

DNA Detection of Low Levels of *Chlamydia trachomatis* Genotypes in Urine

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Background

Nucleic acid amplification tests have been designed and evaluated for their ability to detect all *C. trachomatis* genotypes in clinical specimens. However, the stability of individual genotypes and concomitant effects of urine storage/transport has received little attention.

Methods

C. trachomatis genotypes B, D, E, F, G and J were grown in BGMK cells and standardized for urine inoculation. Two volunteers, who were not infected with *C. trachomatis*, provided urine specimens. These specimens were inoculated with the individual *C. trachomatis* genotypes at approximately 100 inclusion forming units and two-fold dilutions prepared in duplicate with one set being treated with **DNA/RNA Protect (Sierra Diagnostics)**.

Six aliquots of each dilution were removed in order to test the effect of storage temperature (4°C, 22°C and 37°C) and time (24h, 48h and 1 week) on DNA stability. Samples were tested, in triplicate, for the presence of *C. trachomatis*-specific DNA using LCR (Abbott Laboratories) and the results recorded as the highest dilution reading positive in the test.

Results

All genotypes were more stable in urine 1, regardless of time, temperature and DNA/RNA Protect, than in the other (urine 2).

Genotype E was the most stable in urine 2 stored at different times and temperatures while detection of genotype F dropped after 24h for the three temperatures. A decrease in detection was also noted for genotype G following 48h at 37°C but not at the other temperatures.

In contrast, DNA/RNA Protect enhanced the stability of *C. trachomatis* in urine 2, especially at the higher temperatures.

Conclusions

The six genotypes examined in this study did not demonstrate a consistent pattern of detection in spiked urine specimens.

The differences in stability of *C. trachomatis* DNA by genotype demonstrated in this study in urine may confound the diagnosis of certain low-grade infections and skew molecular epidemiologic studies.

DNA/RNA Protect enhanced the stability of *C. trachomatis* in urine.