

Toxicology

A few words on a few drug overdoses. Just the specifics. All the general management is taken for granted.

INSULIN-N&V, sweating, tachycardia., bizarre behaviour. Drowsy, convulsions,coma with increased tone, hyperreflexia and upgoing plantars. Duration depends on preparation. Give oral carbohydrate or titrate IV dextrose to response. 5-10% is just as effective as 50% (0.5-1g/Kg for kids i.e.5-10 ml/Kg of 10%) Glucagon 1-2 mg in adults, in kids 1mg if >25kg, 0.5mg if <25Kg. Depends on available glycogen stores.

Check potassium.

If fail to regain consciousness in few minutes consider cerebral oedema due to prolonged neuroglycopenia. Consider alternative diagnosis and CT. Mannitol if cerebral oedema.

SALICYLATE-N&V, tinnitus, vertigo,deafness, sweating,warm extremities, bounding pulse, tachypnoea, acid-base disturbance.

Initial resp alkalosis and then metabolic acidosis.

Uncommonly haematemesis, hyperpyrexia, hypoglycaemia, hypokalaemia, thrombocytopenia, prolonged PT and APTT, DIC pulmonary oedema and renal failure.

Poisoning is diagnosed with combination of levels and symptoms. Level > 350mg/L (2.5 mmol/L) is toxic usually, and death at >700mg/L (5.1 mmol/L)

Neuro features indicate severe poisoning.

Charcoal for anyone with > 120mg/Kg ingested. 500mg/Kg potentially fatal.

Levels at 2 hours if symptomatic and 4 hours if not. If symptomatic, repeat levels every 2 hours until they start to fall.

ABG, U&E, INR Glucose.

Correct K⁺ before giving bicarbonate for acidosis, until urine pH 7.5-8.5

Adults Salicylate > 500mg/L (3.6 mmol/L) then give 1.5L of 1.26% bicarb over 2 hours.

Children salicylate > 350 mg/L (2.5 mmol/L) give 1 ml/Kg 8.4% bicarb in 500 ml saline or dextrose at 2-3 ml/Kg/hr.

Check potassium.

Consider dialysis if >700mg/L (5.1 mmol/L), renal failure, CCF, pulmonary oedema, convulsions, coma, severe metabolic acidosis, or persistently high levels unresponsive to urinary alkalinisation.

TRICYCLICS- tachycardia, hot dry skin and mouth, dilated pupils and retention Occasionally blisters. Prolonged PR and QRS or bizarre in severe poisoning. Toxicity causes ataxia, nystagmus, drowsiness, coma, increased tone and hyperreflexia, divergent squint, hypotension, seizures (in 5%)

Charcoal. Observe 6 hours if asymptomatic. Treat arrhythmias by correcting acidosis and hypoxia. Treat any arrhythmia with bicarb (alters binding of TCA to

myocardium). Phenytoin is CONTRAINDICATED with TCAs as it too blocks Na channels and may cause arrhythmia.

Treat myocardial depression with glucagons 1mg every 3 min, or infusion at 2-4 mg/hr when responds.

Prolonged resus in the event of arrest has been successful.

BETA-BLOCKERS- myocardial depression and conduction abnormalities, bronchospasm.

Observe for 6 hours.

Try atropine (works in 25%). IV fluids Bolus of 2-10 mg of glucagons IV (50-150mcg/Kg for kids), then infusion of 1-5 mg/hr (50 mcg/Kg/hr) If fails try isoprenaline infusin, or pacing.

METFORMIN- as insulin i.e hypoglycaemic symptoms, and profound metabolic acidosis, due to lactate. Treat with 250 ml 1.26% bicarb. If no response to dextrose consider cerebral oedema as above.

ANTI-HISTAMINES- anticholinergic effects mainly. See TCAs

PHENYTOIN – inhibits voltage dependent sodium channels. N&V ataxia and nystagmus, dysarthria, divergent gaze, drowsiness, hypotension.

Charcoal. Symptoms usually at levels > 20mg/L (79 micromol/L). >40mg/l suggests severe toxicity.

CARBAMAZEPINE- dysathria, nystagmus, ataxia, drowsiness, violence, tachycardia, dilated pupils and hyperreflexia. Then coma and convulsions.

SVTs prolonged PR, QT and QRS. Levels of <25mg/L(105 micromol/L) usually not serious. >40mg/L is seriously toxic.

SODIUM VALPROATE – drowsiness, hypotension, N&V dairrhoea and abdo pain, apathy, withdrawn or rarely hyperactive. Dysarthria and nystagmus are NOT features. Myoclonic movements and cerebral oedema at higher levels. Rarely pancreatitis, renal failure, bone marrow suppression and optic atrophy.

Levels above 850 mcg/mL associated with coma and metabolic acidosis.