Hypomagnesaemia is a low concentration of magnesium in the blood. Many cancer drugs can lead to hypomagnesaemia for example cisplatin, carboplatin, liposomal doxorubicin, cetuximab, panitumumab. Other drugs commonly used in cancer patients can cause or contribute to low magnesium e.g. gentamicin, diuretics, aminoglycoside antibiotics. Patients with severe treatment related diarrhoea are also at risk.

Initial Assessment:

Observations: Temperature, pulse, blood pressure, respiration rate, O2 sats. EWS,

Investigations: Urgent full blood count, U&E, CRP, LFTs and bone profile include magnesium and phosphate

Signs and Symptoms: **Neuromuscular irritability**: Hyperactive deep tendon reflexes; muscular fibrillation; +ve Trousseau (facial nerve hypersensitivity) & Chvostek (metacarpal hyperflexion) signs; dysarthria or dysphagia secondary to oesophageal dysmotility. **CNS**: Hypersensitivity: irritability and combativeness; disorientation; psychosis; ataxia, vertigo, nystagmus & seizures. **Cardiac findings (ECG)**: Paroxysmal atrial and ventricular dysrhythmias repolarisation alternans

Hypomagnesemia is often detected on blood tests when the patient is being assessed for other reasons therefore most patients are asymptomatic as the levels are only mildly depressed (>0.50mmol/L). When serum magnesium levels drop more significantly (<0.50mmol/L) most patients have non-specific symptoms but they may then go on to develop cardiac or muscle related symptoms such as weakness, cramping, tachycardia/palpitations. Neurological complaints can be that of vertigo, ataxia, depression, and in severe cases seizures or altered mental state.

Normal reference range is 0.7-1.0 mmol/L

Hypomagnesaemia is commonly found in association with hypocalcaemia, hypokalaemia and hyponatraemia therefore investigations for these should also be included.
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<th>Grade 1</th>
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<td>&lt;LLN – 0.5 mmol/L</td>
<td>0.5 – 0.4 mmol/L</td>
<td>0.4 – 0.3 mmol/L</td>
<td>&lt;0.3 mmol/L Life threatening consequences</td>
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Asymptomatic.
Consider oral Mg replacement with magnaspartate or maganesium glycerophosphate to avoid a fall to critical levels (poorly absorbed discuss with pharmacy).
Encourage Mg rich diet e.g. spinach, pumpkin seeds, halibut.

Recheck bloods in 24 - 48 hours
Correct any other electrolyte imbalance as necessary.

Consider oral Mg replacement with magnaspartate or maganesium glycerophosphate to avoid a fall to critical levels (poorly absorbed discuss with pharmacy).
Encourage Mg rich diet e.g. spinach, pumpkin seeds, halibut

Administer IV magnesium sulphate 10 – 20 mmol diluted in 0.9% sodium chloride over 3 - 6 hours.
Correct any other electrolyte

Admit for slow IV magnesium sulphate replacement.
In severe cases such as cardiac arrhythmias MgSO4 can be given as a bolus but under HDU / ITU supervision.

Interrupt SACT/Chemotherapy including oral chemotherapy until discussed with the Acute Oncology Team. Ensure that the Acute Oncology Team are informed of the patients admission/assessment as soon as possible.