

77. Toxic plant ingestions among patients with medical toxicology consultations, 2017–2024

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Background: Toxic plant ingestions are increasing in the United States. Clinically, toxic plants present challenges in management because the plant ingested is rarely known at presentation and plants have a wide variety of toxidromes, but patients with ingestions can be acutely ill and ingestions can be fatal. While previous research has often explored ingestions of single species of plants, little research has explored the presentation of patients with toxic plant exposures from the emergency department, including early medical management and disposition. The objective of this research was to characterize the demographic and clinical presentation of a cohort of patients with toxic plant exposures.

Methods: We reviewed ingestions of toxic plant cases included in the Natural Toxins Sub-registry, part of the Toxicology Investigators Consortium (ToxIC) Core Registry, from March 2017 to December 2024. The ToxIC Core Registry is a comprehensive database of patients seen by medical toxicologists across 35 medical centers in the US and 4 international sites. Summary statistics were computed for patient demographic characteristics, intent of exposure (suicide/ misuse/therapeutic/unknown), disposition (intensive care unit (ICU) versus floor/discharge), interventions (activated charcoal/ intravenous fluids/vasopressors/anti-hypertensives/anti-emetics/ antidotes/intubation) and survival to hospital discharge. Plant ingestions were categorized by potential clinical syndrome (anticholinergic/nicotinic/cardiac glycosides/cyanogenic/protein toxins/sodium channel blocker/other).

Results: We identified 42 cases of potential toxic plant ingestion in the natural toxins dataset. Of those, cases were evenly split between ingestions among children under 18 years old (n = 20, 47.6%) and adults aged 19–65 (n = 20, 47.6%); there were also two cases among patients over 65 (4.8%). The majority of patients were male (n = 25, 59.5%) and white (n = 31, 73.8%) with stable housing (n = 23, 54.8%). Few had a history of a prior drug overdose of any kind (n = 4, 9.5%). Among all patients, 13 were admitted to an ICU (31.0%), including 4 patients to the pediatric ICU (20% of children). Of those admitted to an ICU, five (38.5%) were intubated, and one (7.7%) died. The majority of ingestions were unintentional (n = 22, 52.4%), while 17 cases were intentional in the setting of a suicide attempt (n = 10, 23.8%) or occasionally, for therapeutic intent (n = 2, 4.8%). Nearly all plants were ingested (n = 37, 88.1%). Plants were grouped into sodium channel blockers (n = 11, 26.2%), cardiac glycosides (n = 6, 14.3%), anticholinergic (n = 3, 7.1%), nicotinic (n = 3, 7.1%), protein toxins (n = 3, 7.1%), and cyanogenic (n = 1, 2.4%). The most commonly ingested plants were death camas (*Toxicoscordion venenosum*, n = 5), yew (*Taxus*, n = 4), hemlock (*Conium maculatum*, n = 3) and oleander (*Nerium oleander*, n = 3).

Conclusions: One-third of toxic plant ingestions entered into the natural toxins dataset were admitted to an ICU, and all but one patient with toxic plant ingestion survived. Toxic plant ingestions among children made up nearly half of all ingestions and more than half of all ingestions were unintentional. Future research should explore interventions to prevent unintentional ingestion of toxic plants given the potential severity of illness.