Evaluation of Hyperkalaemia

Suggested scheme for evaluation of Hyperkalaemia

Common causes

- Factitious (commonest cause)
- Renal failure
- Drugs, potassium sparing diuretics, ACE inhibitors, AT2 receptor blockers, NSAIDS, heparin
- Insulin deficiency/diabetes mellitus
- Mineralocorticoid deficiency (MCD)

Factitious (commonest cause)

Characteristic features are normal values for Na, Cl, and HCO_3, with or without elevated LD and PO_4.

Causes

In vitro haemolysis
Seepage from cells (specimen degeneration)
Thrombocytosis, leucocytosis
Heel prick/finger prick sample

Action

Repeat on a fresh blood sample.

Renal failure

Only in acute tubular necrosis, severe chronic failure (creatinine > 400 μmol/L), and obstructive nephropathy. If hyperkalaemia and serum creatinine < 400 μmol/L, look for another cause (e.g. high K intake, or drug therapy).

Drugs

- Diuretics (amiloride, spironolactone, triamterene)
- Prostaglandin inhibitors (ibuprofen, indomethacin)
- ACE inhibitors, Heparin infusion.

Usually associated with depressed HCO_3 and elevated Cl.

Insulin deficiency/diabetes mellitus

High K usually associated with high glucose and acidosis (low HCO_3).

Mineralocorticoid deficiency (MCD)

Characteristically low HCO_3 and high Cl. Commonest cause: syndrome of hyporeninaemic hypoaldosteronism (SHH), which occurs in the elderly and is associated with mild renal insufficiency (creatinine < 250 μmol/L); 50% of patients with SHH also have diabetes. Addison's disease is a rare finding.

Evaluation

1. Repeat electrolytes on a fresh blood sample

2. Exclude

- Diabetes
- Acute/severe renal failure, and
- Drugs (*see above*)

3. If there is a possibility of MCD

Perform a Synacthen stimulation test (to exclude Addison's disease), followed by evaluation of renin-aldosterone system if necessary (contact laboratory).