

ACUTE POISONING

first aid & therapy

Jozef Firment

Acute Poisoning in the Emergency Department

- Common - **3-5%** of ED attendances
- Some of the highest rates of deliberate poisoning in Europe
- Often **multiple** drugs
- Don't forget **alcohol !!**

History

- Applies to any episode of poisoning
- What
- How much (ideally mg/kg)
- When
- What else (including alcohol)
- Why
- Use informations from relatives, friends, paramedics, anyone!!

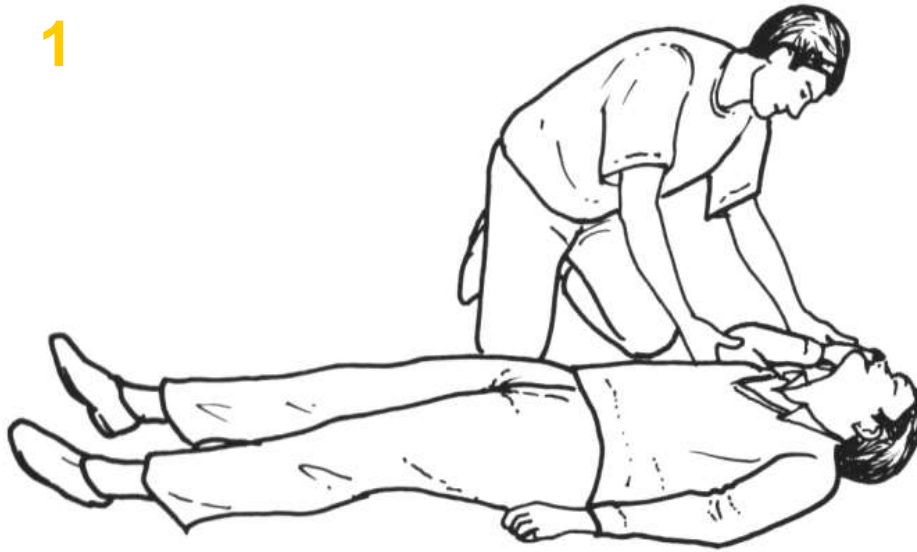
General Management

- Take care about vital sings!
- **A** (Airway)
- **B** (Breathing)
- **C** (Circulation)
- **D** (Disability-AVPU/ Glasgow Coma Scale)
 - AVPU scale (Alert, Voice, Pain, Unresponsive)
- **DEFG** (Don't ever forget the Glucose) and thiamine
- Get a set of basic observations
 - Disconnection from poison administration
 - Symptomatic treatment
 - Target treatment



Recovery position

1



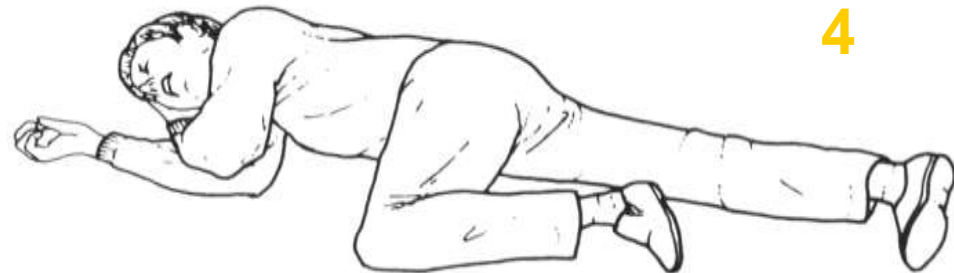
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Examination

- Use **all your senses**, search for the **clues**
- Look
 - Track marks
 - Pupil size
- Feel
 - Temperature, sweating
- Smell
 - Alcohol



General Management

- Decreasing drug absorption
 - **Gastric Lavage** (need to protect the airway, may push drug through pylorus into small bowel.)
 - Absorbants (**Activated Charcoal**, usually within 1 hour of ingestion, longer repeated doses in drugs that delay gastric emptying e.g. Aspirin)



Specific Management

- Increasing drug **elimination**
 - Saline (volume) diuresis - crystalloids
 - Alkaline Diuresis (Aspirin)
 - Haemodialysis (Aspirin)

