1. INTRODUCTION

Complement is a functional system of plasma proteins, and to a lesser degree membranes, of which more than 30 are known, which by interacting and activating in a regulated manner play an essential role in the defence of the immune response. They circulate inactivated in the blood as zymogens or proenzymes and after activation participate in a series of reactions known as the complement cascade through three different routes:

1. Classical Pathway. Upon recognition of antigen-antibody (Ag -Ab) complex fixed to the membrane.
2. Lectin pathway. By binding special proteins to carbohydrates in the membrane.

The purpose of the complement system through its three activation pathways is the destruction of microorganisms, neutralization of certain viruses and promotion of the inflammatory response, to facilitate access of immune system cells to the site of infection. The laboratory measurement of some components of the complement system is performed by Immunoturbidimetry measuring the decrease in the intensity of the transmitted light and the diffraction produced by Ag –Ab complexes formed. The decrease in the intensity of light (absorbance) is proportional to the concentration of analyte present.

2. OBJECTIVES

Compare the quantification of complement components on the SPAPLUS and Optilite analysers, both from Binding Site, to evaluate which one is more efficient for routine use in the diagnostic laboratory for immunologically based diseases.

3. MATERIALS AND METHODS

A total of 113 serum samples were collected consecutively over one week as they were received into the immunology laboratory, regardless of origin or demographic data, and measurements of C3 and C4 were made in parallel on both systems. The samples were processed in batches of samples.

4. RESULTS

Concordance rates obtained were 86.73% for C3, and 85.84% for C4. The performance in tests/hour (TPH) of SPAPLUS is 120tph compared to 121tph on the Optilite. Also consider that the SPAPLUS only does one re-dilution when it is necessary, while the Optilite makes appropriate serial dilutions to obtain the sample result, plus it allows us to work with various sample types (serum, urine and CSF) at the same time. In relation to the interference that analysers can face with problematic samples such as those with hemolysis, icterus or lipemia, we have concluded that the Optilite is more sensitive to yielding unreliable results, so it is recommended not to process these samples.