



Management of poisoning

Elimination Enhancement: remove the toxin after absorption

I. Assessment

By Three critical questions:

- Dose the patient needs enhanced removal?**
 - Some medication like digoxin and antiepileptic are **unsafe to** remove rapidly
 - Lethal blood level of theophylline, methanol **need to** remove rapidly.
 - Underlying medical problem like RF or Pulmonary edema.
- Is the drug or toxin accessible to the removal procedure? (toxicokinetic)**
Depend on Vd and protein binding (low is ideal for elimination)
- Will the method work?**
Depend on the clearance, total clearance and T ½

II. Method

A. Urinary manipulation

- Forced diuresis (not used due to risk of fluid overload)**
Need to monitor electrolyte and normal renal function
Using D5% with or without NS and followed by mannitol or furosemide
By:
 - Increase GFR
 - Ion trapping by change PH to make poison ionized

	Forced Alkaline Diuresis	Forced Acidic Diuresis
Method	- 0.5 L dextrose 5% - 0.5 L NaHCO ₃ - 0.5 L mannitol - 3 gm KCl	- 0.5 L dextrose 5% - 0.5 L saline 0.9% - 100 ml ammonium chloride 0.6%
Used for	Weak acids as salicylic acid and barbituric acid	Weak alkalies as amphetamines

N.B: Forced acidic diuretic can lead to RF by rhabdomyolysis due to sympathomimetic which cause precipitation of myoglobin

- Alkalinization for salicylate overdose

Criteria of drugs respond to PH manipulation:

- Excreted mainly in kidney.
- It is weak electrolyte.
- Low volume of distribution.
- Low lipid solubility.
- Low plasma protein binding.

Contraindications: -

- Renal failure
- Heart failure
- Pulmonary edema
- Old age

B. Blood manipulation



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	Hemodialysis	Hemoperfusion	Peritoneal dialysis
Principle	Across semipermeable membrane	Through adsorbent material Charcoal	Not requires anticoagulants
	Anticoagulant needs to prevent clotting in dialyzer		Peritoneal serve as semipermeable
Criteria of drug	Small size Water solubility Low lipid solubility Low protein binding Low Vd	These criteria are less important due to use adsorbent material Charcoal	Small size Water solubility Low lipid solubility Low protein binding Low Vd
Advantage	Hemoperfusion <u>greater clearance rates</u> than Hemodialysis		Easier to perform and continuously.

Dialyzable medication: LET M SAV P

Lithium – Ethylene glycol – Theophylline – Methanol – Salicylates – Valproic acid - Potassium

C. Repeat- dose activated charcoal MDAC (gut dialysis)

- 20-30 g or 0.5-1 g/kg every 2-3 hours orally or via gastric tube
- Activated charcoal throughout intestinal reduces blood concentration by interrupting enterohepatic recirculation of the toxin
- MDAC facilitates the passage of toxin from plasma to intestine
- Contraindication in obstruction.
- S.E: electrolyte disturbance secondary to large volume Diarrhea

• Indications of MDAC: -

- **Drugs remain in GIT:**
 - SR-prep: **Theophylline**
 - Concretions: **Salicylates**
 - Slowing GIT motility: **Anticholinergics**
- **EHC: Digoxin, TCA, phenobarbital, carbamazepines**
- **Passive diffusion from blood to lower GI lumen: Theophylline**