Specific Management

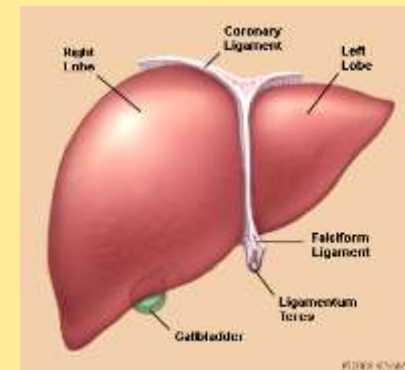
- **Antagonising** the effects of the poison
 - Naloxone (opioids)
 - N-acetylcysteine (paracetamol)
 - Flumazenil (benodiazepins)

Specific Poisons- Paracetamol

- Commonest drug used
- 50% of all **Self Poisoning** Episodes
- Toxic dose >7 g/adult
- Dangerous and people don't know it. You feel well and then the liver failure sets in..

Paracetamol-Normal Metabolism

- Paracetamol converted to:
- N-acetyl-p-benzoquinonamine (toxic)
- This is conjugated with **Glutathione**
- Glutathione stored in the body
- Produces a non toxic metabolite



Paracetamol Overdose

- Glutathione stores are used up by the excess Paracetamol
- Toxic Metabolite build up
- Binds irreversibly to Hepatic Cell membranes
- Resulting in **liver necrosis**
- N-acetylcysteine. Shown to be advantageous if given in the first 10 hours
- Refer to specialist liver unit

Opiate Poisoning - Features

- Action on the μ -receptors giving the effects in overdose.



- 1. Pinpoint pupils
- 2. Respiratory depression <8 breaths/min!!!
- 3. Coma

Opiate Overdose

- Naloxone 0,4 mg
 - Opioid antagonist
 - High affinity for the opiate receptors
 - Rapid onset
 - Effects last 2-4 h, may need repeated doses
 - Give I-M or I-V
 - Other effects - pulmonary oedema!

Salicylate (Aspirin) Poisoning

- Toxicity occurs due to disturbance in Acid-Base Balance

1. Respiratory Alkalosis

2. Metabolic Acidosis

Urinary alkalinisation

Haemodialysis

Tricyclic Antidepressants

- Seen relatively frequently
- Can be fatal
- Can be very symptomatic, effects made worse by alcohol
- Main effects are on the Heart and Brain
- Effects are
 - 1. Anticholinergic
 - 2. Quinidine like

TCA Clinical features

- Anticholinergic effects
 - Dry Mouth, Dry Eyes, Dilated Pupils, Urinary Retention, Blurred Vision, Dizziness, Palpitations, Pyrexia without sweating
 - CNS Effects - Confusion, Delirium, Coma, Convulsions, Myoclonus and Respiratory Depression
- Cardiac Toxicity (quinidine effects)
 - Heart Block, Asystole, Bradycardia, Tachycardia, Ventricular Dysrhythmias
 - ECG Changes - broadening of QRS complex, Widened QT Interval

TCA Overdose

- Activated charcoal if more than 4 mg/kg within 1 hour.
- Correct hypoxia with Oxygen (airway)
- Correct acidosis with NaHCO_3
- Correct any arrhythmias with NaHCO_3 (i.e start by controlling the acid base disturbance)

Indications for Continuous or Intermittent Renal Replacement Therapy

- Volume Overload
- Electrolyte Imbalance (K, Na, Ca...)
- Uraemia
- Acid-Base Disturbances
- Drugs
- Sepsis, special haemofilters?

