Potassium Chloride (KCl)

Potassium overdose can cause severe hyperkalaemia [↑K^+] **& cardiac arrest. Urgent haemodialysis may be required in cases of severe toxicity.**

Toxicity / Risk Assessment

- One 600mg SR tablet (*Span-K®*) = 8 mmoL KCl
  One effervescent tablet (*Chlorvescent®*) = 14 mmoL KCl
- Ingestion of > 2.0 mmol/kg KCl can cause [↑K+]
- The lethal dose of KCl is not well defined
- Massive ingestion = greater than 300 mmol
- Patients with renal/cardiac disease higher risk of toxicity
- Paediatrics: 3 tablets can cause ↑K^+ in a 10 kg infant
- Tablets are radiopaque and often seen on plain AXR BUT ***the absence of opacities does NOT exclude ingestion***
- A pharmacobezoar can form & lead to prolonged toxicity

Clinical features:

- May be asymptomatic with a normal [K^+] on presentation
- Effects occur within 1-4 hours (delayed with SR preps.)
- GI: Nausea, vomiting, abdominal pain, ileus
- Neuro: lethargy, confusion, muscle weakness
- Progression of ECG changes: Peaked T waves, PR interval prolongation, loss of p waves, QRS interval prolongation, sine wave, ventricular fibrillation, & asystole
- Paralysis and bradycardia herald imminent cardiac arrest

Management Monitor 30 minutely [K^+] with cardiac monitoring for at least 4 hours and until stable

Decontamination: Activated charcoal does NOT bind K^+ and is not indicated

Large reported ingestions with tablets confirmed on AXR should be discussed with a clinical toxicologist:

- Early **endoscopic removal** should be considered if tablets are visible in the stomach
- **WBI** may be beneficial if endoscopy is not available, or if tablets appear beyond the pylorus

Management of hyperkalaemia

- Calcium gluconate: 30 mL 10% (Paediatric: 0.5 mL/kg up to 20 mL) slow IV bolus
- Dextrose + Actrapid insulin: 50 mL 50% dextrose + 10 units Actrapid insulin IV
  (Paediatric: 5mL/kg 10% dextrose + Actrapid 0.1 units/kg up to 10 units IV)
- Nebulised salbutamol: 10-20mg (Paediatric: 2.5 mg < 5 years OR 5 mg if > 5 years)
- $NaHCO_3$: Administer as slow IV push in refractory [↑K^+] and/or life-threatening ECG changes
  - Adults 8.4% $NaHCO_3$ – 50-100 mL (50-100 mmol)
  - Paediatrics 8.4% $NaHCO_3$ – 1-2 mL per kg up to 50 mL (1-2 mmol/kg up to 50 mmol)

Indications for haemodialysis* (Discuss with clinical toxicologist)

- K^+ concentration > 8.0 mmol/L or K^+ concentrations rising rapidly despite initial temporising measures
- Patients with known renal impairment or cardiotoxicity
- If severe toxicity is anticipated, plans for haemodialysis should be initiated as a matter of urgency

*In some cases, haemodialysis may not be required especially patients with normal renal function

Disposition: Discharge once K^+ concentration is stable and within normal limits after treatment stopped. Observe with serial K^+ concentrations for at least 6 hours (12 hours following SR tablet ingestion)