

Outcomes for Unit 2 -**Toxicology**

At the completion of this lecture, the learner will be able to:

- Describe the incidence, morbidity and mortality of toxic emergencies (5-8.1)
- Identify risk factors predisposing to toxic emergencies
- Discuss the pathophysiology of the entry of toxic substances (5-8.7)
- Discuss the assessment findings associated with various toxidromes (5-8.8)

Outcomes, cont.

- Correlate abnormal findings with clinical significance in patients with the most common poisonings (5-8.23)
- Identify the need for rapid intervention of a patient with a toxic emergency (5-8.9)
- Discuss the management, in general, of toxicologic emergencies (5-8.10)
- Integrate the pathophysiology with the signs and symptoms of the most common poisonings by overdose
- Discuss the contraindications and disadvantages of inducing vomiting (5-8.17)

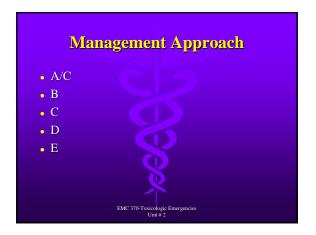
Epidemiology

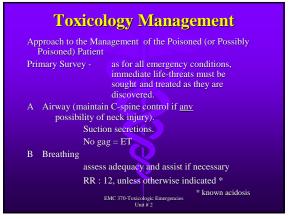
- Annually 1.8 million reported poison exposures. Roughly 764 reported fatalities.
- Children < 6 years of age involved in 60 % of reported exposures, but only 6 % of reported fatalities.
- The most common pharmaceutical ingestion leading to death in this age group was *iron*.
- Suicide attempts accounted for only slightly more than 6 % (7.2%) of reported exposures
- but were responsible for almost 60 % (53.4%) (408/764) of
- Overall, the greatest overall number of poisoning deaths are due to cyclic *antidepressants* (CAs) and analgesics. The most common pharmaceutical prescription leading to
- death in adults was TCA s

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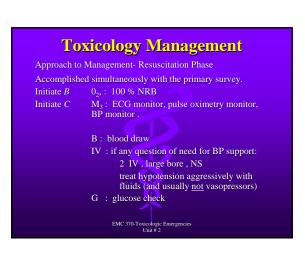
Epidemiology	
Agent ingested by child	<u>Deaths</u>
Iron	~ 32 %
Hydrocarbons	~ 24 %
Pesticides	~ 24 %
Antidepressants	~ 20 %
Alcohols	~ 14 %
Salicylates	~ 12 %
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Epidemiology		
Agent ingested by adult	<u>Deaths</u>	
 Analgesics (often as coingestion) 	~ 26 %	
 Antidepressants 	~ 26 %	
Sedative/ Hypnotics	~ 13 %	
Stimulants and street drugs	~ 12 %	
• CV drugs	~ 12 %	
• Alcohols	~ 10 %	
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Initial Approach to Management C Circulation - check pulse and - skin: color, To D Disability - assess neurologic status using AVPU. - check and document pupillary size and reactivity E Expose.



Toxicology Management Resuscitation Phase (cont.) D D₅₀W, naloxone, (thiamine if indicated) - for any depressed level of consciousness. D etective work: before leaving the scene, collect pill bottles,... E Elimination Phase

Toxicology Management Elimination Phase • E limination - activated charcoal 1 gram / kg - Ipecac - only if ordered and no contraindications are present - disrobe and wash if indicated - NG lavage and suction (only after airway is secured) - antidotes - to follow • Initiate emergency antidote if indicated for suspected specific life-threatening toxins: - cyanide kit (see text: p.586, bottom of table 110-4). - additional antidotes - see text (pp. 514-515), and handouts to follow

Airway

- Check for gag reflex
- Assess the need for intubation
- Initially and serially
- R/O causes of airway compromise include:

Airway

Causes of airway compromise include:

- Posterior displacement of the tongue [e.g. CNS and respiratory depressants]
- Oropharyngeal mucosal injury or edema [e.g., from caustic ingestions]
- Angiodema [e.g., angiotensin- converting enzyme (ACE) inhibitors]
- Trauma

Breathing

- Assess adequacy of oxygenation and +/- ventilation with pulse oximetry (and arterial blood gas (ABG) determinations)
- Breathing may be compromised by the following:
 - Hypoventilation
 - (CNS or respiratory depressants, peripheral muscle toxins)
 - Aspiration
 - (CNS or respiratory depressants, peripheral muscle toxins)
 - Pulmonary edema
 - (inhalation injuries, heroin, salicylates)

Circulation

Assess

- rate
- rhythm
- adequacy of perfusion
- BP

Circulation may be compromised:

- · by multitude of medications and toxins
- by interfering with:

 - Pipes

 ↓ PVR (smooth muscle paralyses)

Pump

- Arrhythmia
 Negative inotrope (pump muscle paralysis)

Patient History

Patient may not be cooperative,

or may be unable to give accurate history of

Other sources of information include:

family members, friends, coworkers, rescue personnel,

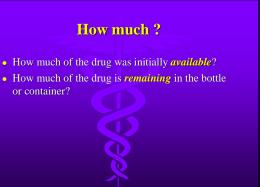
patient's physician or pharmacist

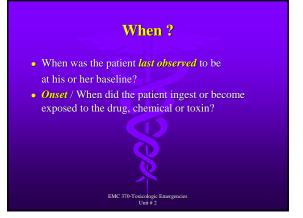
Questions to ask include the following:

- What?
- How much?
- When?

What?

- What drugs is the patient *taking*?
- What drugs or chemicals are *available* to the patient?
- What chemicals or toxins is the patient exposed to at work?
- What was present at the scene?
 - (e.g. pill bottles, chemical containers, drug paraphernalia)
- What events have occurred since the ingestion or exposure?





Is History Suggestive of the of Dx. and Treatment

- Rarely the History is suggestive of the diagnosis / toxin
- Toxidrome
- Foxidrome

 when a typical pattern of symptoms of a toxicologic syndrome may aid in the diagnosis

PE is often Suggestive of Dx. and Treatment

- Neuro
- Toxidrome
 - Physical signs of a toxicologic syndrome that may aid in the diagnosis