

Guideline for the Management of HYPOMAGNESAEMIA in Adults

Definition(s)

LOW serum magnesium level

- MILD hypomagnesaemia - serum magnesium **0.5 to 0.7mmol/L** and no signs or symptoms of hypomagnesaemia
- MODERATE hypomagnesaemia - serum magnesium **0.4 to 0.49mmol/L** and no signs or symptoms of hypomagnesaemia
- SEVERE hypomagnesaemia - serum magnesium **less than 0.4mmol/L** or showing signs or symptoms of hypomagnesaemia

Care settings

This guideline is for the management of adults only

Potential Causes

Note that this list is NOT exhaustive

Common causes of hypomagnesaemia include:

- Gastrointestinal losses
 - Vomiting
 - Diarrhoea
 - Malabsorption
- Renal losses
- Blood transfusion
- Hypercalcaemia
- Hypokalaemia
- Dietary deficiency and Re-feeding syndrome
- Syndrome of inappropriate antidiuretic hormone secretion (ADHD)
- Acidosis

Common drugs causing hypomagnesaemia include:

- Cisplatin
- Ciclosporin
- Tacrolimus
- Pentamidine
- Foscarnet
- Aminoglycosides
- Gentamicin
- Amphotericin B
- Diuretics
- Proton Pump Inhibitors

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Signs and symptoms

Hypomagnesaemia can cause a number of symptoms and signs, most of which are non-specific and rarely occur unless the magnesium level is less than 0.4mmol/L. They include:

- Neuromuscular symptoms:
 - Tremors
 - Tetany
 - Cramps
 - Seizures
 - Ataxia and muscle weakness.
- Cardiovascular symptoms:
 - Arrhythmias,
 - Enhanced digitalis toxicity,
 - Nonspecific electrocardiographic changes, including ST-segment depression, altered T waves, or loss of voltage. Severe magnesium deficiency may cause PR prolongation or widened QRS complexes.
- Behavioural symptoms:
 - Irritability
 - Confusion
 - Depression
 - Psychoses

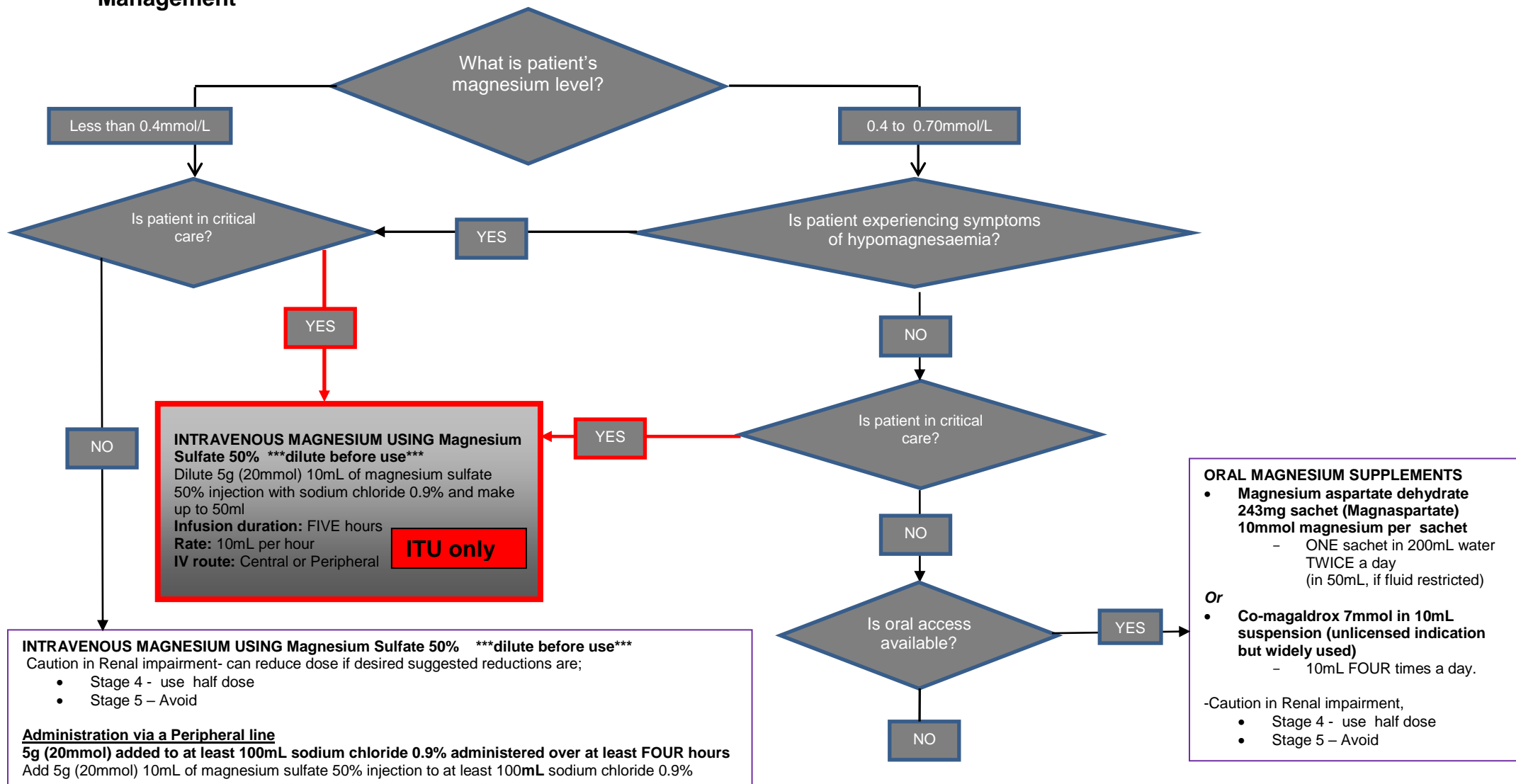
Initial actions

- Identify and manage underlying cause if possible.
- Stop any offending drugs
- Determine serum Magnesium level and use flow diagram below to determine management option

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ADULTS

Management



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Monitoring Requirements

- Monitor U&Es and Magnesium daily
- Monitor calcium levels if patient also has hypocalcaemia
- Monitor for signs of hypermagnesaemia (toxicity)
 - Mild symptoms include
 - Headaches, drowsiness
 - Flushing, thirst
 - Nausea & vomiting
 - Generalised weakness
 - More Severe symptoms include
 - Loss of deep tendon reflexes
 - Respiratory depression
 - Hypotension and bradycardia
 - ECG changes: flattened P waves and wide QRS complexes
 - Arrhythmias and cardiac arrest
- Monitor Blood Pressure
- Monitor Heart Rate
- Monitor Respiratory Rate
- Monitor for phlebitis

ECG monitoring

- NONE required

Other Information

Course lengths should be based on the clinical indication for use and stop dates or review dates specified on ePMA. If a patient is to be discharged before a course is completed then the GP must be given explicit information regarding monitoring and future management via the discharge summary.

References

British National Formulary <https://bnf.nice.org.uk/>

Summary of Product Characteristics <https://www.medicines.org.uk/emc/>

IV guide <https://medusa.wales.nhs.uk/> user name – cddward password- ivguide

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