Hypomagnesaemia in Primary or Secondary Care

Magnesium deficiency may be asymptomatic, but can cause muscle weakness, paraesthesia, confusion, seizures, ECG changes and dysrhythmias. Hypomagnesaemia may coexist with refractory hypocalcaemia and hypokalaemia.

Urgent Action Required:

- Check potassium and calcium
- Consider IV Mg where serum Mg is <0.4 mmol/L, in symptomatic patients, or where low K and/or low Ca are also present
- IV dose**: 20mmol Magnesium Sulphate in 500ml 5% Dextrose to be given over 12 hours** (half dose if eGFR <30). Monitor serum Mg daily. Prolonged IV courses may be required after bowel resection or in malabsorptive conditions.

Further Investigation:

- Consider and treat underlying causes:
  - Poor oral intake, refeeding syndrome, vomiting or malabsorption
  - Acute pancreatitis
  - Resolving DKA, hyperaldosteronism, hyperthyroidism.
  - Alcoholism or acute alcohol intoxication
  - Renal tubular disorders e.g. Gitelman's syndrome
  - Drugs e.g. PPIs, loop diuretics, cisplatin chemotherapy, aminoglycosides, theophylline, calcineurin inhibitors (tacrolimus, ciclosporin)
- For patients on digoxin, be aware that low Mg may exacerbate digoxin toxicity

Interpretation and Further Action:

- Treat underlying cause e.g. replace PPI with an H2 antagonist
- Oral replacement may cause diarrhoea, and further GI losses. Slightly low levels of 0.6 – 0.7 mmol/L, with normal potassium and calcium concentrations, often require no active intervention
- For asymptomatic patients with serum magnesium concentrations 0.4 – 0.6 mmol/L and no hypokalaemia or hypocalcaemia, consider Magnaspartate®. The licensed adult dose of Magnaspartate® is 1 – 2 sachets daily (providing 10-20mmol magnesium). Each sachet should be dissolved in 50-200mL of water, tea or orange juice before administration. Further information is available from Medicines Information on 01355 584 879 or medicines.information@lanarkshire.scot.nhs.uk.
- Dose should be reduced if diarrhoea develops, and as long as serum K and Ca are normal, and the patient is asymptomatic, it may be better to settle for a serum Mg above 0.5 mmol/L rather than the normal range of 0.7 and above