Paraprotein Guidelines

Background

An M-protein (otherwise known as a paraprotein) is a monoclonal immunoglobulin secreted by an abnormally expanded clone of plasma cells.

How common is MGUS and what happens with time?

Frequency of MGUS increases with age.

<table>
<thead>
<tr>
<th>Age</th>
<th>MGUS prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;50 years</td>
<td>3.2%</td>
</tr>
<tr>
<td>&gt;70 years</td>
<td>5.3%</td>
</tr>
<tr>
<td>&gt;85 years</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

Approximately 1% per year will develop a myeloma or low grade lymphoma.

Small paraproteins may also occur transiently during infection or inflammation.

Further assessment

BOX1: Differential diagnosis includes

- MGUS (Monoclonal Gammopathy of Undetermined Significance)
- Multiple myeloma
- Solitary plasmacytoma (skeletal or extramedullary)
- AL amyloidosis
- Waldenstrom’s macroglobulinaemia
- Non-Hodgkin’s lymphoma and other B-lineage lymphoproliferative disease

BOX2: Detailed history and examination looking for clinical features associated with myeloma, lymphoma or AL amyloidosis

<table>
<thead>
<tr>
<th>Myeloma</th>
<th>Lymphoma /lymphoproliferative disease</th>
<th>AL amyloidosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone pain/lesions</td>
<td>Lymphadenopathy</td>
<td>Macroglossia</td>
</tr>
<tr>
<td>Hypercalcaemia</td>
<td>Hepatosplenomegaly</td>
<td>Unexplained heart failure</td>
</tr>
<tr>
<td>Renal failure</td>
<td>Hyperviscosity (especially if IgM)</td>
<td>Peripheral neuropathy</td>
</tr>
<tr>
<td>Anaemia</td>
<td>Pancytopenia</td>
<td>Carpal tunnel syndrome</td>
</tr>
<tr>
<td>Hyperviscosity</td>
<td>B symptoms – night sweats, fever, weight loss</td>
<td>Nephrotic syndrome</td>
</tr>
</tbody>
</table>

BOX3: Laboratory testing:

- Serum immunoglobulins
- Spot urine for protein excretion and urinary protein electrophoresis (Bence-Jones Protein)
- Serum free light chains are an alternative to BJP if myeloma suspected, to complete the myeloma screen
- Full blood count
- Serum creatinine
- Urea and electrolytes
- Serum calcium
Management

Myeloma-related organ or tissue impairment?
- Hypercalcaemia
  Corrected serum calcium >0.25 mmol/l above the upper limit of normal or >2.75 mmol/l
- Renal impairment
  Creatinine >173 lmol/l
- Anaemia
  Haemoglobin 2 g/dl below the lower limit of normal or haemoglobin <10 g/dl
- Lytic lesions or osteoposis with compression fractures
- Symptomatic hyperviscosity
- Amyloidosis
- Recurrent bacterial infections (>2 episodes in 12 months)

YES to any

Refer to secondary care

IgG

IgG paraprotein ≤ 15g/L

Life expectancy <5 years

No further follow up. Additional investigations only in case of symptoms suggestive of progression

IgG paraprotein 16-30g/L

Life expectancy >5 years

Monitor at 6 months, then annually if stable. (see BOX2 and BOX3 above)

IgG paraprotein >30g/L

Baseline assessment (BOX2 and BOX3), then routine referral to Haematology

IgA/M paraprotein ≤ 10g/L

Monitor at 6 months, then annually if stable. See BOX2 and BOX3 above

IgA/M paraprotein >10g/L

Refer to secondary care
Patient information


References


Bird et al. British Journal of Haematology 2009; 147, 22–42

Van de Donk et al. Haematologica 2014; 99(6)