Neonatal Medication Guideline

Clinical Guideline

Potassium Chloride

Policy developed by: SA Maternal, Neonatal & Gynaecology Community of Practice
Approved SA Health Safety & Quality Strategic Governance Committee on: 6 October 2017
Next review due: 6 October 2020

Summary
The purpose of this guideline is to guide nursing, midwifery, medical and pharmacy staff in the dosing and administration of potassium chloride

Keywords
Potassium chloride, potassium, neonatal medication guideline, electrolyte, hypokalaemia, hyperkalemia, arrhythmia, ECG

Policy history
Is this a new policy? N
Does this policy amend or update an existing policy? Y v3.0
Does this policy replace an existing policy? N
If so, which policies?

Applies to
All SA Health Portfolio
All Department for Health and Ageing Divisions
All Health Networks
CALHN, SALHN, NALHN, CHSALHN, WCHN, SAAS

Staff impact
All Clinical, Medical, Midwifery, Nursing, Students, Allied Health, Emergency, Mental Health, Pathology, Pharmacy

PDS reference CG055

Version control and change history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date from</th>
<th>Date to</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>November 2012</td>
<td>March 2014</td>
<td>Original version</td>
</tr>
<tr>
<td>2.0</td>
<td>March 2014</td>
<td>12 Aug 2014</td>
<td>Update to titles</td>
</tr>
<tr>
<td>3.0</td>
<td>12 Aug 2014</td>
<td>6 Oct 2017</td>
<td>Complete review</td>
</tr>
<tr>
<td>4.0</td>
<td>6 October 2017</td>
<td>Current</td>
<td></td>
</tr>
</tbody>
</table>

© Department for Health and Ageing, Government of South Australia. All rights reserved.
potassium chloride

100mg(1.33mmol)/mL 10% oral mixture,
75mg(1mmol)/mL 7.5% injection

Note

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

SA Health does not accept responsibility for the quality or accuracy of material on websites linked from this site and does not sponsor, approve or endorse materials on such links.

Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient’s medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

This is a high risk medication

An overdose can be rapidly fatal.

Premixed bags with added potassium and sodium are commercially available and generally avoid the need to prepare solutions at the bed-side using concentrated potassium chloride ampoules.

USE PRE-MIXED BAGS WHERE POSSIBLE

Intravenous potassium chloride ampoules should be restricted to the pharmacy department or intensive care areas and should only be considered where the standard premixed potassium solutions are unable to meet the clinical need of the patient.

Synonyms

KCl is NOT an acceptable abbreviation in South Australian Hospitals
Dose and Indications

**Hypokalaemia**
Always prescribe as millimol (mmol) of elemental potassium

**Oral replacement** is the preferred route for correcting any potassium deficit

**Oral**
1 to 2mmol/kg/day (up to 4mmol/kg/day has been used)

Daily dose can be given in divided doses or mixed with the daily feed volume, depending on the unit specific procedures

**Intravenous infusion**
2 to 4mmol/kg/day

Correct deficits slowly and reassess plasma potassium levels at regular intervals

For acute treatment of symptomatic hypokalaemia start at 0.5mmol/kg over 1 hour, then re-assess.

Higher doses up to 6mmol/kg/day may be needed for severe depletion

**Preparation and Administration**

**Oral**

The 10% oral solution contains 100mg (1.33mmol)/mL potassium

<table>
<thead>
<tr>
<th>Oral Dose</th>
<th>1mmol</th>
<th>2mmol</th>
<th>4mmol</th>
<th>6mmol</th>
<th>8mmol</th>
<th>10mmol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>0.75mL</td>
<td>1.5mL</td>
<td>3mL</td>
<td>4.5mL</td>
<td>6mL</td>
<td>7.5mL</td>
</tr>
</tbody>
</table>

Give oral doses with feeds to minimise gastric irritation.

**Intravenous infusion**

**ALWAYS** use pre-mixed standard strength potassium solutions where possible.

Commercial solutions include:

> 10% glucose with 0.225% (or 0.038 mmol/mL) sodium and 10mmol (0.02mmol/mL) potassium (500mL bags)

**Peripheral administration**

**Maximum concentration:** 40mmol per 1000mL (i.e. dilute to 1mmol/25ml)

**Maximum rate:** 0.2mmol/kg/hour

A higher rate of 0.5mmol/kg/hour may be used in exceptional circumstances if there is severe potassium depletion with Consultant advice.

**Central administration**

ISBN number: 978-1-74243-891-7
Endorsed by: South Australian Maternal, Neonatal & Gynaecology Community of Practice
Last Revised: 6/10/17
Contact: Health:NeoMed@sa.gov.au

South Australian Neonatal Medication Guidelines Workgroup at:
potassium chloride  
100mg (1.33mmol)/mL 10% oral mixture,  
75mg (1mmol)/mL 7.5% injection

**Maximum concentration:** 80mmol per 1000mL (i.e. dilute to 2mmol/25ml).  
**Maximum rate:** Rates higher than 0.5mmol/kg/hour must be administered via a central line.  
In exceptional circumstances more concentrated Potassium solutions up to 1mmol/mL may be used with full cardiac monitoring via a central line when run with other IV fluids.

**CAUTION**

> Always dilute potassium ampoules prior to intravenous administration.  
> Following addition of potassium chloride to the infusion solution, the solution must be inverted at least 10 times to ensure potassium chloride is thoroughly mixed throughout the solution.  
> Unshaken bags are prone to layering of added concentrate and are extremely hazardous.  
> Always control infusion with a syringe/IV pump  
> Never flush  
> Never administer as a bolus  
> Concentrated solutions or rapid administration can cause thrombophlebitis and pain at injection site

**Compatible Fluids**

Sodium chloride 0.9%, Glucose 5%, glucose 10% and glucose/sodium chloride solutions

**Adverse Effects**

**Common**  
Oral: Vomiting, diarrhoea, abdominal pain  
Intravenous: Thrombophlebitis, pain, necrosis at injection site  
Symptoms of hyperkalaemia (large doses or rapid IV administration) include hypotonia, flaccid paralysis, cold skin, grey pallor, hypotension, cardiac arrhythmias (heart block, peaked T waves) and asystole
Monitoring

> Observe intravenous site closely for signs of extravasation when using concentrated solutions.

> Continuous ECG monitoring is mandatory when administering potassium by the intravenous route in neonates.

> Plasma potassium levels should be measured regularly with frequency determined by the clinical situation.

Version control and change history

**PDS reference:** OCE use only

<table>
<thead>
<tr>
<th>Version</th>
<th>Date from</th>
<th>Date to</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>November 2012</td>
<td>March 2014</td>
<td>Original version</td>
</tr>
<tr>
<td>2.0</td>
<td>March 2014</td>
<td>Aug 2014</td>
<td>Update to titles</td>
</tr>
<tr>
<td>3.0</td>
<td>12 Aug 2014</td>
<td>October 2017</td>
<td>Complete Review</td>
</tr>
<tr>
<td>4.0</td>
<td>6 October 2017</td>
<td>Current</td>
<td></td>
</tr>
</tbody>
</table>