Clinical and laboratory study

COMPARISON OF ANTIGEN DETECTION ASSAYS AND SERUM ANTIBODY TESTS FOR DIAGNOSIS OF INFECTION WITH CHLAMYDIA TRACHOMATIS

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ABSTRACT

Objectives. Rapid antigen detection in patients with lower urinary tract infection caused by Chlamydia trachomatis by direct immunofluorescence and an enzyme-linked immunosorbent assay (ELISA) was compared with cell culture as well as polymerase chain reaction (PCR). Furthermore, the performance of two serum antibody ELISAs was compared with an immunoperoxidase test.

Methods. A total of 143 urethral, conjunctival, and pharyngeal swabs were investigated. McCoy cell culture and a molecular assay including PCR served as standard methods. An elementary body direct fluorescent-antibody assay (DFA) was performed on urethral and conjunctival specimens, and an ELISA antigen test was performed on urethral specimens. Serum samples of 49 patients were analyzed for IgA and IgG antibodies.

Results. Antigen ELISA testing of urethral specimens was comparable to culture and PCR concerning specificity and sensitivity. The antibody ELISAs were significantly better in the detection of IgA in comparison with the immunoperoxidase test.

Conclusions. The antigen ELISA was found to be the best rapid diagnostic assay and has sufficient specificity as well as sensitivity. PCR can serve as gold standard equivalent to cell culture. Serum antibody assays are only of value in clinical situations when antigen detection is not possible.

KEY WORDS

Chlamydia trachomatis, PCR, cell culture, antigen detection

INTRODUCTION

Clinical features of chlamydial infection include acute and chronic disorders as urethritis, cervicitis, endometritis, salpingitis, perihepatitis, and pelvic inflammatory disease (1-4). Sensitive, specific and rapid techniques for the diagnosis of infections produced by C. trachomatis are thus of great importance. Ascending endocervical infection is an important cause of infertility and ectopic pregnancy and may promote the transmission of the human immunodeficiency virus (5). Furthermore, C. trachomatis is a frequent cause of newborn and adult keratoconjunctivitis (6,7), and even newborn respiratory tract infection has been reported (8). Its possible role as a triggering agent in rheumatic diseases remains in discussion (9).

Culture on McCoy cell monolayers is considered the standard for detection of infectious elementary