P1361 **Comparison of new chemiluminescent immunoassays with indirect immunofluorescence assay in the diagnosis of human Q fever**

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Background: Q fever is a zoonosis caused by *Coxiella burnetii* that presents with a wide spectrum of clinical manifestations. Serologic testing using indirect immunofluorescence assay (IFA) is the reference method for laboratory diagnosis. New methods based on chemiluminescent immunoassay (CLIA) technology are able to detect the amount of antibodies in serum using automated analytical platforms and shortening time responses.

The aim of this study was to determine CLIA's performance in the diagnosis of Q fever establishing comparisons between IgG indices obtained by CLIA and IgG titres observed by IFA.

Materials/methods: We run a prospective study from March 2016 to October 2017, 599 sera from 571 patients were analyzed. Initial screening was performed by CLIA (VirClia® monotest, Vircell Microbiologists); sera with positive (IgG index>1.1) and equivocal results (IgG index=0.8-1.1) were further titrated by IFA (Vircell Microbiologists).

Results: Specific anti-*C. burnetii* antibodies were detected by CLIA in 125 sera from 122 patients (20.87%), 5 were not confirmed by IFA and were considered CLIA's false positives (4%). Attending to IgG titres, 27 sera were 1:64, 41 were 1:128, 21 were 1:256, 15 were 1:512, and 16 were ≥1:1024.

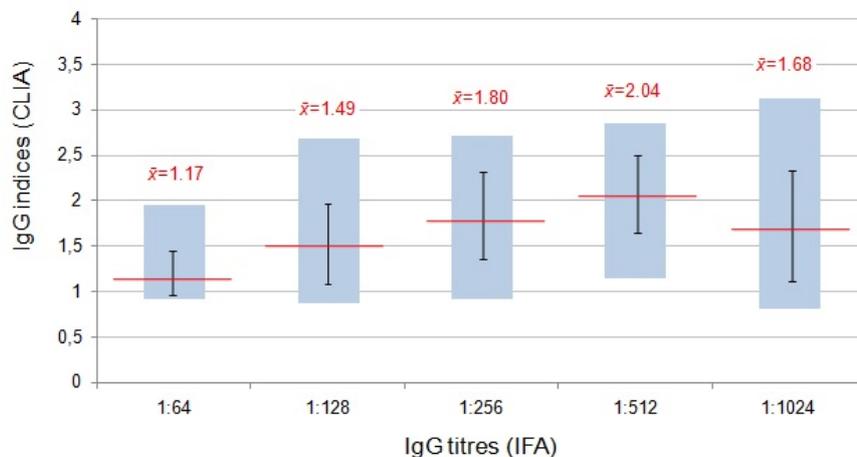Correlation between IgG titres and IgG indices is shown in Figure 1.

Figure 1. Association between IgG titres and IgG indices; blue box = distribution of IgG indices; red line = mean ($\bar{x}$); black line = standard deviation (σ).

In 3 samples with equivocal results by CLIA, IgG titres assigned by IFA were ≥1:1024. An additional CLIA test was performed at a serum dilution of 1/20 in all samples titred ≥1:1024; higher IgG indices

were obtained in 9/16 sera. Mean of IgG indices in diluted sera (x=2.49; σ=0.58) was significantly higher than that from non-diluted sera (x=1.68; σ=0.61) (p=0.0006).

Conclusions:

- CLIA's IgG indices are representative of IFA's antibody quantification.

- CLIA enables a classification of probable Q fever cases and a rapid response in patients with acute Q fever.

- Confirmation by IFA remains necessary when CLIA's IgG indices are close to the threshold value, due to a prozone phenomenom detected in CLIA's results in sera with high IgG titres.