MEDICATION SAFETY

INTRAVENOUS POTASSIUM CHLORIDE: WA POLICY FOR THE USE OF

PURPOSE
To enhance the safety of prescribing, administration, supply and storage of intravenous potassium chloride.¹

PROCEDURE

PRESCRIBING ASPECTS
1. Intravenous potassium chloride will only be prescribed when the oral route is unavailable or clinically inappropriate.
2. Intravenous potassium chloride must be prescribed in millimoles (mmol) of potassium, and must specify the dose, fluid and volume. The rate of administration should also be prescribed and expressed as millilitres per hour (mL/h). The rate shall not exceed the maximum rates specified in this guideline. Intravenous potassium chloride must be prescribed on a fluid order chart.
3. All other prescriptions will be considered incomplete and must be clarified with the prescriber.
4. Bolus intravenous potassium chloride should only be prescribed in exceptional circumstances under the direction of the consultant in charge.
5. Standard pre-mixed potassium chloride solutions are to be prescribed whenever possible in all areas of the hospital.
6. Prescription of non-standard potassium chloride solutions is permitted when the patient is admitted to Adult Special Care Unit (ASCU) and with the agreement of the consultant in charge of the unit. The name of the consultant providing approval must be documented on the intravenous fluid order.

STORAGE AND SUPPLY ASPECTS

Potassium chloride ampoules

- Only one strength and size of potassium chloride ampoules will be stocked within hospitals. This will be 10mL ampoules containing 10 mmol potassium chloride.
- Potassium chloride ampoules must not be stored on general wards.
- Other forms of concentrated injectable potassium should not be stored on the general wards, e.g. potassium acetate concentrated solutions.
- Potassium chloride ampoules should not be placed or stored on resuscitation trolleys.
- Potassium chloride ampoules should not be borrowed from other areas.
- In those areas permitted to store potassium chloride ampoules, they must be stored in sealed clearly marked red containers and isolated from all other ampoules stored on imprest.
- Potassium concentrations other than those available in pre-mix solutions will not be available in the general ward areas.
- If potassium chloride ampoules are required in a general ward for a specific order for a specific patient the patient shall be transferred to ASCU for the duration of the infusion.
- All hospitals should have in place local guidelines governing the provision of potassium chloride ampoules to general wards, including outside normal pharmacy hours.
Pre-Mixed Intravenous Potassium Chloride Products

- Pre-mixed potassium solutions will have red outer packaging.
- Standard pre-mixed solutions of potassium chloride stocked at KEMH are:
  - 20mmol in Normal saline 1000mL.
  - 20mmol in Glucose 4% and Sodium Chloride 0.18% 1000mL.
  - 10mmol in isotonic Saline 100mL.
- Most pre-mixed solutions of potassium chloride are not isotonic; exceptions are: 10mmol KCl in Sodium Chloride 0.29%(100mL minibags), 10mmol KCl in sodium chloride 0.45% and Glucose 0.25% (500mL).
- Concentrations of potassium chloride greater than 30mmol in 1000mL in non isotonic solutions (e.g. 0.9% sodium chloride) may cause pain and phlebitis on administration.
- Potassium chloride 10mmol in 100mL is an isotonic solution as it is prepared with a lower concentration of sodium chloride (0.29%) and can be administered peripherally.

PREPARATION ASPECTS

- Preparation of infusions using potassium chloride ampoules should follow a safe on-site preparation protocol which is compliant with all the existing standards for the preparation and labelling of intravenous solutions.
- Where potassium chloride solutions are prepared using potassium chloride ampoules, the solution must be inverted at least 10 times to ensure the potassium chloride is thoroughly mixed into the solution. Unshaken bags are prone to layering of added concentrate and are extremely hazardous.
- Extra potassium must not be added to pre-mixed solutions containing potassium.
- Potassium chloride ampoules must never be added to a hanging bag.

See clinical Guideline Standard Procedures for Reconstitution and Administration of Intravenous Drugs

See Clinical Guideline Intravenous Infusion Additives

ADMINISTRATION ASPECTS

Peripheral Intravenous Administration

- The treating specialist must approve administration of intravenous potassium chloride regimens that differ from these administration guidelines. The maximum rate of potassium infusion must be observed in all circumstances i.e. any variation in regime must remain in the range of administration rates known to be non hazardous.
- When using standard bags (500mL or 1000mL), a rate-limiting device must be used to prevent unintentional bolus doses of solutions containing potassium chloride.
  - For infusion concentration < 20mmol per 1000mL, a rate controlled pump is preferred, however an infusion burette is an acceptable alternative.
  - For ALL concentrations > 20mmol per 1000mL (which includes 10mmol in 100mL isotonic solution), an infusion pump must be used.
- The maximum rate of potassium chloride administration via a peripheral line is 10mmol per hour.
- The maximum potassium chloride concentration for administration via peripheral lines is 40mmol / L, except when using 10mmol / 100mL sodium chloride 0.19% pre-mixed mini bags.
Central Administration

- Concentrations greater than 40mmol/L or infusion rates greater than 10mmol/hour, the solution should be infused via a central line (CVC). Admission to ASCU is mandatory. In an emergency situation the infusion may be started through a peripheral line until a CVC line is inserted.
- Continuous ECG monitoring is recommended when the rate is faster than 10mmol / hour.
- Rates in excess of 20mmol/hour are potentially hazardous and are permitted only when the patients is admitted to ASCU with the agreement of the consultant.

REFERENCES ( STANDARDS)

National Standards – 4.1 Medication Safety
Legislation – Operational Directive 0444/13 Policy for Intravenous Potassium Chloride

Related Policies - Nil
Other related documents — Nil

RESPONSIBILITY

<table>
<thead>
<tr>
<th>Policy Sponsor</th>
<th>Chief Pharmacist KEMH</th>
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<td>August 2002</td>
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<td>December 2010</td>
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