Treatment of Poisoning (Antidotes)

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NAC

- Indications:
  - If the serum APAP concentration is plotted on or above the treatment line on the Rumack-Matthew nomogram
  - If the patients’ history suggests an acute APAP ingestion of 150 mg/kg or greater and the results will not be available within 8 hours of ingestion.
  - If in chronic APAP ingestions- either AST is above normal or the APAP level is higher than 10μg/mL.
• Dose:
• 150mg/kg in 200 cc DW5% in 1 h
• 50mg/kg in 500 cc DW5% in 4 h
• 100 mg/kg in 1000 cc DW5% in 16 h
Naloxone

- Indications:
  - Can be administered in nearly any patient with depressed level of consciousness and respiratory depression.

- Dose:
  - 0.4mg-2mg-10mg
  - 0.04mg-0.4mg-2mg-10mg
Na Bicarbonate

- Indications:
  - Myocardial sodium channel toxins (TCA/Cocaine/Amantadine/antidysrhythmics)
  - Altering the distribution and enhancing elimination (salicylates/phenobarbital/methotrexate)
  - Correcting metabolic acidosis (toxic alcohols/metformin)
  - Neutralization (chlorine gas)
  - Renal Protection (contrast media/ BAL-metal)
• Dose:
• 1.5-2×maintenance DW5%+3 vials of bicarbonate sodium in each liter
Deferoxamine

- Indications:
  - Iron Poisoning (acute overdose or chronic overload) in case of metabolic acidosis, repetitive vomiting, toxic appearance, lethargy, hypotension, or signs of shock develop or the level is higher than 500μg/dL
  - Aluminum Poisoning
• Dose:

• IV infusion should start slowly and gradually increasing to the dose of 15mg/kg/h.

(Be prepared for the ALI and hypotension)
Indications:

- Induced cardiovascular toxicity (Ca Channel blockers, Beta blockers, ALP...)

Loading Dose: 1U/kg insulin + 0.5-1 g/kg dextrose

Maintenance dose: 0.5U/kg/h insulin + 0.25-0.5 g/kg/h dextrose

Blood glucose should be maintained between 100 and 50 mg/dL

Potassium is indicated in cases of mild hypokalemia (2.8-3.2 meq/L)
Glucagon

- Indications:
  - Beta adrenergic antagonist poisoning
  - Ca channel blocker poisoning
  - Hypoglycemia
Dose

- Initial IV bolus of 50 µg/kg infused over 1-2 min (3-5 mg in a 70-kg patient)
- May be increased to up to 10 mg
- Followed by a continuous infusion of 2-5 mg/h in 5% dextrose in water which can be tapered as the patient improves
Fab

- Digoxin toxicity with progressive bradydysrhythmias, symptomatic sinus bradycardia, second or third degree heart block unresponsive to atropine, severe ventricular dysrythmias such as VT and VF, K> 5meq/L, acute ingestions>4mg in children and 10 mg in adults
Dose

- Number of vials: $\text{SDC (ng/mL)} \times \text{Weight}/100$
- Or total Body load/0.5

- Empiric recommendation:
  - Acute: Adult (10-20) Children (10-20)
  - Chronic: Adult (3-6) Children (1-2)
Intralipid

- Indications:
  - Anesthetic toxicity (bupivacaine)
  - Non-local anesthetic toxicity (TCA, beta blocker, Ca channel blocker, OP, cocaine, amiodarone, and thiopental toxicity)
Dose

- Intralipid 20%:
  - 1.5 mg/kg bolus followed by 0.25 ml/kg/min or 15 ml/kg/h for 30 to 60 minutes
  - The bolus may be repeated several times for persistent dysrythmias and the infusion rate can be increased if BP decreases.
Flumazenil

- Indications:
  - Pure BZD toxicity in a non-tolerant individual who has CNS depression
  - Normal vital signs including SaO2
  - Normal EKG
  - Otherwise normal neurologic examination
Contraindications

- Seizure history
- Xenobiotics capable of provoking seizures
- Long term use of BZD
- Potential ECG of TCA
- Hypoxia and hypoventilation
- Hypotension
- Head trauma
Dose

- Slow IV titration (0.1 mg/min) and waiting one minute between doses to a total dose not higher than 1mg
- Although not confirmed by FDA, IV infusion of 0.1 to 1 mg/h in N/S or DW5% in water has been used following a loading dose.
Atropine

- Indications:
- OP poisoning (DUMBLES)
- Dose:
  - 1mg-2mg-4mg-8mg-...
- Maintenance:
  - 20% loading dose/h
Pralidoxime

- Moderate to severe OP poisoning
- Severe cases of carbamate toxicity
- Dose:
  - 20-50mg/kg (not to exceed 2 g) over 15-30 min followed by a continuous infusion of 10-20mg/kg/h
Sodium and amyl nitrite

- Indications:
  - Cyanide toxicity
- Dose:
  - 300 mg (10 cc 3% solution) with the rate of 2.5-5 mL/min
  - In children: 0.2 mg/kg (6-8 mL/m2 BSA) or 6 mg/kg of 3% sodium nitrite
Sodium Thiosulfate

- Indications:
  - Cyanide toxicity
  - Nitroprusside-induced cyanide toxicity
- Dose:
  - 12.5 g (50 cc 25% solution) Iv infused over 10-30 min depending on the severity of the exposure