Review of Serum Protein Electrophoresis: A Practical Experience

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Introduction:

Serum protein electrophoresis (SPE) is a routine analysis in the daily practice of a medical biology laboratory. Clinically, this test is primarily designed for the detection of gammopathies responsible for oligoclonal, monoclonal, or polyclonal profiles. However, various anomalies related to different pathologies may also be detected through SPE.

Objective:

The aim of our study was to assess the electrophoretic profiles obtained in our biochemistry laboratory

Material and methods :

This was a retrospective descriptive study conducted over a 3-month period (January 2024 – March 2024) involving all requests for SPE sent to our biochemistry laboratory. We analyzed the various reasons for prescription and the electrophoretic profiles obtained. The SPE was performed using the MINICAP Flex Piercing analyzer.

Results:

-534 SPE requests recorded .

-The median age :59 years (range: 1–90) .

-Sex ratio : 0.55. Outpatient consultations accounted for the majority of requests, representing 56.7% of the total.

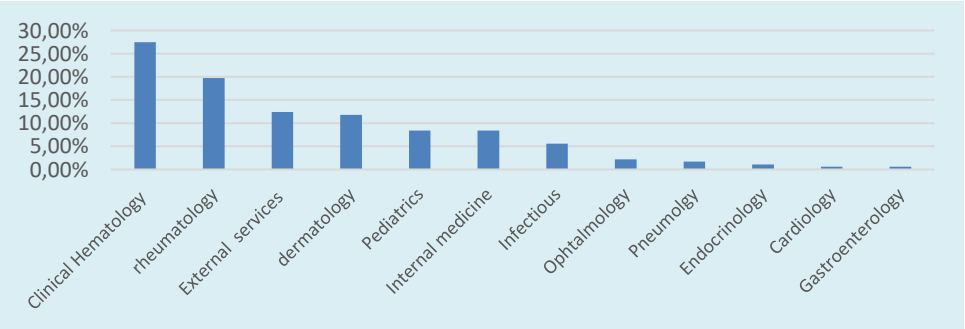

Figure 1 : Main services requesting SPE

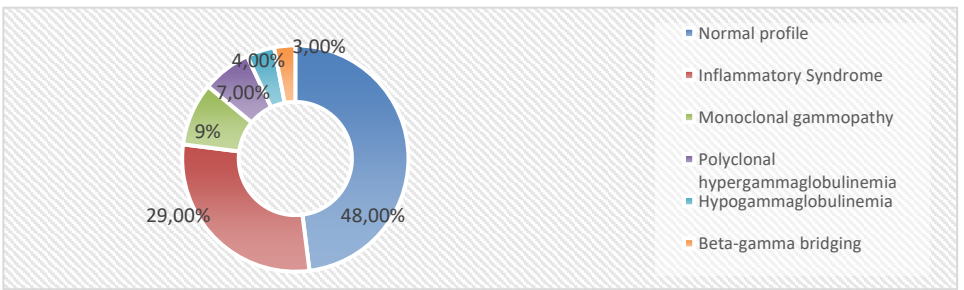

Figure 2 : Analysis of SPE results

Discussion :

SPE is an easily performed and widely applied test for identifying protein abnormalities, especially in monoclonal gammopathies. It is particularly useful for tracking inflammatory, hepatic, and hematological diseases by detecting both qualitative changes (through pattern analysis) and quantitative variations in relevant protein fractions, such as overproduction or deficiencies. However, prescriptions must be well-reasoned and appropriate to avoid excessive and unwarranted testing. SPE remains a focused diagnostic tool, requiring specific clinical indications to ensure optimal utility.

Conclusion :

SPE is of great clinical importance in monoclonal gammopathies, while other indications are more subjective and vary according to individual medical practices. This underscores the need for clear guidelines on the appropriate prescription and interpretation of this test.