Gastrointestinal Decontamination

Overview

Risks and required resources have to be balanced against potential benefit.
Risks: Pulm. aspiration, GI obstruction/perforation, ↓supportive/resus care, ↑↑resource use.
Benfits: Improved outcome or clinical course, ↓need for invasive/expensive procedures, ↓LOS
Thus GI decontamination reserved for cases where:

- Sufficient unabsorbed agent remains (usually ≤1hr post ingestion)
- Agent is amenable to removal by selected procedure
- Risk assessment predicts severe or life-threatening toxicity
- Supportive care or antidote treatment insufficient to ensure a satisfactory outcome

Options

- Induced Emesis
- Gastric Lavage
- Single Dose Activated Charcoal (SDAC)
- Whole Bowel Irrigation (WBI)
- Oral binding Agents
- Cathartics
- Surgery

Induced Emesis

Traditonal first line management. Syrup of Ipecac (plant –derived emetics) was commonly used. Rarely any indication now. Theoretically could be used if acute ingestion of sig. toxicity with no ↓LOC/seizures and charcoal not available or doesn't bind to the toxin. Amount removed variable.
Dose: 15-30ml (child 15ml) with water. Repeat if no emesis within 30min.
CI: Non-toxic/sub-toxic ingestions, fits/↓LOC (now in next few hrs), charcoal binds toxin & available<1hr, infant, corrosives, hydrocarbons
Cx: Diarrhoea, prolonged vomiting, Mallory-Weiss tear/gastric perforation/pneumomediastinum (all rare), lethargy, pulmonary aspiration if fits/↓LOC.

Gastric Lavage

Sequential admin aspiration of small volumes of fluid from stomach via an OG tube. Also currently out of favour. Amount removed variable and negligible after 1hr. Rarely indicated.
Procedure:

- Resus bay.
- Intubate if any ↓LOC.
- Put in head down left decubitus position.
- Gently pass lubricated 36-40G OG lavage tube.
- Confirm placement (aspiration/litmus, insufflation).
- Repeat 200ml aliquots of warm NS/tap water + dependent drainage until effluent clear.
- Can then give activated charcoal via tube.

CI: Incomplete resus, unprotected airway, risk assessment suggests unnecessary, small children, corrosives, hydrocarbons
Cx: Pulmonary aspiration, hypoxia, laryngospasm, GIT trauma, water intoxication, hypothermia

Single Dose Activated Charcoal (SDAC)

AC produced by super-heating distilled wood pulp→v.large SA. Added to water/sorbitol before administration. Preferred decontamination method but should not be considered routine.

Indicated when adsorbable toxin remains in GIT (<1hr for most agents, but longer if toxin slows gastric emptying or transit time, or a slow-release formulation) and potential benefits > risks. Can be given by NGT/OGT if intubated, however rarely indicated to intubate just for SDAC.
Dose: 50g (child 1g/kg) in cup (may be mixed with ice cream for children).
Toxins not bound:

- Hydrocarbons & alcohols (MeOH, EtOH, ethylene glycol)
- Metals (Li, Fe, K, Pb, As, Hg)
- Corrosives

CI: Non-toxic/sub-toxic ingestions, risk assessment suggests unnecessary, fits/↓LOC (current or imminent), unco-operative, non-binding toxin, corrosive. [NB. can give SDAC if ileus]
Cx: Messy, vomiting, pulmonary aspiration, impaired absof subsequent oral Rx, corneal abrasions

Whole Bowel Irrigation (WBI)

Large volumes of osmotically-balanced polyethylene glycol-electrolyte solution (PEG-ELS) administered to flush entire bowel. Aggressive & labour intensive so indicated only when:

- Life-threatening ingestion of SR or EC preparations or of non-SDAC binders
- AND good clinical outcome not expected with supportive/antidote care
- AND patient presents before severe toxicity
- AND not contraindicated e.g. high risk of seizures.

In practice considered for:

- Iron OD >60mg/kg
- SR KCl OD >2.5mmol/kg
- Life-threatening SR verapamil or diltiazem
- Symptomatic arsenic trioxide ingestion
- Lead ingestion
- Body packers

Procedure:

- Assign dedicated nurse & obtain sufficient PEG-ELS
- Insert NG and give SDAC via tube if non-metallic ingestion
- Position patient on commode if possible
- Give PEG-ELS 2L/hr (child 25ml/kg/hr) via NGT (can use Kangaroo pump)
- Give **metoclopramide** 10mg IV (adult) to minimise vomiting & ↑gastric emptying
- Continue irrigation until effluent clear (up to 6hrs)
- Cease earlier if abdominal distension or loss of bowel sounds
- AXR may help show clearance of radio-opaque concretions
- Count any expelled packages in body packers

CI: Risk assessment suggests unnecessary, unco-operative, unable to place NGT, uncontrolled vomiting, ileus/GI obstruction likely fits/LOC within 4hr.
Rel CI: Intubated & ventilated (fluid may may pool in oropharynx & leak into lungs)
Cx: N & V, bloating, non-anion gap metabolic acidosis, pulm. aspiration, delayed resus/retrieval.

Oral Binding Agents

Resonium (Sodium Polystyrate), ion exchange resin binds K+ well (± Li, Fe & Te as well).
Fuller's Earth, traditional clay used in paraquat ingestion, but no better than activated charcoal

Cathartics

E.g. sorbitol. Controversial and generally not indicated.

Surgery/Endoscopy

Rarely required – coin-batteries, heavy concretions (lead etc) not removable by other means.