

**HYPOMAGNESAEMIA**  
 (new diagnosis in adults)  
 (Mg <0.7 mmol/L)

A new Mg result <0.4mmol/L will be phoned to the GP surgery, or GP collaborative if OOHs

0.40 – 0.69 mmol/L  
 Moderate

<0.40 mmol/L  
 Severe

**BOX 1**  
 Some causes of hypomagnesaemia:  
**Drugs:** – see BOX 2  
**GI causes:**  
 Malnutrition (esp alcoholics).  
 Malabsorption.  
 Diarrhoea – chronic.  
 Intestinal fistula.  
 Short bowel syndrome.  
**Renal loss:**  
 Hypercalcaemia  
 Diabetes mellitus (poorly controlled).  
 Alcoholism.  
 Rare inherited tubular disorders e.g. Gitelman or Bartter syndrome.  
 Tubular dysfunction (recovery from acute tubular necrosis or postobstructive diuresis).  
**Iatrogenic:**  
 Long term Mg-free IV fluids or TPN.  
**Other:**  
 Refeeding syndrome in chronic malnutrition/anorexia.

Clinical reason for low magnesium? (see BOX 1&2)  
 Assess if patient clinically unwell/symptomatic (BOX 3)?

**BOX 3**  
 Symptoms include:  
 • Weakness  
 • Apathy  
 • Tremor  
 • Paraesthesia  
 • Tetany  
 • Nystagmus  
 At <0.4:  
 • Seizures  
 • Drowsiness  
 • Confusion  
 • Coma

**Cause unclear?**  
 Consider sending 24hr urine in acidified bottle to lab for magnesium – see BOX 4

Check renal function, calcium and potassium levels –  
 • Low Mg can cause secondary hypocalcaemia and hypokalaemia

**BOX 4**  
 Urinary Mg loss of >1.0mmol/24h in a patient with normal renal function suggests renal magnesium wasting

**BOX 2**  
 Some drugs known to cause hypomagnesaemia:  
 • PPIs  
 • Diuretics (loop and thiazide)  
 • Aminoglycosides  
 • Amphotericin  
 • Chemotherapy  
 o Cisplatin  
 o Carboplatin  
 o Epidermal Growth Factor Receptor (EGFR) Inhibitors (particularly Cetuximab)  
 o Interleukin-2  
 o Pegylated Liposomal Doxorubicin  
 • Immunosuppressants  
 o Ciclosporin  
 o Tacrolimus  
 • Theophylline

**Mg 0.40 – 0.69 mmol/L**

-Stop PPIs and review diuretics.  
 -Consider oral magnesium or admission for IV if symptomatic/unwell or resistant hypocalcaemia/hypokalaemia.  
 -Up to 24 mmol/d oral Mg may be given in adults (see below) in divided doses. Dose can be limited by SEs (diarrhoea). In renal impairment, magnesium should be avoided or the dose reduced.  
 -Monitor response weekly.  
 -Normalisation may take 6-8 weeks.  
 -Long term maintenance replacement may be needed if a reversible cause is not found and removed.

**Mg <0.40 mmol/L**

-Likely to need admitting for IV Mg replacement.  
 -Patients may need oral Mg replacement following IV treatment to maintain levels within normal range (see below).

To discuss with the duty biochemist call 0114 243 4343

**Oral Magnesium Preparations.** Magnaspartate<sup>®</sup> is the only preparation licensed as a medicinal product and therefore should be used first line in the oral replacement of magnesium deficiency. In individual cases where Magnaspartate<sup>®</sup> is deemed not suitable e.g. due to the sucrose content or other reasons, a prescriber may feel it in the patient's best interest to prescribe an unlicensed preparation such as Magnaphate<sup>®</sup>

Magnesium (Mg <sup>2+</sup> ) salt and form	Supplier (Brand)	Licensed status in UK	Form and strength of salt (where available)	Mg <sup>2+</sup> content in dosage form	
				mg	Mmol
Magnesium-L-aspartate	KoRa Healthcare Ltd (Magnaspartate <sup>®</sup> )	Prescription only medicine	6.5g oral powder	243	10
<p>Contains sucrose. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase insufficiency should not take this medicine. Care should also be taken in diabetic patients.</p> <p>Frequent and long-term use of Magnaspartate 243 mg may be harmful to the teeth (caries).</p> <p>If an undesirable effect occurs, such as diarrhoea, the therapy should be temporarily interrupted and can be restarted after improvement and /or elimination of the symptoms with a reduced dosage.</p> <p>For more information see <a href="http://www.medicines.org.uk/emc/medicine/30238">http://www.medicines.org.uk/emc/medicine/30238</a></p>					
Magnesium glycerophosphate	Arjun Products Ltd (Magnaphate <sup>®</sup> )	Borderline substance	1g tablets	97.2	4

Table adapted from <http://www.ukmi.nhs.uk/> Medicines Q&A: **Magnesium preparations for hypomagnesaemia** [LINK] ( accessed 12/08/2015). For more information please refer to this document.



