What’s a Few Seeds Among Friends!!!

By: Marie Aue

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Fredericton, N.B.
Agenda

- Introduction
- Learning Outcomes
- Names to Recognize
- Remember the Mnemonics
- Case Report
- Epidemiology
- Pathophysiology
- Clinical Presentation
- Diagnosis
- Management and Treatment
- Discussion
Learning Outcome

• To provide experienced and novice critical care nurses with the knowledge needed to recognize intoxication, and associated complications

• Understanding and recognizing the classic signs and symptoms of Jimson weed intoxication leading to early diagnosis and proper case management

• Anticipatory “just in case” counseling for teenagers and parents that may prevent experimentation
Jimson Weed
Classification: Datura Stramonium

- Kingdom: Plants
- Subkingdom: Vascular plants
- Superdivision: Seed plants
- Division: Flowering plants
- Class: Dicotyledons
- Subclass: Asteridae
- Order: Solanales
- Family: Solanaceae - potato family
- Genus: Datura L. - jimson weed
- Species: Datura stramonium – jimsonweed

ITIS.ca/ Datura Stramonium
Jimson Weed
Jimson Weed
(Datura Stramonium)

- Grows as a toxic wild plant
- Typically matures in late fall
  - Small black seeds released from capsules
  - Seeds and leaves can be smoked
  - Seeds can be chewed or swallowed as a tea
- Ingestion produces intoxication
- Used as an alternative substance for its hallucinogenic effects
Names to Recognize

- Names: Jimson Weed, Locoweed, Angel's Trumpet, Thorn Apple, Mad Apple, Stink Weed, Sacred Datura, Green Dragon, and Devil's Trumpet, Gypsum Weed, Jamestown Weed, Devil's Snare, and Mad Hatter.

Remember the Mnemonics …  
(Refers to the Symptoms)

- “Red as a beet” - Flushing
- “Dry as a bone” - Dry skin and mucous membranes
- “Blind as a bat” - Mydriasis with loss of accommodation
- “Mad as hatter” - Altered mental status (AMS)
- “Hot as a hare” – Fever

Bob’s Case Report

- 33 yr.-old male brought to the ER after being found by police wandering around at 0230 am
- Vitals: Temp 36.4-36.8/HR 106/ RR18 / BP 139/65 - 142/85
- Physical: skin warm and flushed
- Neurological exam: awake, confused and agitated
- ECG: sinus tachycardia
- Labs/tests:
  - CT head (negative)
  - Cultures (negative)
  - LP (negative)
  - Toxicology (negative) + for Cannabis
  - PCXR
  - Blood work
A Turn of Events

Bob gradually exhibits unusual behavior
- 0230hr: Admits to smoking a plant
- 0259hr: Picks in the air and at the sheets
- 0422hr: Mumbles. Stares off into space. Becomes agitated and kicks staff. Sleeps briefly. Wakes up paranoid screams. Staff 4-point restrain him
- 0807hr: Eyes reddened. Pupils large. Pt. incontinent
- 0932hr: Snoring respirations. ETT#9 inserted

**Before:**  Ph 7.43/PC0₂ 44/P0₂ 56/HCO₂ 27 /SaO₂ 86
**After:**   Ph 7.36/PC0₂ 44/P0₂ 144 /HCO₂ 23 /SaO₂ 98
What happened to Bob?

- Transferred to the TSH ICU August 27. Treated in ICU for 5 days before being discharged to ward Sept.2
- August 28: Unknown plant Bob consumed was identified by an anonymous caller to the police. Pt. received Physostigmine 1mg IV x2
- CNS: LOC secondary to toxicity
- CVS: BP 136/78/ HR 76/ 37.2
- Resp: Aspiration pneumonia/ Staph aureus / ++secretions
  PCV 10 x20 PEEP 6 FiO₂ 40 (Aug.27)
  PSV 8/PEEP8/ FiO₂ 30 SaO₂ 98 (Aug 28)
- GI: OG 1.5L
- GU: Good urine output
Epidemiology

- Incidence is sporadic with clusters of poisoning mostly among adolescents. Non-fatal cases underreported
- 2005: 975 anti-cholinergic plant poisonings reported to Poison Control. 566 cases treated in health care facilities
  - 1998-2004: 188 human exposures by Texas Poison Control. 70% occurred in June to October. 82% in males. 72% occurred in the 13-19 age group
  - Accidental ingestion and toxicity among children has been reported
Pathophysiology

- Tropane alkaloids inhibit acetylcholine receptors to produce anticholinergic syndrome
  - Scopolamine (antagonist) acts at the peripheral and central muscarinic receptors
- Jimsonweed seeds have the highest concentration of Tropane alkaloids. (0.1mg of atropine per seed Lethal dose= 10mg)
- Tropane delays gastric emptying and absorption
Clinical Presentation of Symptoms

• Onset: 1-4 hr of ingestion
  – Faster if smoked or consumed as a tea
• Duration: hours to days
• Initial symptoms: dry mucus membranes, flushed dry skin, dysphagia and dysarthria, photophobia, blurred vision, tachycardia, and urinary retention
• Next: Hypothermia, confusion, agitation, combativeness, seizures, coma and death
Diagnosis

- Based on history of exposure and physical examination, typical features:
  - dilated pupils,
  - dry mouth,
  - flushed skin, and
  - tachycardia
- Timely identification and confirmation of the plant with Poison Control
- Trial of Physostigmine to confirm toxicity
Management

• Supportive care
  – Treatment is primarily supportive to maintain hydration and treat hyperthermia with external cooling
• Promoting gas exchange & tissue oxygenation
  – Mechanical ventilation using “lung protective strategies”
• Fluid resuscitation
• Monitor circulatory compromise
• Foley catheterization for urinary retention
Pharmacological Intervention

- Inotropes
- Benzodiazepines (Ativan), Propofol, Versed, Rivotrol, and Zydis used for agitation
- Other meds: Pepcid, Heparin, Maxeran, Cipro, and Nicaderm
- For elevated temperature > 38.5°C, cultures and start empirical antibiotics before sensitivity report
- Electrolyte replacement
- Physostigmine
Prevention of ICU Complications

- Prevention of VAP
- DVT prophylaxis
- Stress ulcer prophylaxis
- Glucose control
Questions

• What is the IV antidote?
• What physical findings are consistent with anticholinergic toxicity
• What treatment is usually required?
Discussion

• Effective treatment requires:
  – Clinical Presentation
  – Clinical evaluation
  – Elimination of the poison
  – Supportive treatment
  – Continued observation
Summary

- Stress early recognition of overdose of substance and early intervention.
- Establish ongoing communication among interprofessional team members.
- Raising community awareness through education and counseling for teenagers, parents and young adults to prevent experimentation.