POISONING & ANTIDOTES

General approach · toxidromes · specific antidotes

SUPPORT
then reverse

SUPPORTIVE CARE IS THE MAINSTAY: resuscitate ABCDE, treat the patient not the poison. Call the poisons service (TOXBASE / NPIS). Antidotes exist for only a minority.

TOXIDROMES

recognise the pattern

Toxidrome	Signs	Typical agents
Anticholinergic	Hot, dry, flushed, dilated pupils, delirium, urinary retention, tachycardia	Antihistamines, TCAs, atropine, datura
Cholinergic	SLUDGE / DUMBELS: salivation, lacrimation, diarrhoea, miosis, bronchorrhoea	Organophosphates, carbamates, nerve agents
Sympathomimetic	Agitation, sweating, mydriasis, tachycardia, hypertension, hyperthermia	Cocaine, amphetamines, MDMA
Opioid	Pinpoint pupils, ↓ RR, ↓ GCS, hypotension	Heroin, morphine, oxycodone, fentanyl
Sedative-hypnotic	↓ GCS, slurred speech, normal pupils, respiratory depression	Benzodiazepines, alcohol, barbiturates
Serotonin	Clonus, hyperreflexia, agitation, hyperthermia, rigidity	SSRIs + MAOI / tramadol / linezolid

SPECIFIC ANTIDOTES

give with supportive care, not instead of it

- **Paracetamol** → N-acetylcysteine
- **Opioids** → Naloxone 0.4-2 mg (titrate)
- **Benzodiazepines** → Flumazenil (caution: seizures)
- **Beta-blocker** → Glucagon + high-dose insulin-glucose
- **Calcium blocker** → Calcium + high-dose insulin-glucose
- **TCA (Na channel)** → Sodium bicarbonate
- **Digoxin** → Digoxin-specific Fab
- **Iron** → Desferrioxamine
- **Methanol / glycol** → Fomepizole (or ethanol) + dialysis
- **Organophosphate** → Atropine + pralidoxime
- **Cyanide** → Hydroxocobalamin
- **Local anaesthetic** → Intralipid 20% (lipid rescue)
- **Sulfonylurea** → Octreotide + glucose
- **Methaemoglobin** → Methylene blue
- **Warfarin** → Vitamin K + PCC
- **Heparin** → Protamine

DECONTAMINATION & ELIMINATION: activated charcoal 1 g/kg within 1 h if airway protected (not for metals / alcohols / caustics) · urine alkalinisation for salicylates · haemodialysis for salicylate, lithium, methanol / glycol, metformin, valproate.

SUPPORTIVE PRIORITIES

the mainstay of poisoning care

AIRWAY / BREATHING

Intubate for low GCS or aspiration risk; support ventilation; treat hypoxia.

CIRCULATION

Fluids and vasopressors for hypotension; treat arrhythmia; monitor ECG (QRS / QTc).

NEURO / METABOLIC

Treat seizures (benzodiazepines) and agitation; check glucose; manage temperature.

KEY INVESTIGATIONS: paracetamol + salicylate levels in ALL deliberate overdose · ECG (QRS, QTc) · glucose · venous gas with anion + osmolar gap (toxic alcohols) · specific levels (lithium, digoxin, iron) · repeat for delayed peaks.

REFRACTORY / CARDIOTOXIC: prolonged CPR and consider ECMO for cardiotoxic overdose · intralipid for lipophilic cardiotoxicity / local anaesthetic · high-dose insulin-glucose for beta-blocker / calcium blocker · bicarbonate for TCA.

PEARLS & PITFALLS

- Good supportive care saves more lives than any antidote - secure the airway, treat seizures and hypotension.
- A widened QRS in TCA overdose needs sodium bicarbonate, not just watching - it prevents arrest.
- Always check paracetamol and salicylate levels in deliberate overdose, even if asymptomatic.
- Naloxone and flumazenil can precipitate withdrawal or seizures - titrate, and beware re-sedation.

References: TOXBASE / UK NPIS · AACT-EAPCCT position statements · standard clinical toxicology references.

Educational aid; verify doses against local protocol and patient factors.