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Objective: We have developed and evaluated the sensitivity and specificity of a new synthetic peptide based species specific enzyme immunoassay (EIA) for detection of Chlamydia trachomatis IgG and IgA antibodies.

Methods: Synthetic peptides derived from MOMP were used as antigen in indirect EIA. IgG and IgA antibodies were measured parallel with serum samples from C. trachomatis culture positive, culture negative and antigen positive patients, women with suspected Chlamydia trachomatis infection. Sera from blood donors and from children under 15 years of age were used as controls.

Results: The agreement of culture positivity in women and in men as well as antigen positivity in women with positive peptide serology was 84.2%, 61.3% and 93.1%, respectively. Among Chlamydia trachomatis suspected women the antibody prevalence was 63.7%. Randomly collected blood donors showed a prevalence of 21.5%. Children with C. pneumoniae antibodies determined with micro immunofluorescence method (MIF) didn't show any reactivity in the C. trachomatis peptide EIA.

Conclusions: The results suggest that the new EIA test is highly specific for C. trachomatis, and C. pneumoniae antibodies do not interfere. The appearance of IgG or IgA antibodies can be seen within 2 weeks in acute phase of infection both among culture positive and culture negative patients.