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Abstract (poster session)

Performance of the BioPlex® 2200 flow immunoassay (Bio-Rad) in critical cases of serodiagnosis of toxoplasmosis

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Objectives: Serological screening and diagnosis of toxoplasmosis requires robust and specific IgG and IgM assays. The recently developed BioPlex® 2200 ToRC IgG and IgM immunoassays already met these criteria in a prospective study on 600 sera submitted for routine testing (Binnicker, 2010). To complement this study, we examined sera which have been selected for their individual peculiarities and critical relevance for diagnosis or screening. **Methods:** A unique panel of 193 individual sera (101 pts) or sequences was selected over 5 years from our routine practice of Toxoplasma serology, using Platelia® toxo IgG and IgM immunoassays (Bio-Rad) combined with a sensitized agglutination (AGG) assay (Toxo Screen-DA, Biomérieux). Sera met one of the following criteria: 1. evidence of a recent infection, 2. Apparent long-lasting IgM, based on the presence of IgM (Platelia) and high avidity (Bio-Rad), 3. Discrepant IgG results between Platelia-G and AGG; in this case the definite diagnosis was assessed by western-blot (LDBIO). Sera were tested by BioPlex blindly to any other data. **Results:** Among 45 sera from presumed recent infections (Platelia M+, IgG avidity <0.4), 43 were IgM positive with BioPlex; in one of the remaining sera, the ISAGA score was 7, and a past infection with persisting low avidity was likely. Analysis of serum sequences showed a trend to a more rapid decrease of IgM titres by BioPlex than by Platelia or ISAGA. In 1 case of proven seroconversion with no IgM with Platelia, IgM was positive with BioPlex (confirmed by ISAGA). Among 23 serums from probable past infection with long lasting IgM, (Platelia M+ and IgG avidity >0.5), 11 (47.8%) were positive by BioPlex IgM. Discrepant Platelia/AGG IgG results were available for 16 pts. In 8 cases of false positive Platelia G, BioPlex IgG was positive in 2. None of the 2 sera giving a false positive AGG was positive by BioPlex. In 5/6 cases of false negative Platelia G and 2/2 false negative AGG, BioPlex IgG was positive. **Conclusion:** Most false positive or false negative Platelia G or AGG results were corrected by the BioPlex test, assessing for its high specificity, reducing uncertainty on patients' serological status and limiting the use of additional confirmatory tests. For IgM, the performance of BioPlex for diagnosis of acute infection was comparable to Platelia. The negative BioPlex IgM results in sera with positive Platelia M and high IgG avidity suggest a lower sensitivity to residual IgM antibodies.