Laboratory News
Please circulate to all members of staff within the practice
NHS Greater Glasgow and Clyde
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# Hypomagnesaemia in Adults

# South Sector

Magnesium deficiency may be asymptomatic, particularly when mild. Serum concentrations are not an exact measurement of total body stores, but we know that a total body deficit of 0.5-1 mmol/kg is likely to be present when symptoms occur. Symptoms such as confusion, nausea, paraesthesiae, tetany, and the rare instances of fits and arrhythmia, are more common when serum magnesium < 0.5 mmol/L (ref range 0.7-1.0). Digoxin toxicity may be exacerbated, and hypokalaemia and hypocalcaemia may coexist. Magnesium is secreted into gastrointestinal fluid and excreted in urine, so excessive losses may occur in conjunction with GI and renal disease.

## CAUSES OF LOW MAGNESIUM

- **Increased Loss : Diarrhoea, IBS, stoma & fistula fluid loss, malabsorption, osmotic diuresis (e.g. hyperglycaemia)**
- **Poor Intake : Malnutrition, chronic alcohol excess**
- **Medication: Proton Pump Inhibitors (PPI's) e.g. omeprazole, diuretics, some antibiotics, chemotherapy**

## TREATMENT

If possible, identify and address underlying cause. When replacing magnesium stores, several days/weeks of treatment are usually needed to replenish the significant total body depletion. Magnesium in blood is mainly found in red blood cells. Serum levels may fluctuate as redistribution to tissue stores occurs, and it is not unusual to see this even after a replacement by IV infusion. After initial replacement therapy, ongoing supplementation will likely be necessary to maintain level, and success will be diminished if the underlying cause (e.g. PPI, or diuretic) is not addressed.

| Treatment for Hypomagnesaemia | |
|---|---|
| ***Mild (> 0.6 mmol/L)*** | **If asymptomatic, mild hypomagnesaemia with normal potassium and calcium levels, active intervention may not be necessary.** |
| ***Moderate (0.4 -0.6 mmol/L)*** | **If asymptomatic, moderate hypomagnesaemia with normal potassium and calcium levels, consider Magnaspartate ®, 1 sachet (each sachet 10mmol magnesium) once or twice a day depending on severity of hypomagnesaemia. Monitor serum magnesium weekly until stable.** ***NB in renal impairment with reduced GFR, reduced urinary magnesium excretion occurs, and reduced dose of magnesium supplements are required. If GFR < 30ml/min, Magnaspartate ® should be avoided.*** |
| ***Severe (<0.4 mmol/L)*** | **In severe hypomagnesaemia, symptomatic patients, or where hypokalaemia or hypocalcaemia are also present, consider admission for IV magnesium.** |

## KEY POINTS

- **Identify + treat underlying causes if possible- exclude excessive GI & renal losses, review medications e.g. PPIs and diuretics.**
- **Oral supplementation will be required for several weeks to replenish magnesium stores.**
- **Mild asymptomatic hypomagnesaemia (> 0.6 mmol/L) may not require active replacement.**
- **In renal impairment, reduce dose of oral magnesium preparations by 50% and use magnesium hydroxide or glycerophosphate rather than Magnaspartate ®.**

•See hyperlink (to secondary care advice) for further information: GGC Guidelines - Management of hypomagnesaemia

**NEW EMAIL FOR NON-URGENT CLINICAL ADVICE/QUERIES**

**To improve the service for our users we have set up a new email account for non-urgent clinical advice or queries ggc.qeuhbiochemistsggc@nhs.scot. For urgent queries, please call 0141 354 9060 – Option 4.**
***Please do not use this email for Add-On requests* - Add on email for non-urgent should be sent to:- SouthGlasgow.BiochemistryAddOn@ggc.scot.nhs.uk)**

**We would be delighted with your feedback on issues that you would like us to address in the newsletter. We are also keen to reach as large an audience in primary care as possible. Do you have suggestions how we can widen distribution better? Comments or suggestions can be sent to:**

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