abbreviations:

AB = Atropa Belladonna

GI = Gastrointestinal

ICU = Intensive Care Unit

PTA = Prior To Admission

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