Prevalence of *Ureaplasma parvum* in the area of Prato, Italy

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Summary

In this study, the prevalence of *Ureaplasma parvum* in the area of Prato (Italy) was investigated. Samples from 1197 consecutive patients were analyzed. Our results showed that the prevalence of *U. parvum* was 33.6%, with a higher percentage in females than in males (40.6% *vs* 9%). In addition, the prevalence of *U. parvum* was significantly lower in older patients

Introduction

Ureaplasma found in the urogenital tract are considered natural inhabitants of the lower urogenital tract of humans as they are often isolated from healthy individuals (4).

Recently, *Ureaplasma* have been separated into two species, *U. urealyticum and U. parvum,* and a number of molecular methods, able to distinguish them, have been commercialized. This new classification has been followed by a lot of studies aimed to evaluate the importance of *U. parvum* in urogenital tract infections (2,4,8).

While the association of *U. urealyticum* with urogenital tract infections is well established, the role of *U. parvum* is not well known. Nevertheless, the isolation of *U. parvum* from subjects with genitourinary tract infections as well as findings of studies on laboratory animals seem to confirm the pathogenicity of the species (4).

Data about the prevalence of *U.parvum* in Italy are scarce (6).

In 2012 a PCR real time method able to differentiate *U. urealyticum* and *U. parvum* has been introduced in our laboratory for the routine analysis of urogenital samples.

Aim of this study was to evaluate the prevalence of *U. parvum* in the area of Prato (Italy).

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Materials and Methods

A total of 1197 patients (930 females and 267 males, age range 15-81 years) attending the hospital of Prato during the year 2013 were investigated.

DNA was extracted from different samples: urine, semen (both collected in empty tubes), endocervical and uretral swabs (eSwab Copan Italia, Brescia, Italy) using EZ1-DNAextraction kit (Qiagen, Hilden, Germany) according to the manufacturer directions.

A real-time PCR method (Anyplex STI7, Seegene, Seoul, Korea) was used to detect the presence of *C. trachomatis, N. gonorrhoeae, T. vaginalis, M. hominis, M. genitalium, U. urealyticum, U. parvum* in the samples according to the manufacturer instructions.

Prior to extraction, all the samples were seeded on Thayer Martin (bioMérieux, Marcy-l'Étoile, France) agar and incubated at 37°C, 5% CO_2 for 48 hours to search for *N. gonorrhoeae* and if positive an antimicrobial susceptibility test was performed (E-test, bio Mérieux).

Results

Four-hundred and two out of 1197 patients (33.6%) were positive for *U. parvum*. Among these 24 (6%) were males and 378 (94%) females. The prevalence was significantly (P<0.0001, chi-square) higher in females (40.6%) than in males (9%).

The prevalence of *U. parvum* in the different samples is shown in Table 1; the highest percentage of positivity was found in endocervical swabs.

The prevalence of *U.parvum* was significantly (P<0.05, chi-square) lower in older patients (Table 2).

In addition, for the other pathogens investigated the prevalence was: 36 subjects (3%) positive for *C. trachomatis*, 4 (0.3%) for *N. gonorrhoeae,* 23 (1.9%) for *T. vaginalis,* 88 (7.4%) for *M. hominis,* 13 (1.1%) for *M. genitalium* and 8 (0.7%) for *U. urealyticum*.

Discussion

Recent studies, performed after the separation of *Ureaplasma* in two species, *U. urealyticum* and *U. parvum,* have shown that *U. parvum* can be not only a commensal, but also a pathogen for the urogenital tract. For this reason we decided to introduce in our laboratory a method able to differentiate the two species. Data about the prevalence of *U. parvum* are very few and mainly from selected populations (3,4,8).

We found that the prevalence of *U.parvum* in the area of Prato was about 34%, according to data previously reported in Tuscany (6). For the other microorganisms the prevalence, in the same area, was similar to that found in the year 2011 (1). According to Jalal *et al*. (3) the prevalence of *U.parvum* was higher in women and lower in older subjects.

A limit of this study is the lack of clinical data and consequently the impossibility to correlate the presence of *U. parvum* to a clinical condition.

Data from literature suggest the usefulness of the evaluation of the presence of *U. parvum* in urogenital samples, mainly in case of infertility or preterm births. In our opinion, the laboratory should refer the presence of this microorganism and then the clinician will evaluate the opportunity to treat it.

Table 1. Prevalence of *U. parvum* in the different materials.

Material	Positive/total, n.	%
Urine	18/76	23.7
Semen	7/72	9.7
Endocervical swab	363/925	39
Uretral swab	14/124	11.3
Total	402/1197	33.6

Table 2. Prevalence of *U. parvum* in the different age-ranges.

Age, years	Positive/total, n.	%
<25	71/158	45
25-49	304/898	34
>49	27/141	19

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