Poisoning Management

General principles involved in the management of poisoning

Initial Assessment and Stabilization (ABCDE Approach)

This is the first and most critical step. The priority is life-saving interventions, not identifying the poison.



1. Airway

- **Check for patency**: Is the airway clear or obstructed?
- Poisoned patients may have depressed consciousness → risk of airway obstruction due to tongue, vomit, or secretions.
- **Intubation** is indicated if:
  - Glasgow Coma Scale (GCS) ≤ 8.
  - Patient is seizing, vomiting, or shows respiratory depression.

2. Breathing

- Assess **respiratory rate, depth, pattern, and oxygen saturation**.
- Poisonings (e.g. opioids) may cause **hypoventilation**.
- Administer **oxygen** and ensure adequate ventilation. Consider **mechanical ventilation** if necessary.

3. Circulation

- Assess **heart rate, blood pressure, perfusion (capillary refill)**.
- Look for **arrhythmias**, hypotension, or signs of shock.
- Establish **IV access** (preferably two large-bore cannulas).
- Administer **IV fluids**, **vasopressors** (e.g. norepinephrine) if unresponsive to fluids.

4. Disability (Neurological status)

- Rapid neurological exam (GCS, pupil size, limb movement).
- Identify **coma, agitation, seizures** – common in poisoning.
- Treat **seizures** with benzodiazepines (e.g. diazepam).
- Monitor for signs of **increased intracranial pressure**.

5. Exposure

- Examine the entire body for signs of poisoning (needle marks, rashes, burns).
- Remove contaminated clothing to prevent **dermal absorption**.
- Control body temperature (some toxins cause hyper/hypothermia).

History and Identification of the Poison

Collect History from Multiple Sources:

- **Patient** (if conscious), **relatives**, **friends**, **paramedics**.
- Collect **container/bottle**, prescription labels, or **witness accounts**.

Important Details to Collect:

- What was ingested (drug, dose, form)?
- Time of exposure?
- Intentional or accidental?
- Route (oral, inhalation, dermal)?
- Co-ingestants (alcohol, other drugs)?
- Past medical/psychiatric history?

Clinical Clues:

- **Toxidromes** (syndromes caused by groups of toxins) help narrow down possibilities:
  - ***Opioid toxidrome*:** Miosis, respiratory depression, coma.
  - ***Cholinergic*:** Salivation, lacrimation, urination, diarrhea.
  - ***Anticholinergic*:** Dry skin, mydriasis, delirium.
  - ***Sympathomimetic*:** Hypertension, agitation, mydriasis.

Decontamination

This step aims to prevent further absorption of the poison.

Methods:

1. Gastric Lavage

- Indicated within 1 hour of ingestion of a life-threatening amount.

- Insert orogastric tube, lavage with warm saline.
- **Contraindications**: Unprotected airway, corrosive/volatile ingestion, seizures.

2. Activated Charcoal

- Binds most drugs and toxins → prevents absorption.
- Dose: 1g/kg (max 50g).
- Effective if given within 1–2 hours of ingestion.
- **Ineffective** for: Iron, lithium, alcohols, corrosives.

3. Whole Bowel Irrigation

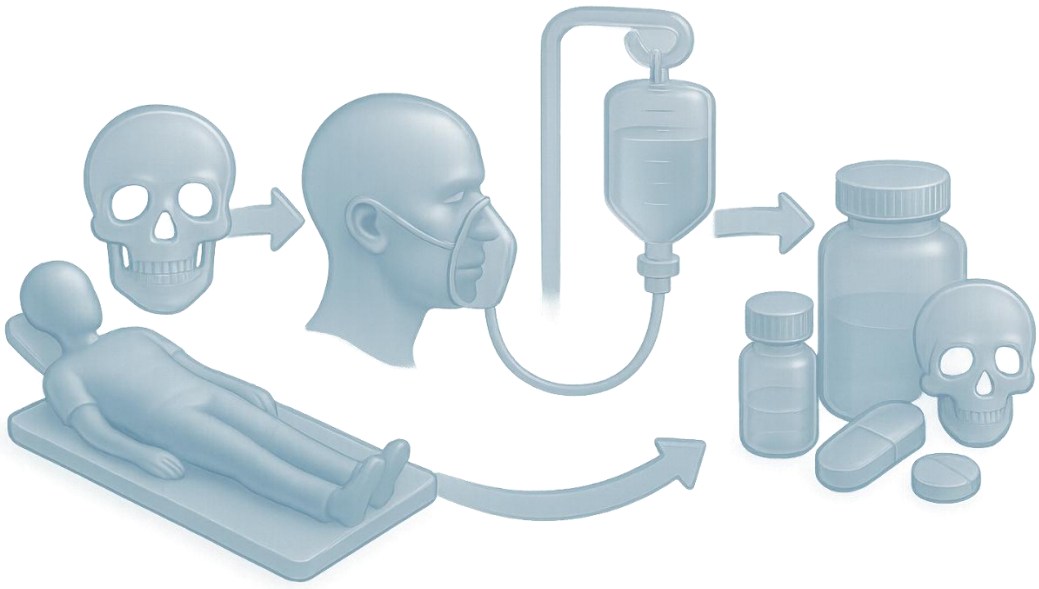
- Used for sustained-release drugs, body packers (drug packets in GI tract).
- Polyethylene glycol given orally/nasogastrically until clear stools.

4. Dermal/ocular decontamination

- **Skin**: Remove clothes, wash with soap and water.
- **Eyes**: Irrigate with normal saline for at least 15–30 minutes.

Supportive Care

Most poisoned patients recover with **supportive management alone**.



Key Elements:

- Maintain oxygenation and perfusion.
- IV fluids, electrolyte correction, and acid-base balance.
- **Seizure control**: Benzodiazepines.
- **Hyperthermia**: Cooling measures (antipyretics usually not effective in drug-induced fever).
- **Arrhythmias**: ECG monitoring and anti-arrhythmic therapy.
- **Glucose**: Hypoglycemia must be corrected immediately.

Use of Antidotes

- Antidotes neutralize or reverse the effects of specific toxins.
- They are only used when clearly indicated.

Examples:

Poison	Antidote
Opioids	Naloxone
Paracetamol	N-acetylcysteine (NAC)
Benzodiazepines	Flumazenil (with caution)
Organophosphates	Atropine + Pralidoxime
Methanol	Fomepizole or Ethanol
Cyanide	Hydroxocobalamin, Sodium thiosulfate
Iron	Deferoxamine

Important Considerations:

- Flumazenil is avoided in chronic benzodiazepine users → risk of seizures.
- Timing and dose of antidote are critical.

Enhanced Elimination of the Toxin

- Used in cases of **severe poisoning** where natural elimination is too slow.

Techniques:

1. **Multiple-dose Activated Charcoal**
   - Enhances elimination by interrupting enterohepatic circulation.
   - Useful in phenobarbital, carbamazepine, theophylline poisoning.
2. **Urinary Alkalinization**
   - Involves giving IV sodium bicarbonate to make urine alkaline.
   - Enhances excretion of weak acids (e.g. salicylates, phenobarbital).
   - Monitor serum pH and potassium.
3. **Hemodialysis**
   - Effective for small, water-soluble, low-protein-bound toxins.
   - Indications: Methanol, ethylene glycol, lithium, salicylates, theophylline, valproate.
   - Requires hemodialysis access and equipment.
4. **Hemoperfusion**

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