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Free light chain

Dr. G, Ninewells "...service for free light chain is very good..."

Normal plasma cells make more immunoglobulin light than heavy chains and secrete free light chains in amounts detectable in serum (estimated to be 0.5g/day). Serum free light chains (flc) are removed by glomerular filtration with a half-life of a few hours. They are not easily detectable in urine until the threshold for tubular reabsorption is exceeded (10 – 20g / day). Serum flc maybe detected by immunofixation (see below) and their measurements are recommended in diagnosis and management of light chain amyloid, plasmacytoma, non-secretory myeloma and light chain only myeloma.

Technical point

With routine immunofixation only IgG, IgA, IgM, Kappa and Lambda are detected but if (in a rare case) a serum is only positive for kappa or lambda then the possibility of IgD and IgE presence should be investigated and quantitated.

Open all sections

Lambda free light chain

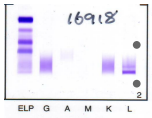
Patient: 61 years old male

History/Diagnosis: Meyloma presentation

Laboratory data:

All the parameters were normal and within the range except for:

The laboratory data above suggests that a secondary hypogammaglobulinemia due to myeloma.



(/Images/College-MDS-only/facilities/cis/Immunochemistry/FreeLambda1216918.jpg)

- IgG (5.47 g/L - borderline decreased)
- IgA (0.31g/L, decreased)
- IgM (0.04 g/L, decreased)
- Serum creatinine (105 umol/L, borderline elevated)

Electrophoresis of serum demonstrated the presence of monoclonal free lambda light chains.

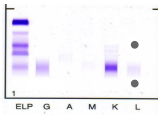
Kappa free light chain

Patient: 53 years old male

History/Diagnosis: Meyloma presentation

Laboratory data:

All the parameters were normal and within the range except for:



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- IgG (3.86 g/L - decreased)
- IgA (0.27g/L, decreased)
- IgM (0.25 g/L, decreased)
- Beta-2-Microglobulin (6.9mg/L, elevated)
- Serum creatinine (346 umol/L, elevated)

Electrophoresis of serum demonstrated the presence of monoclonal free kappa light chains.

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