

LABORATORY INVESTIGATION OF SUSPECTED MULTIPLE MYELOMA AND PLASMA CELL DISORDERS

STANDARDS

STANDARD 1

Suspected myeloma and plasma cell dyscrasias require both serum electrophoresis and urine electrophoresis.

This should be performed by high resolution agarose gel electrophoresis that separates the $\beta 1$ and $\beta 2$ globulin to detect small band in this zone or by Capillary Zone electrophoresis (CZE).

STANDARD 2

Newly diagnosed paraprotein patients need Immunofixation (IF) against G, A and M heavy chains and kappa and lambda light chains in serum and urine.

STANDARD 3

If the heavy chain reaction against G, A and M is negative in serum but there is a light chain reaction, IF against IgD and IgE heavy chains must be performed.

STANDARD 4

Quantitation of paraprotein levels (PPQ) should be done by densitometry or the area under the curve. Immunological methods can be used when the M bands co-migrates with the $\beta 1$ and $\beta 2$ globulin bands.

STANDARD 5

All PPQs should have immunoglobulins done to look for immuno-suppression. All non-isotypic immunoglobulins should be quantitated.

STANDARD 6

Newly diagnosed patients need $\beta 2$ Microglobulin ($\beta 2M$) and serum free light chains (sFLC) for prognostic use.

STANDARD 7

sFLC is useful in the diagnosis and management of oligo- secretory myeloma, plasmacytoma, Bence Jones only myeloma and amyloid. They could be used in conjunction with a urine for Bence Jones protein.

STANDARD 8

A Consultant Haematologist should be notified if the BJP is positive or if a monoclonal band is detected.

STANDARD 9

Laboratories should belong to the relevant UKNEQAS schemes for monoclonal and specific proteins.

STANDARD 10

No standards were able to be set for discretionary testing as there is no current guidance from the professional bodies.

REFERENCES

International Myeloma Working Group guidelines for serum-free light chain analysis in multiple myeloma and related disorders. *Leukaemia* 2008; 23: Number 2

UK Myeloma Forum and Nordic Myeloma Study group: Guidelines for the investigation of newly detected M-proteins and the management of monoclonal gammopathy of undetermined significance (MGUS) *British journal of Haematology* 2009; 147, 22-42

Bob Beetham. Discretionary testing. *Annals of Clinical Biochemistry* 2005; 42 : 245-253