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**Monoclonal gammopathies: a group of disorders characterised by the proliferation of a clone of plasma cells or lymphoid cells that produce the monoclonal immunoglobulin protein, sometimes referred to as paraprotein.**

CLINICAL PROBLEM	ACTIONS	IMPLEMENTATION
<p>Paraprotein detected in serum or urine (<i>note 1</i>)</p>	<ul style="list-style-type: none"> <li>• Clinical assessment for unexplained weight loss, bone pain, night sweats, lymphadenopathy or splenomegaly</li> <li>• CBC</li> <li>• Immunoglobulins (if not already done)</li> <li>• Creatinine</li> <li>• Calcium / albumin</li> <li>• Urine Bence Jones protein</li> <li>• Dipstick urine for protein</li> </ul>	<p>Discuss acute referral with haematology if any of the following:</p> <ul style="list-style-type: none"> <li>• anaemia</li> <li>• bone pain / pathological #</li> <li>• non pre-existing or recently progressive renal impairment</li> <li>• significant proteinuria i.e. 3+ on dipstick</li> <li>• hypercalcaemia</li> </ul> <p>Arrange bone marrow (<i>note 2</i>) to exclude myeloma if</p> <ul style="list-style-type: none"> <li>• Immune paresis (<i>note 3</i>)</li> </ul> <p><b>or</b></p> <ul style="list-style-type: none"> <li>• Bence Jones protein +ve</li> </ul> <p>Refer haematology clinic if any of the following</p> <ul style="list-style-type: none"> <li>• Significant paraprotein i.e. IgA &gt;10 g/L or IgG &gt;20 g/L or IgM &gt;10 g/L</li> <li>• Positive clinical features without known cause</li> <li>• Bone marrow diagnostic of myeloma</li> <li>• GP uncertain about diagnosis</li> </ul>
<p><b>Monoclonal Gammopathy of Undetermined Significance (MGUS)</b> i.e. paraprotein with no concerning features (<i>note 4</i>)</p>	<p>Review at 3 months</p> <ul style="list-style-type: none"> <li>• Clinical assessment for unexplained weight loss, bone pain, night sweats, lymphadenopathy or splenomegaly</li> <li>• CBC</li> <li>• Immunoglobulins</li> <li>• Creatinine</li> <li>• Calcium</li> <li>• Bence Jones protein quantitative 24hr urine if previous B-J positive, or random urine if previously negative</li> </ul> <p>If stable, check <u>bloods and urine</u> 3-6 monthly and review <u>clinically</u> 6-12 monthly</p>	<p>Refer haematology clinic if any of the following:</p> <ul style="list-style-type: none"> <li>• Development of positive clinical symptoms / signs</li> <li>• Anaemia</li> <li>• Renal impairment</li> <li>• Hypercalcaemia</li> <li>• Rise in monoclonal immunoglobulin by &gt;5 g/L</li> <li>• Absolute IgA &gt;10 g/L or IgG &gt;20 g/L or IgM &gt;10 g/L</li> <li>• Immune paresis i.e. non-monoclonal immunoglobulin levels become subnormal</li> </ul> <p>Discuss with haematologist if increased urine Bence Jones protein</p> <p>If uncertain, phone haematologist for advice</p>

# NOTES

- 1 Paraprotein is usually detected by serum or urine electrophoresis and is most often IgG, but can be of any immunoglobulin class. Disorders characterised by the production of paraprotein include monoclonal gammopathy of undetermined significance (MGUS, also referred to as benign monoclonal gammopathy or benign paraproteinaemia), multiple myeloma and Waldenstrom's macroglobulinaemia. Less commonly paraprotein may be associated with chronic lymphocytic leukaemia, non-Hodgkin's lymphoma and amyloidosis.
- 2 Bone marrow can be arranged at no cost to the patient via the community laboratories.
- 3 Immune paresis is defined as reduction in the levels of all immunoglobulin classes or reduction in all classes of immunoglobulins other than that of the paraprotein.
- 4 MGUS is a diagnosis of exclusion. It refers to the presence of a monoclonal paraprotein in serum or urine in the absence of any clinical-pathological evidence of multiple myeloma, Waldenstrom's macroglobulinaemia, chronic lymphocytic leukaemia, non-Hodgkin's lymphoma and amyloidosis. These patients are typically asymptomatic, with no related physical findings, and the paraprotein is an incidental finding. 1% of the population >50 years and 3% >70 years have a paraprotein. The term MGUS is preferable to benign monoclonal gammopathy or benign paraproteinaemia, as approximately 20% of these patients will progress to overtly malignant disease some years later.
- 5 Of all patients with MGUS, 1% per annum will progress to myeloma. IgM paraproteins are rarely due to myeloma but occur in Waldenstrom's macroglobulinaemia and may be associated with lymphoma.
- 6 Polyclonal gammopathy signifies a non specific immune reaction, does not indicate underlying haematological disorder and does not require haematology referral.
- 7 Myeloma can present with immune paresis and no paraprotein. If concerned about this, discuss with haematology.