Intermittent Hemodialysis

advantages

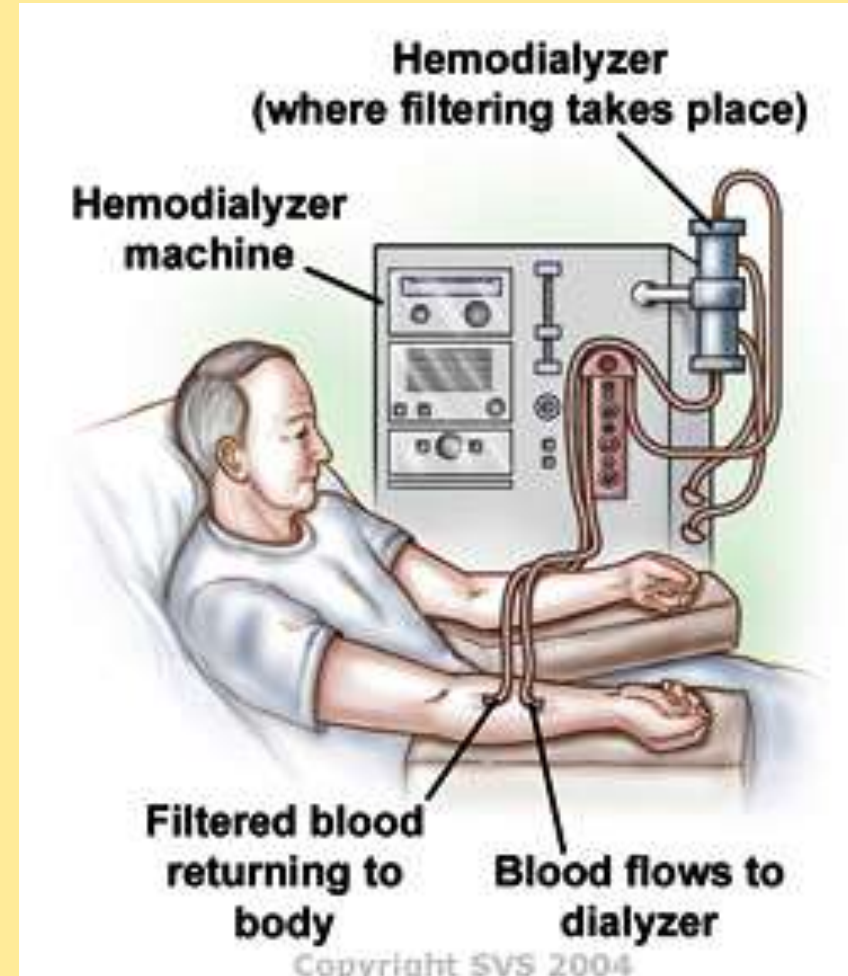
- maximum solute clearance
- best tx for severe hyper-K+
- ready availability
- limited anti-coagulation time
- bedside vascular access

disadvantages

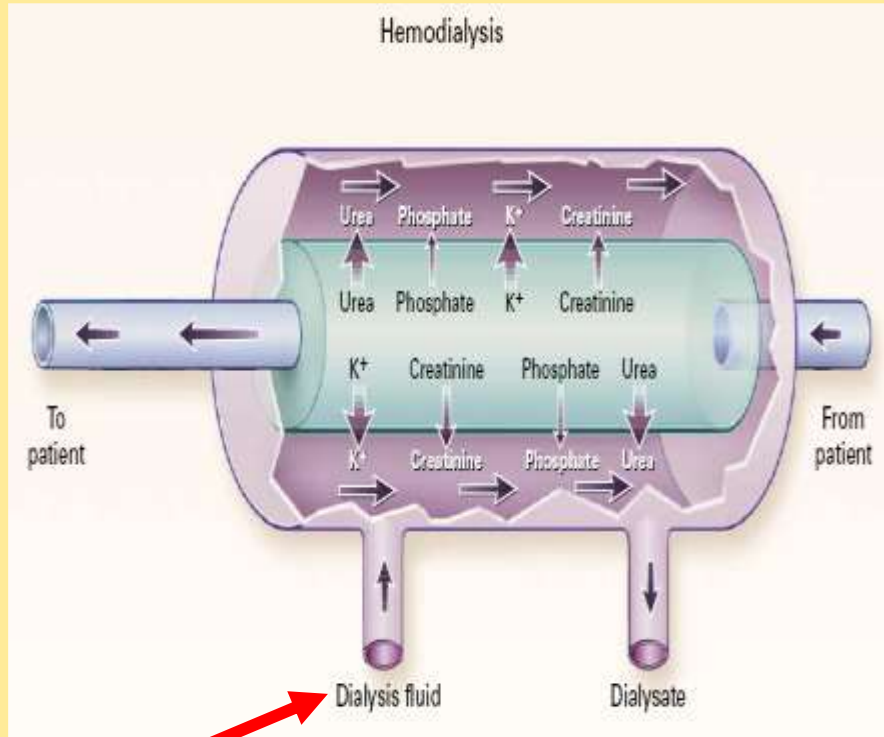
- hemodynamic instability
- hypoxemia
- rapid fluid + solute shifts
- complex equipment
- specialized personnel

