Hyperkalaemia

Usual intake of [K+] is approximately 1mmol/kg/day, but homeostasis can be maintained at intakes of 20-500 mmol in those with normal renal function.

Remember acute causes of altered homeostasis and elevation:

- Hyperglycaemia (by osmotic effect and by insulin deficiency)
- Acidaemia
- Aldosterone deficiency (including spironolactone, ACE inhibitors)
- Digoxin toxicity
- K supplements + K-sparing diuretics

Treatment of acute hyperkalaemia

Intravenous calcium (if there are ECG changes)

10% gluconate or chloride, 10mls over 5 minutes (maximum 2mls/min)

- Give if ECG changes – peaked T-waves, prolonged PR
- Check in 15 minutes and if still abnormal, repeat once or twice
- Does not change [K+]; reduces excitability of membranes

Intravenous dextrose

25g (e.g., 50ml 50%) + 5u Actrapid over 20 minutes (ie, maximum ratio of 5g :1 unit)

- Acts in 30 minutes, peak effect 90 minutes, lasts up to 6 hours
- Lowers [K+] by 0.7-1.6mmol/l
- Can be followed by slow infusion of 10-50% dextrose (give insulin only if glucose high)

Salbutamol

- 5mg nebulised (or an IV preparation can be given IV)
- Acts in 60 minutes, peaks 90 minutes, lasts up to 6 hours
- Similar to dextrose in efficacy

Sodium bicarbonate

- Traditionally 50ml of 8.4%; but usually as1.26%
- Can reduce [K+] by 0.2-0.3mmol/l but involves sodium load
- Not routine but may be useful in emergency

Dialysis

- Note that above treatments do not remove, they only redistribute [K+]
- A standard haemodialysis removes 40-60mmol [K+]
- Removal of [K+] by haemofiltration or peritoneal dialysis is much slower

Calcium resonium

- Not useful in acute setting but may be short/medium term option if dialysis not desirable or possible. Causes constipation.

Diet

- May explain acute hyperkalaemia; important for prevention, see Diet

See also the section on perioperative management of [K] – under surgery.

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