Algorithm for the Treatment of Hyperkalaemia

Assess ABCDE

Perform 12 lead ECG or monitor continuous ECG
Repeat K^+ in laboratory
Stop all K^+ containing IV fluids/drugs affecting K^+

ECG Changes: Peaked/tented T waves; wide QRS; long PR interval; diphasic QRS ('sine wave'); flat/loss of P waves; VF/Asystole

Assess

Patient Age	SEVERE ECG changes / symptomatic	MODERATE No ECG changes / asymptomatic	MILD No ECG changes / asymptomatic
Neonate	$K^+ \geq$ 7.6mmol/L	K^+ 7.1-7.5mmol/L	K^+ 6.5-7mmol/L
> 1 month to < 14yrs	$K^+ \geq$ 7.1mmol/L	K^+ 6.1-7mmol/L	K^+ 5.5-6mmol/L
≥ 14yrs	$K^+ \geq$ 7.1mmol/L	K^+ 6.1-7mmol/L	K^+ 5.5-6mmol/L
	⇒ STEP 1+2+3	**⇒ STEP 2+3**	**⇒ STEP 3**

STEP 1

STEP 1: Most urgent! *Always* start with step 1 if severe hyperkalaemia, then continue to steps 2 and 3

Patient Age	**Give IV calcium** (stabilises the cardiac membrane to prevent arrhythmias) Can be repeated- see full guideline
Neonate	Calcium Gluconate 10% 0.5ml/kg over 10 minutes Give centrally whenever possible, via most distal lumen available If no central access available, dilute x 5 volume with Sodium Chloride 0.9%
>1 month to <14yrs	Calcium Gluconate 10% 0.5ml/kg over 10 minutes (max 20ml) diluted to 50ml with Sodium Chloride 0.9%
≥14yrs	Calcium Gluconate 10% 20ml over 10 minutes

STEP 2

STEP 2: Start with step 2 in cases of moderate hyperkalaemia, then continue to step 3

Patient Age	**Give Salbutamol** (moves K^+ into cells) Nebs can be rptd- see full guideline	**Give Insulin/Glucose** (moves K^+ into cells) Monitor blood glucose every 30 mins for 6 hours
Neonate	Give Nebulised Salbutamol as in Step 3 *or* IV Salbutamol 4 microgram/kg/dose over 5 minutes, diluted to 2ml with Sodium Chloride 0.9%	Add 0.1units/kg soluble insulin (actrapid) to 1g/kg of glucose. Give over 10 minutes. *(see Monograph/Appendix C for preparation)*
>1 month to <14yrs		
≥14yrs		Add 10 units of soluble Insulin (actrapid) to 50ml Glucose 50% or 125ml glucose 20% .Give over 5-10 minutes.

STEP 3

STEP 3: Start with step 3 in cases of mild hyperkalaemia

Patient Age	**Nebulised Salbutamol** (moves K^+ into cells)	**IV Furosemide** (increases K^+ elimination)	**Calcium Resonium** (increases K^+ elimination)
Neonate	2.5mg	1mg/kg/dose over 5 mins	Rectally 125-250mg/kg/dose four times a day
>1 month to <14yrs	2.5mg for < 10kg 5mg for ≥ 10kg	1mg/kg/dose (max 20 mg) over 5 mins	Oral/rectally 125-250mg/kg/dose four times day
≥14yrs	10mg	20mg over 5 mins	Oral/rectally 15 grams four times a day

Monitor

Use the following table to record and assess response to treatment:

Monitor K^+/gluc until K^+ is: **< 6.5 in those ≤ 1/12** **< 5.5 in those > 1/12**	**0min** Time: … : …	**15min** Time: … : …	**30min** Time: … : …	**45min** Time: … : …	**60min** Time: … : …	**90min** Time: … : …	**120min** Time: … : …	**4hours** Time: … : …	**6hours** Time: … : …
K^+ (mmol/L)									
Glucose (mmol/L)									

Consider Causes of Hyperkalaemia:

Renal failure
DKA
Adrenal insufficiency (e.g. Addison's disease, CAH)
Pseudohyperkalaemia (esp. from haemolysis)
Drugs (e.g. K supplements, ACE inhibitors, β-blockers, suxamethonium, trimethoprim, diuretics)
Cell lysis (tumour lysis syndrome, rhabdomyolysis, severe burns, trauma)