Guidelines for Emergency Management of Hyperkalaemia in Adults

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<th>Policy Reference:</th>
<th>id999</th>
<th>Date of Issue:</th>
<th>August 2008</th>
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<tbody>
<tr>
<td>Prepared by:</td>
<td>Electrolyte Working Group</td>
<td>Date of Review:</td>
<td>August 2010</td>
</tr>
<tr>
<td>Lead Reviewer:</td>
<td>Dr S L Lambie</td>
<td>Version:</td>
<td>one</td>
</tr>
<tr>
<td>Authorised by:</td>
<td>Policies, Procedures and Guidelines Subgroup of ADTC</td>
<td>Date:</td>
<td>29.9.08</td>
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**Distribution**
- All Consultants (excluding Paediatric)
- Hospital Pharmacists
- Biochemists
- Charge Nurses (for dissemination)

**Method**
- CD Rom
- E-mail ✓
- Paper ✓
- Intranet ✓

EMERGENCY MANAGEMENT OF HYPERKALAEMIA IN ADULTS

Choice of therapy depends on:
- Level of serum K+
- ECG changes
- Rate of rise of serum K+
- Clinical condition of patient

Serum K+ 6.0 to 6.5 mmol/L if ECG normal no immediate treatment necessary. Address underlying cause.

Check K+
- Serum K+ ≥ 6.0 mmol/L

Results are available quickly if done on a blood gas analyser but should be confirmed with the laboratory

URGENT ECG

Emergency treatment should be started immediately if ECG changes indicative of life-threatening hyperkalaemia

Seek expert help!

Acute severe hyperkalaemia
Normal ECG

Life threatening hyperkalaemia
Any of these signs:
- Peaked T waves (amplitude > R in 2 leads)
- Absent P waves
- Broad QRS
- Sine wave
- Bradycardia or sinus pauses
VT

Cardiac Arrest and any rhythm

Commence ALS
Defibrillate if appropriate
Give adrenaline

Protect the Heart
Calcium gluconate not necessary

Calcium gluconate IV 20 mL 10% (4.5 mmol) over 5 min
Use largest available vein

Calcium gluconate IV 20 mL 10% (4.5 mmol) bolus
Use largest available vein

Calcium gluconate

Shift K+ into cells
10 units soluble insulin in 50 mL glucose 50% IV (25g) over 5 to 15 min into largest vein available
± Salbutamol 10 to 20mg neb
± Sodium bicarbonate IV
500 mL 1.26% (75 mmol) over 60 min (if acidic)

Remove K+ from the body
Calcium resonium 15g oral x3/day

Consider Haemodialysis (the most effective strategy if refractory to medical treatment)

Monitor K+
Check potassium levels at 1 to 2 hours, 4 to 6 hours and at 12 hours

Check potassium levels at 1 to 2 hours, 4 to 6 hours and at 12 hours

Watch for rebound

Consider cause of hyperkalaemia and address all precipitating factors

1. This can be followed, if necessary, by a continuous infusion of 10 units soluble insulin in 500 mL 10% glucose at a slower rate (eg over 6 hours). Blood glucose should be checked every 30 minutes for a minimum of 2 hours.

2. Use salbutamol nebulisers with caution in patients who are tachycardic.

3. Never give calcium gluconate and sodium bicarbonate through the same line as risk of precipitation.

4. Calcium resonium is not recommended for acute hyperkalaemia given delayed onset of action and may have limited short-term role in conjunction with other treatments. For maximum of 7 days. This may not be necessary if underlying cause addressed and reversed. Give with senna and lactulose to prevent constipation/induce diarrhoea. Rectal calcium resonium is available but is impractical, unpleasant and unlikely to be effective.

5. Caution should be exercised in the digitalised hyperkalaemic patient as calcium administered too quickly in the setting of digoxin toxicity may induce arrhythmia or cardiac arrest. 20 mL 10% calcium gluconate (4.5 mmol) made up to 100 mL with 5% dextrose and infused over 30 minutes is recommended in patients taking digoxin for this reason.

6. Calcium Chloride IV 10mL 10% is the preferred preparation, however, this is currently unavailable throughout NHS Highland.

7. Complete recovery after hyperkalaemic arrest following cardio-pulmonary resuscitation of up to 3.5 hours duration has been recorded.