# Hyperkalaemia in Adults

<table>
<thead>
<tr>
<th>Dose and Regimen</th>
<th>Serum Potassium level (mmol/L) (reference range = 3.5 to 5.3mmol/L)</th>
<th>Route</th>
<th>Preparation and Dose</th>
</tr>
</thead>
</table>
| MILD = 5.5 to 5.9 mmol/L | N/A | • Check sample is not haemolysed (if so, repeat before commencing treatment)  
• Consider discontinuing/withholding potassium containing/sparing medicines  
• Reduce potassium intake  
• Cardiac monitoring can be considered if symptoms suggestive of hyperkalaemia – seek Consultant advice  
• Consider Calcium Resonium (see moderate) |
| MODERATE = 6.0 to 6.4 mmol/L | Oral | As for mild hyperkalaemia PLUS steps below:  
Calcium Resonium® powder 15g FOUR times a day diluted in 60 to 100mL of water for THREE days unless alternative advice has been given by a nephrologist.  
(Co-prescribe lactulose 15mL TWICE a day to counter constipating effect of Calcium Resonium)  
Stop Calcium Resonium therapy when K+5.5mmol/L or over  
Cardiac monitoring should be considered – seek Consultant advice. Do not delay treatment if monitoring is unavailable  
Recheck potassium daily to prevent hypokalaemia |
| SEVERE = 6.5 mmol/L and above OR | IV and Oral | Continuous cardiac monitoring should be sought whenever possible – seek Consultant advice. Do not delay treatment if monitoring is not immediately available.  
**Step 1: Protect the myocardium**  
Give 10mL of 10% calcium gluconate IV via a large peripheral vein over 5 to 10 minutes.  
Improvement on ECG should be seen within 1 to 3 minutes. This dose can be repeated at intervals of 10 minutes up to a maximum cumulative dose of 50mL  
Effects are transient (30-60 minutes)  
If the patient is taking digoxin the calcium gluconate should be given slowly (mixed with 100mL 5% glucose and given over 30 minutes) to prevent digoxin toxicity.  
**Step 2: Shift potassium into cells.**  
IV Infusion (preferred) - Add 10 units of Actrapid insulin to 250mL of 10% dextrose and administer peripherally over 10 minutes.  
( Please note that the smallest 10% glucose bag available is 500mL – therefore 250mL should be discarded) |
**Indication for use**

- Acute hyperkalaemia in adults (reference range 3.5 to 5.3mmol/L)

**REMEMBER:** Always establish and treat the underlying cause of hyperkalaemia, **DO NOT** just treat the biochemical abnormality

**Presentation**

- Calcium gluconate injection 10% (Ca$^{2+}$ 226micromol/ml)
- Actrapid (soluble insulin – human, pyr) 100units/ml x 10ml vial
- Dextrose 10% available as 500ml or 1000ml bags
- Glucose 50% vials 50mL
- Calcium Resonium® (calcium polystyrene sulfonate) powder x 300g tub
- Salbutamol 2.5mg/2.5ml, 5mg/2.5ml nebules x 20 nebules per pack

**Method of Administration**

- See dosing table above for information

**Instructions for Dilution**

- See dosing table above for information

**Monitoring & Significant Adverse Drug Reactions**

**Monitoring**

- Four hourly observations (temp/pulse/BP/resps/sats) – more frequently if clinically indicated
- Continuous cardiac monitoring if K+ 6.5mmol/L or above
- Recheck serum Potassium at 1, 2, 4, 6, and 24 hours after identification and treatment of hyperkalaemia
- Blood glucose monitoring at baseline,15minutes, 30minutes, 60minutes then at least hourly for a minimum of 6 hours after administration insulin-glucose in all patients
Monitor fluid balance and encourage good urine output – this will promote urinary potassium loss.
Urea and electrolytes after 4 to 6 hours then ONCE daily
Consider checking creatinine kinase (CK) and blood gases if appropriate
If the patient is on dialysis ensure the renal team are informed.
If required please refer to trust Advanced Life Support (ALS) guidelines

Course lengths should be based on the clinical indication for use and stop dates added to the drug chart. If a patient is to be discharged before a course is completed then the GP must be given explicit information regarding monitoring and future management.

Refer to the most recent version of the British National Formulary (BNF) for a full and up to date list of side effects

References
- Nottingham University Hospitals NHS Trust. Guideline for the management of Acute Hyperkalaemia in Adults. April 2016