Miscellaneous Poisons:

ISHITA KANODIA

Acetylsalicylic Acid (Aspirin): analgesic & antipyretic.

→ white, odourless, crystalline, slight acidic taste.

→ acts primarily through inhibition of prostaglandin biosynthesis.

→ chiefly metabolised in the liver.

→ Half-life: 2-4 hours.

→ cause extreme irritation of G.I. mucosa.

Signs & Symptoms:

→ Large oral dose ⇒ mild burning pain in the throat & stomach, & vomiting.

→ Latent period of several hours following initial symptoms.

- Sweating, slight ↑ in temperature
- Anorexia, apathy, lassitude
- nausea, vomiting, diarrhoea
- Respiration – initially fast
  – later laboured, dyspnoeic.
- Urine is strongly acidic ⇒ contains acetone, albumin
- Hypovolaemia, hypokalaemia, hypoprothrombinaemia
- Flushed skin, dilated pupils
- Rapid & irregular pulse
- Inhibition of aggregation ⇒ ↑ clotting time
- Vertigo, ringing in the ears, deafness
- irritability, restlessness, confusion, disorientation, delirium, mania
- Primary respiratory alkalosis with marked hypercapnoea.
  – Later: metabolic acidosis supervenes

Characteristic of salicylate poisoning:
↑ anion gap metabolic acidosis with respiratory alkalosis, Ketosis, tinnitus.

Reye's Syndrome: sometimes seen in children < 15 years on consumption of aspirin.

→ acute onset of hepatic failure & encephalopathy with residual neurological manifestations.

Treatment:

ISHITA KANODIA

1] Emetics.

2] When a large number of tablets are swallowed ⇒ aspirin may form a large dirty grey lump → wash stomach with $NaHCO_3$ solution.

3] Repetitive activated charcoal.

4] Forced alkaline diuresis.

5] Peritoneal dialysis, haemodialysis.

6] Exchange transfusion (in severe cases).

7] Saline cathaxsis.

8] Alkali therapy (if acidosis is present).

9] Whole bowel irrigation (if salicylate levels are not declining)

10] Vitamin C (to control haemorrhage).

11] ACTH & antihistamines (in idiosyncrasy).

12] Symptomatic management.

→ Death occurs from acidosis & uraemia with peripheral failure due to shock in the earlier stages or respiratory failure later.

→ Idiosyncrasy: seen in 0.2% persons (therapeutic dose produces alarming symptoms)

- angioneurotic oedema
- laryngeal oedema
- cyanosis
- urticaria
- vomiting
- erythema of face
- hypotension
- excessive salivation
- oedema of eyelids
- vasomotor rhinitis
- bronchial spasm
- maculopapular exanthemata.

Fatal dose: Aspirin: 15-20g.

Fatal Period: Few minutes to several hours.

Test: Few drops of $FeCl_3$ + urine containing aspirin → deep purple.

PM Appearances: • dilated pupils • skin rashes • congested gastric mucosa • black altered blood in stomach • generalised congestion of all organs • subpleural & pericardial petechial haemorrhages • lungs: congested, oedematous, collapsed • hepatitis may be present

Chronic Poisoning: • confusion • agitation • lethargy • disorientation • slurred speech • hallucinations • convulsions, coma • tinnitus, loss of hearing • dyspnoea • tachycardia, fever

Circumstances of Poisoning:

→ almost always suicidal

Paracetamol (Acetaminophen): analgesic & antipyretic without anti-inflammatory properties of aspirin.

→ absorbed rapidly from G.I.T. & metabolised quickly in the liver

→ potent hepatic toxin

→ small part of acetaminophen is converted to N-acetyl-p-benzoquinoneimine (NABP) in the liver (normally detoxified ⟹ accumulates in excess in case of overdose to cause severe centrilobular liver necrosis).

→ large doses act on brain stem to cause rapid death.

Fatal dose: 20-25 g.

Fatal Period: 3-4 days.

Symptoms: • Anorexia, nausea, vomiting, abdominal pain • Diaphoresis • Dyspnoea • Hypotension, tachycardia

→ After 2-4 days: • jaundice, hepatic pain • bleeding • hypoglycaemia
• confusion, coma • metabolic acidosis • coarse flapping tremor of hands (asterixis).

→ Death in 3-4 days.

Treatment:

1] Gastric Lavage

2] Activated charcoal

3] N-acetyl cysteine (NAC) ⇒ specific antidote ⇒ maximum efficacy if used within 8 hrs.

- initially: 140 mg/kg
- 70 mg/kg every 4 hours until totally 18 doses are given over 72 hrs orally.
- can be given i.v. ⇒ 150 mg/kg in 200 ml of 5% dextrose over 15 minutes, followed by 50 mg/kg in 500 ml of 5% dextrose of 4 hours & then, 100 mg/kg in 1L over 16 hours.

4] Methionine (less effective than NAC) ⇒ ↑ glutathione synthesis.

- initially 2.5 gm orally
- repeated every 4 hours upto a total of 10 gm.

PM Appearances:

→ enlarged, yellowish liver with acute centrilobular necrosis.

→ acute tubular necrosis in kidneys.

→ myocardial necrosis.

→ cerebral oedema.