

WOMEN'S HEALTH AND PAEDIATRICS
PAEDIATRIC DEPT

GUIDELINES FOR HYPERKALAEMIA

Amendments			
Date	Page(s)	Comments	Approved by
May 2006	New Guideline		Paediatric Guideline Group
March 2008		Whole document review	Paediatric Guideline Group
March 2018	2	Whole document review – Dose parameters updated	Paediatric Guideline Group

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In Consultation with:

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Target Audience: Doctors, nurses and support staff working in Paediatrics

Impact Assessment Carried Out By:

Comment on this document to: Dr Erin Dawson
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CHILDREN'S SERVICES

GUIDELINES FOR HYPERKALAEMIA

Normal range up to 5.5mmol/L-it is rare to get arrhythmias below 7.5mmol/L
 K⁺ is an intracellular ion which acts as a large buffer to maintain serum value within its narrow normal range.
 Hyperkalaemia represents significant total body overload, beyond the ability of the kidney to compensate.

ECG is essential

Early changes include peaked T waves, shortened QT interval, and ST segment depression.

These are followed by bundle branch blocks causing widening of the QRS complex, increase in PR interval, and decreased amplitude of the P wave.

Without treatment, the P wave eventually disappears, QRS morphology widens to resemble a sine wave, and ventricular fibrillation or asystole follows.

ECG findings generally correlate with the potassium level, but potentially life-threatening arrhythmias can occur without warning at almost any level of hyperkalaemia

The most common cause is renal failure, acute or chronic

Other causes include:

- Acidosis
- Cell lysis
- Adrenal insufficiency
- Excessive potassium intake
- Inadequate cardiac output in critically ill neonate

If there is no immediate threat to life due to arrhythmia, a logical sequence can be followed as per table.

1st choice is B2 stimulants which act by stimulating the cell wall pumping mechanism and promoting cellular potassium uptake.

These are best administered by nebuliser and will cause the potassium to fall by about 1mmol/l.

Age years	Salbutamol dose (mg)
<2.5	2.5mg
>2.5	5mg

Sodium bicarbonate (1-2ml/kg of 8.4% NaHCO₃ i.e. 2.5 mmol/kg) can be effective especially in the acidotic patient, but care must be taken if hyperkalaemia is accompanied by hypocalcaemia. Crisis can be provoked by lowering ionised calcium fraction, leading to tetany, convulsions or hypotension and arrhythmias

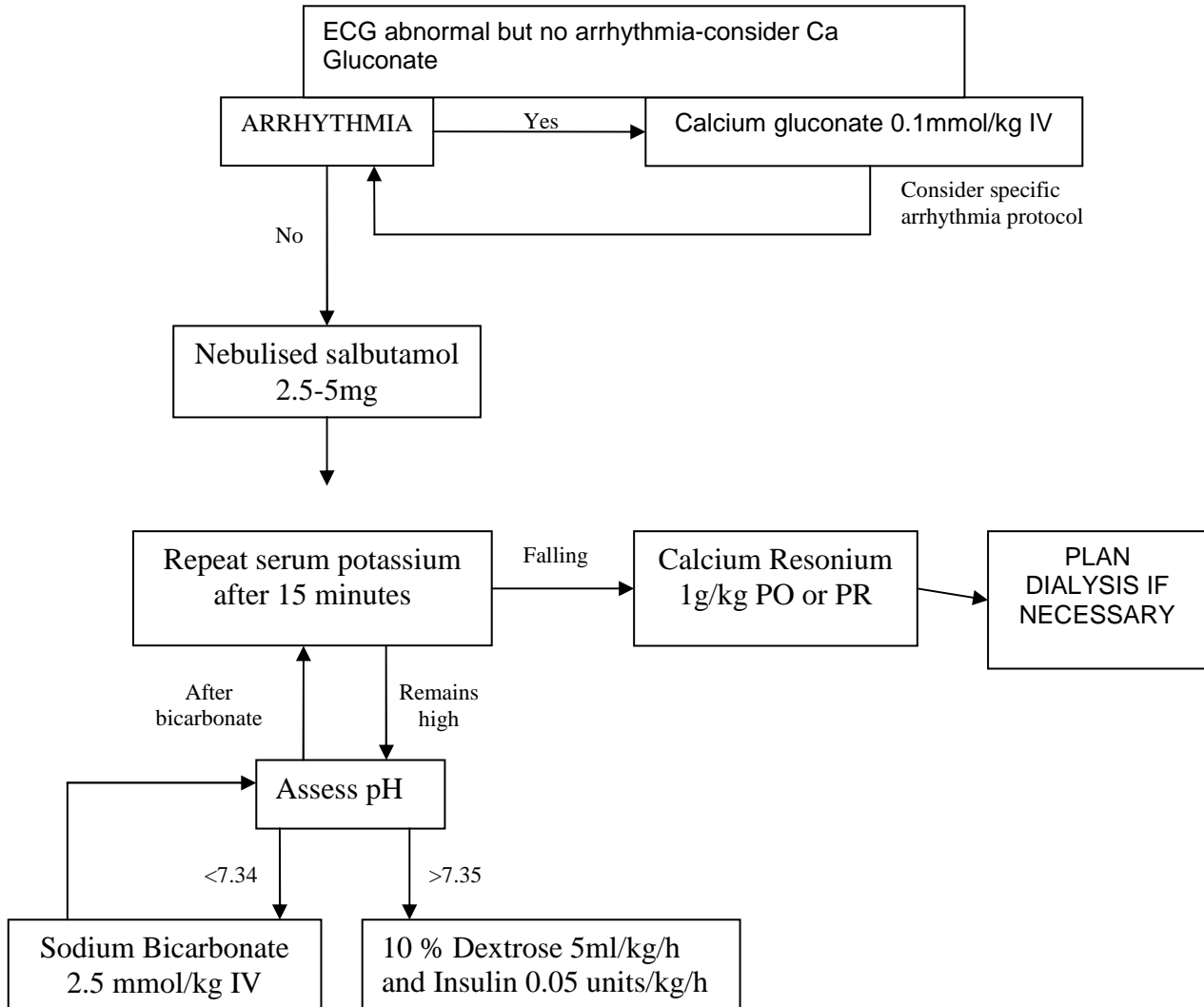
If using insulin and glucose an initial load of 0.5g/kg/hr (5ml/kg of 10%) glucose should be given. Once the blood glucose is over 10mmol/l insulin can be added if the patient has not responded by producing endogenous insulin, and their potassium is not falling. The dose of insulin is 0.05iu/kg/hr (make up insulin to 1 unit/ml in normal saline) which can be titrated according to the blood sugar.

These treatments redistribute the potassium around the body-potassium can be removed with an ion-exchange resin (calcium resin) or dialysis.

In an emergency situation where there is an arrhythmia (heart block or ventricular arrhythmia) IV calcium (0.5ml/kg of 10% Ca gluconate i.e. 0.1 mmol/kg Ca), repeated if necessary) will stabilise the myocardium, but other measures will also be needed to reduce the serum potassium.

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Algorithm for the management of hyperkalaemia



Advanced Life Support Group (2017) Advanced Paediatric Life

Blood Sugars must be checked every 30 minutes

Ref: Advanced Paediatric Life Support 6th Edition

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