Definition of Terms

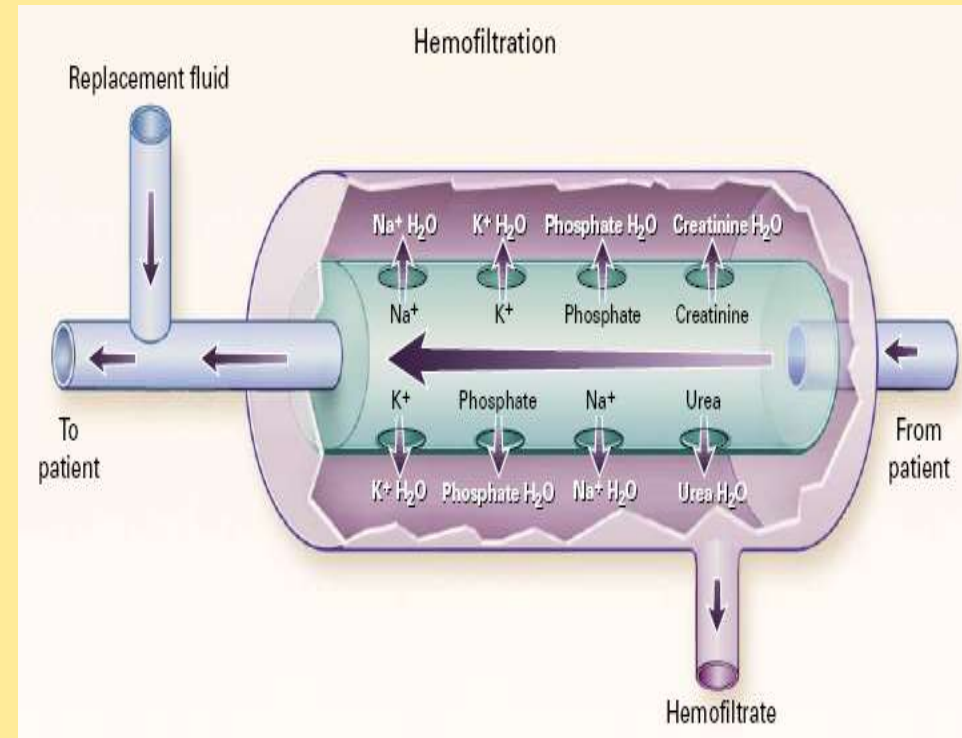
- SCUF Slow Continuous Ultrafiltration
- CVVH Continuous Venovenous Hemofiltration
- CVVH-D Continuous Venovenous Hemofiltration with Dialysis
- HP – hemoperfusion (charcoal...)
- Peritoneal Dialysis



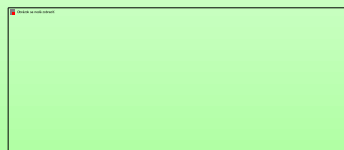
Hemodialysis vs Hemofiltration Membrane



Hemodialysis membranes contain long, tortuous inter-connecting channels that result in high resistance to fluid flow. Hemodialysis allows the removal of water and solutes by **diffusion** across a concentration gradient.



The **hemofiltration** membrane consists of relatively straight channels of ever-increasing diameter that offer little resistance to fluid flow.



Specificity in Obsteric Anaesthesia Anaesthesia in Cs

- General vs regional
- Mendelson's sy

- General in emergent situations (bleeding, respiratory insufficiency...)
- Regional
 - When spinal
 - When epidural

Preanaesthetic evaluation & preparation

- Risk of Mendelson's sy (aspiration)
 - Antacids
- Obesity
- Trombosis, Prophylactic administration
- Lower CV syndromme
- Bleeding management (LTH)

Steps in General anaesthesia Caesarean Section

- IV anaesthesia
 - Propofol vs Thiopental, doses
 - Myorelaxants
 - Opioids
- Inhalatory agents

Technics in neuraxial anaesthesia

- **Spinal:** Monitoring, positioning, volume preparation, choice of spinal needle, administration of anaesthetic & opioid, dosage, level of anaesthesia, analgesia.
- **Epidural:** Monitoring, positioning, conversion from PEDTA or primary, Tuohy needle (Gauge), ±catheter, administration of anaesthetic & opioid, dosage, level of anaesthesia, analgesia.