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Diagnostic parasitology

A comparative study for the determination of the IgG avidity during a toxoplasmosis in pregnancy

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Background: The main objective of all diagnostic efforts in toxoplasmosis serology is the clarification if a pregnant woman has an acute infection or whether infection occurred before conception. Determination of IgG avidity is more important. The IgG response against individual Toxoplasma antigens differs in their avidity maturation. The study aims to clarify a conventional avidity test to a recombinant assays in toxoplasmosis serology.

Material/methods: The study included 138 samples of pregnant women collected in the routine of diagnostic laboratory. All samples were tested as IgG and IgM positive or borderline with Architect Toxoplasma IgG and IgM (Abbott).The screening results were compared to Toxoplasma avidity Ig G (DRG ELISA Toxoplasma avidity) followed by recomline Toxoplasma IgG and IgM (MIKROGEN). The avidity of all samples was determined by DRG Toxo IgG avidity and recomLine Toxoplasma IgG.

Results: Nevertheless the IgM screening showed 25 sera which were positive with Architect Toxoplasma and negative with recomLine Toxoplasma. These 25/138 samples were confirmed with recomLine Toxoplasma IgG/avidity and IgM. It could be determined that 20/25 were past infections. The correlation of DRG Toxoplasma avidity and recomLine Toxoplasma was also very high for IgG and lower for IgM. Most of high avidity results in the DRG Toxoplasma correlated well with the recomLine Toxoplasma late phases 3 and 4 (92%). Nevertheless 23% of the low avidity results measured by DRG Toxoplasma could not be confirmed by recomLine Toxoplasma:16/97 samples in phase 3 and 8/97 samples were in phase 4.These findings indicate that IgG avidity in DRG Toxoplasma increases with a delay and leads to a few number of false low avidity results. The antigen specific avidity pattern like recomLine Toxoplasma enables a more precise assessment of the patient's potential infection status.

C**onclusions:**The comparison of the conventional IgG avidity test to the recombinant test showed a good correlation regarding high avidity samples. Neverthless 23% of the low avidity samples determinate with DRG Toxoplasma were already in a late phase of infection when determinate with recomLine Toxoplasma (MIKROGEN). This difference might be due to the basic concept of a recombinant line assay and is supported by the possibility of demonstrating the maturation of IgG antibody aviditiy for individual antigens.