# Potassium

**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 is equivalent to 8 mmoL KCl
- One effervescent tablet is equivalent to 14 mmoL KCl
- Ingestion of greater than 2 mmol/kg KCl can cause ↑K+
- The lethal dose of KCl is not well defined
- Massive ingestion = greater than 40 x 600mg tablets
- Patients with renal/cardiac disease higher risk of toxicity
- Paediatrics: 3 tablets can cause ↑$K^+$ in a 10kg infant
- Tablets are radiopaque and often seen on plain AXR

***The absence of opacities does NOT exclude ingestion***

- A pharmacobezoar can form and lead to prolonged toxicity

**Clinical features:**

- May be asymptomatic with a normal [$K^+$] on presentation
- Effects usually occur within a few hours of ingestion
- GI: Nausea, vomiting, abdominal pain, ileus, perforation
- 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** hourly $K^+$ measurements should continue in a monitored environment with telemetry 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:

- 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**

- 30ml 10% calcium gluconate (Paediatric: 0.5 mL/kg) slow IV bolus
- Dextrose 50ml 50% + 10 units IV Actrapid® insulin
  (Paediatric: 5mL/kg 10% dextrose + Actrapid® 0.1 units/kg IV)
- Nebulised salbutamol 10-20mg (2.5 mg < 5 years OR 5 mg if > 5 years)
- $NaHCO_3$ 50-100 mmoL slow IV (Paeds: 1 mmoL/kg) in refractory (↑$K^+$) and/or life-threatening ECG changes
- Resonium is highly ineffective

**Indications for haemodialysis**

- $K^+$ concentration > 8.0 mmol/L or $K^+$ concentrations rising rapidly despite initial temporising measures
- Patients with known renal impairment should be have a lower threshold for dialysis
- Haemodialysis should be restarted if the potassium concentration rises after cessation of treatment
- If severe toxicity is anticipated, plans for haemodialysis should be initiated as a matter of urgency

**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)