# Sebia Focus - N°7

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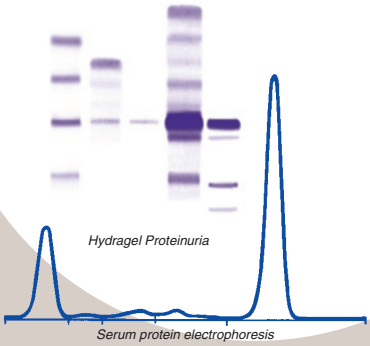


## Monoclonal gammopathy: A Practical Guide for the interpretation and diagnostic orientation.

*41ème Colloque National des Biologistes des Hôpitaux*, Toulouse, 26 september 2012

**The workshop "Monoclonal gammopathy: A Practical Guide for interpretation and diagnostic orientation" was held as part of the 41st National Conference of Hospital Biologists, on September 26th, 2012 in Toulouse. In front of a full room, *Dr Olivier Decaux*, from the Department of Internal Medicine of the University Hospital of Rennes, presented a clinical review of monoclonal gammopathies, in particular multiple myeloma and monoclonal gammopathy of undetermined significance (MGUS). Then *Dr. Sophie Claeyssens*, from the Medical Biochemistry Laboratory of the University Hospital of Rouen, stressed the importance of urine protein electrophoresis in these pathologies. She presented clinical cases showing the medical added value of this test in the set-up of appropriate therapies to prevent symptomatic deterioration of renal function in patients.**

### Monoclonal gammopathies: Diagnosis and monitoring.


*Congress Center of DIAGORA TOULOUSE, LABEGE*

Dr. Decaux, an active member of the Francophone Myeloma Intergroup (IFM), began his communication with a reminder of the epidemiology of monoclonal gammopathies. The prevalence of monoclonal gammopathies in the general population has been estimated as 3% in adults older than 50 years and has been shown to increase with age. MGUS represents more than 60% of the monoclonal gammopathy cases. In a cohort of 549 patients hospitalized at the intern medicine department of the Rennes' University Hospital (76% of this cohort was older than 70 years), a systematic serum protein electrophoresis showed a peak for 107 of these patients (20.5%).

In the second part of his talk, Dr. Decaux presented the clinical and biological criteria for multiple myeloma diagnosis: bone disease caused by the activation of osteoclasts, bone marrow infiltration (anemia and pancytopenia), hypogammaglobulinemia, complications of the monoclonal protein with a particular emphasis on renal lesions "... we are very concerned about acute renal failure by precipitation of free light chains ...". The diagnostic criteria for multiple myeloma are: the presence of the monoclonal protein in the blood and / or urine, bone marrow plasmacytosis> 10%, at least one of the CRAB[1] criteria being affected. Two cases may occur during diagnosis: (1) incidental discovery of an MGUS requiring a regular and extended monitoring given the risk of malignant transformation into a multiple myeloma (IgG or IgA) or into a Waldenström's disease (IgM); risk estimated at about 1% per year. This clinical (general condition, bone pain…) and biological (serum protein electrophoresis, complete blood count, creatininuria, calcemia, proteinuria) monitoring should be performed twice a year and then once a year, (2) investigations

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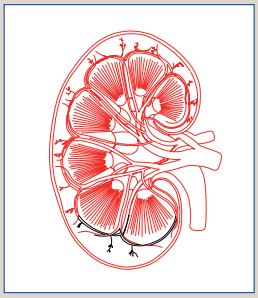
motivated by clinical or biological signs suggestive of a multiple myeloma or an AL amyloidosis. In this case, even if electrophoresis reveals no peak, further investigations (serum immunofixation, urine electrophoresis and immunofixation, free light chain quantification, skeletal radiology ...) are required especially if the electrophoresis showed hypogammaglobulinemia.

In the third and last topic of his presentation, Dr. Decaux stressed the importance of biologist-clinician dialogue in the diagnosis and monitoring of monoclonal gammopathies. Indeed, clinicians often seek biologists when it comes to interpretation of comments where the clinical significance has not been clearly established (restriction of heterogeneity, oligoclonal patterns). Conversely, the biologist requires the clinician to obtain the patient's clinical picture (clinical signs, treatment modification...). In the interest of the patient, a close collaboration between the two practitioners is essential. Finally, Dr. Decaux showed clinical cases where, for the same patient, different results were reported from different laboratories. He insisted on the need to standardize practices of peak quantification and analysis reports.

**Clinical added value of urine protein electrophoresis in the diagnosis and monitoring of monoclonal gammopathies.**

Dr. Sophie Claeyssens, from the Medical Biochemistry Laboratory of the University Hospital of Rouen, stressed the importance of urine protein electrophoresis in the diagnosis and monitoring of monoclonal gammopathies. In fact, this test is characterized by the wealth of information it provides: detection and quantification of the monoclonal component (free light chain or complete immunoglobulin), assessment of renal function and therefore nephropathy typing.

Dr. Claeyssens uses the "HYDRAGEL Proteinuria" test, available on HYDRASYS (SEBIA, France). This analysis is performed on neat urine and enables glomerular damage to be distinguished from tubular and mixed damage and allows suspecting the presence of Bence Jones protein. The urine protein electrophoresis allows typing proteinuria. This test can reveal tubular damage during multiple myeloma.This state is a medical emergency for patients requiring **nephrological monitoring** and implementation of symptomatic treatment that targets protein precipitation in the kidney.



Renal failure is reversible in a number of cases. It is therefore important to diagnose it and implement urgent adapted therapeutic solutions. In the absence of urine electrophoresis, the persistence of this renal failure has unfavorable outcomes and becomes irreversible.

**Fanconi syndrome** is associated with multiple myeloma with reduced tumor mass. It requires a specific treatment, such as sodium and phosphate supplementation, essential to prevent or delay osteomalacia. Urine protein electrophoresis can therefore highlight early kidney damage prior to the onset of heavy complications that can be prevented by specific treatments.

Dr. Claeyssens presented a series of clinical cases in which urine electrophoresis triggered a therapeutic intervention that helped prevent complications, plus a case for which the absence of urine testing had unfortunately, led to irreversible consequences for the patient.

The workshop ended with a series of questions from the audience, especially on the threshold of proteinuria from which urine protein electrophoresis is recommended. In her routine at Rouen University Hospital, Dr. Claeyssens triggers urine protein electrophoresis for any proteinuria higher than 150mg/24h, but also for physiological proteinuria in some clinical settings.

[1] Criteria CRAB: hyperCalcaemia, Renal failure, Anaemia, Bone lesions.

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