



Association of STD pathogens via multiplex PCR detection

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BACKGROUND

Sexually transmitted diseases (STD) are among the most common infections in Romania. STDs can often be associated due to the possible interactions or synergies between the microorganisms that produce them. The most common associations documented in literature are those between *Neisseria gonorrhoeae* and *Chlamydia trachomatis*. Some researchers recommend co-treatment of individuals with gonorrhea for chlamydia¹ as well¹. Other studies have shown that *Mycoplasma hominis* has always appeared in association with *Ureaplasma urealyticum*². Some authors also reported associations between *C. trachomatis* and *Mycoplasma genitalium*³. Based on a multiplex PCR detection method, our study aims to observe the associations between the most common six pathogens that induce STDs in Romania, namely *C. trachomatis*, *N. gonorrhoeae*, *Trichomonas vaginalis*, *U. urealyticum*, *M. hominis* and *M. genitalium*.

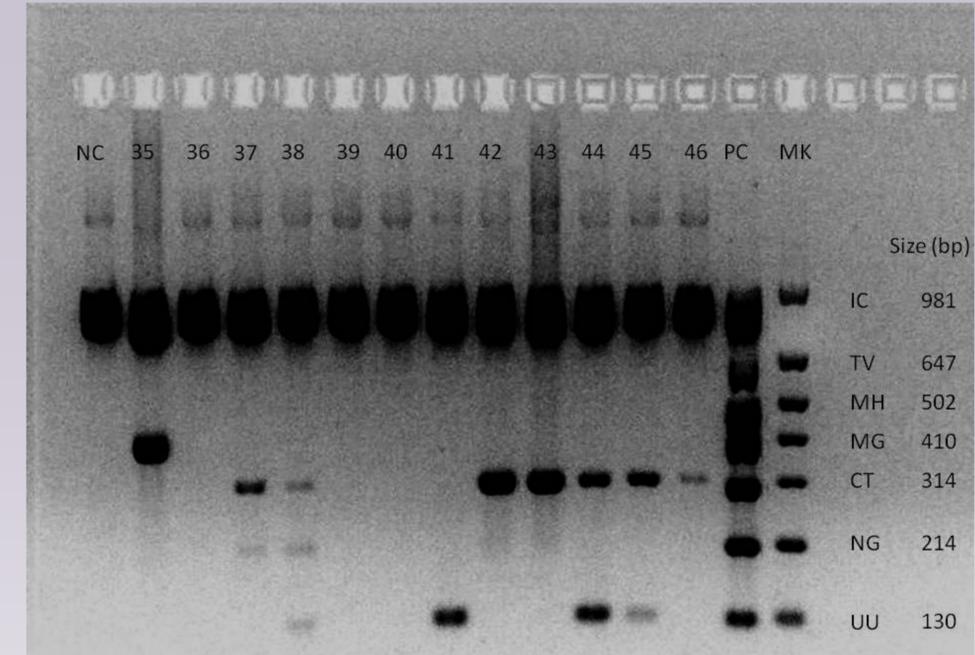


Figure 1. STD pathogens - agarose gel electrophoresis

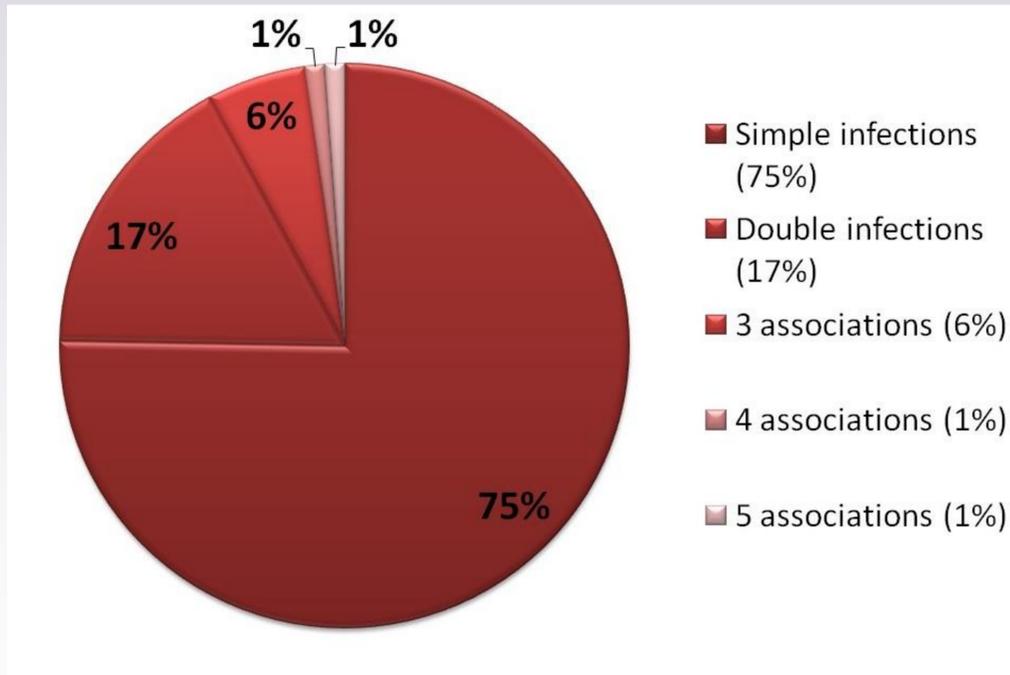


Figure 2. Associations of STD pathogens

MATERIALS AND METHODS

First void urine was collected from 284 symptomatic and asymptomatic patients of both genders. The DNA was extracted, purified and amplified via multiplex PCR for simultaneous detection of all the above-mentioned pathogens and further identified in the mix using a 2% agarose gel electrophoresis with ethidium bromide as staining agent (Fig. 1).

RESULTS AND DISCUSSIONS

31% of the patients were detected for at least one of the 6 infections. 25% of the positively detected subjects presented co-infections (Fig. 2).

We detected a case presenting 5 associations (*C. trachomatis*, *N. gonorrhoeae*, *U. urealyticum*, *M. hominis* and *M. genitalium*), one exhibiting 4 (*C. trachomatis*, *N. gonorrhoeae*, *U. urealyticum* and *M. genitalium*), as well as 5 cases with 3 associations (*C. trachomatis*, *N. gonorrhoeae* and *U. urealyticum*) and 15 patients with double infections (with different pathogens).

It was noted that 60% of the cases involving infection with *N. gonorrhoeae* were in association with *C. trachomatis* and 54% of the *U. urealyticum* infections were also associated with *C. trachomatis*.

CONCLUSIONS

- The method employed is highly effective in the simultaneous detection of these STDs, which in many cases are associated.
- Our results suggest that patients detected positive for *N. gonorrhoeae* and *U. urealyticum* by other methods should be tested for *C. trachomatis* as well.

Selective references:

- (1) Datta et al., Ann Intern Med 147(2):89-96, 2007;
- (2) Baka et al., Urology 74(1):62-66, 2009;
- (3) Le Roy et al., J Microbiol Methods 89(3):193-97, 2012