PRESENCE OF DIFFICULT-TO-CULTURE ORGANISMS IN UROGENITAL SPECIMENS OF HEALTHY MEN

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M.V. Sukhorukova[1], L.S. Stratchounski[1], B.R. Gvasalia[2], O.Y. Shipulina[3]

[1] Institute of Antimicrobial Chemotherapy, Smolensk; [2] Multispecialty Center, Smolensk; [3] Central Research Institute of Epidemiology, Moscow

P.O. Box 5, Smolensk, 214019, RUSSIA
e-mail: str@antibiotic.ru
www.antibiotic.ru

ABSTRACT

OBJECTIVES The aim of this study was to determine the frequency of isolation of *Chlamydia trachomatis, Mycoplasma hominis, Ureaplasma urealyticum, Gardnerella vaginalis, Trichomonas vaginalis* from urethral swabs (US) and expressed prostatic secretions (EPS) of healthy men.

METHODS In 2003-2004 45 healthy volunteers without symptoms of urethritis, prostatitis and other urinary tract infections as well as with the absence of white blood cells in EPS and who had not taken antibiotics in previous month were included in the study. The Meares-Stamey bacteriologic technique and commercial PCRs (Amplisens, Russia) with primers specific for *C. trachomatis, M. hominis, U. urealyticum, G. vaginalis* and *T. vaginalis* on US and EPS were performed for each person.

RESULTS All healthy volunteers were negative by Meares-Stamey technique in terms of the absence of culturable uropathogens in EPS. According to PCR data, in EPS U. urealyticum was detected in 6 (13.3%) of 45 examined individuals, *C. trachomatis* - in 4 (8.9%), *M. hominis* - in 2 (4.4%), and *G. vaginalis* - in 1 (2.2%) of persons. *T. vaginalis* was not detected in the examined healthy volunteers.

CONCLUSION *C. trachomatis, M. hominis, U. urealyticum, G. vaginalis* are found in US of asymptomatic men. *U. urealyticum* was the most common detected organism. *T. vaginalis* was not identified in the examined asymptomatic volunteers. Frequent detection of difficult-to-culture organisms in healthy men requires further careful investigations of their causative role in urinary tract infections.

INTRODUCTION AND PURPOSE

Chlamydia trachomatis, Mycoplasma hominis, Ureaplasma urealyticum, Gardnerella vaginalis, Trichomonas vaginalis are considered as the most common causative agents of nongonococcal urethritis in men and have been reported to possibly cause of chronic prostatitis syndromes. The aim of this study was to determine the frequency of isolation of *C. trachomatis, M. hominis, U. urealyticum, G. vaginalis, T. vaginalis* from urethral swabs (US) and expressed prostatic secretions (EPS) of healthy men.

METHODS

A total of 45 healthy volunteers without symptoms of urethritis, prostatitis and other urinary tract infections and who had not taken antibiotics in previous month were included in the study in 2003-2004. The mean age of the men was 30.9 years (range, 20 to 50 years). After the US was obtained the Meares-Stamey segmented quantitative culture technique was performed for each person. Commercial PCRs (Amplisens, Russia) with primers specific for *C. trachomatis, M. hominis, U. urealyticum, G. vaginalis* and *T. vaginalis* were performed for all individuals with the absence of white blood cells in the EPS and negative results of Meares-Stamey bacteriologic technique.

RESULTS

All of the 45 healthy volunteers included in this study were negative in terms of the absence both of the culturable uropathogens and white blood cells in EPS. Twenty nine (64.4%) of the US samples and 34 (75.6%) of the EPS samples were PCR-negative for all the agents studied (Figure).

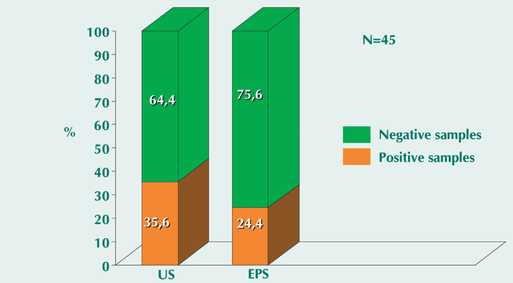

Figure. Total frequencies of detection of difficult-to-culture organisms in US and EPS

U. urealyticum, M. hominis and *G. vaginalis* have been identified more frequently in the US samples than in the EPS samples of examined persons (Table 1). *C. trachomatis* has been found in 4 (8.9%) of the cases both in the US and EPS. *T. vaginalis* has not been detected in the examined persons.

Table 1. Frequencies of detection of difficult-to-culture organisms in US and EPS

Organism	Urethral swabs, n (%)	Expressed prostatic secretions, n (%)
C. trachomatis	4 (8.9)	4 (8.9)
M. hominis	5 (11.1)	2 (4.4)
U. urealyticum	12 (26.7)	6 (13.3)
G. vaginalis	5 (11.1)	1 (2.2)
T. vaginalis	-	-

A single agent in the US has been detected by PCR in 10 (21.2%) of the cases with *U. urealyticum* being the most commonly identified microorganism. It has been found in 12 (26.7%) of the cases: alone in 6 (13.3%) and in association with other organisms in 6 (13.3%) of the cases. Two and three organisms have been found in 2 (4.4%) and 4 (8.9%) of the US samples respectively. The most common combination of *U. urealyticum, M. hominis, G. vaginalis* has been revealed in 3 (6.7%) of all the examined healthy volunteers (Table 2).

A single agent in EPS has been detected by PCR in 8 (17.8%) of the cases with *U. urealyticum* being the most common microorganism. It has been found alone in 4 (8.9%) and in association with other organisms in 2 (4.4%) of the EPS samples. Two microorganisms have been found in 3 (6.6%) of all the EPS samples studied. (Table 2).

In all cases when an organism was detected in the EPS it was found in the respective US sample as well. Therefore, it was difficult to decide whether the PCR-positive prostatic fluid initially contained difficult-to-culture organisms or was contaminated while passing through urethra.

Table 2. Results of US and EPS studies of 45 healthy volunteers by PCR

Organisms and associations	Urethral swabs, n (%)	Expressed prostatic secretions, n (%)
U. urealyticum	6 (13.3)	4 (8.9)
C. trachomatis	3 (6.7)	3 (6.7)
G. vaginalis	1 (2.2)	-
M. hominis	-	1 (2.2)
U. urealyticum + C. trachomatis	-	1 (2.2)
U. urealyticum + G. vaginalis	1 (2.2)	-
U. urealyticum + M. hominis	1 (2.2)	1 (2.2)
M. hominis + G. vaginalis	-	1 (2.2)
U. urealyticum + M. hominis + G. vaginalis	3 (6.7)	-
U. urealyticum + M. hominis + C. trachomatis	1 (2.2)	-
Negative results	29 (64.4)	34 (75.6)

CONCLUSION

C. trachomatis, M. hominis, U. urealyticum and *G. vaginalis* can be often found in US and less frequently in EPS samples from asymptomatic men. In this study *U. urealyticum* was most commonly detected while *T. vaginalis* was not identified in the examined samples. Frequent detection of difficult-to-culture bacteria and even their combinations in healthy men possibly undermines their role as causative agents of chronic prostatitis.