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## Prevalence of Chlamydia Trachomatis Within Culture Negative Urine Specimens in Southeast of Iran

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This descriptive study were carried out to determined the distribution of *C. trachomatis* in 320 patients suffering from Urinary Tract Infections (UTI) in the Zahedan Bou-Ali Hospital. In the research employment of Chlamy-check-I ELISA Kit's urine specimens were checked for specific antigens. Out of the total number of the samples 95 were positive and 225 negative for *Ch. trachomatis* i.e. (29.69 and 70.31%, respectively). Furthermore, out of 95 positive samples, 52 belonged to women and the remaining 43 to men besides the highest incidence appeared in females between 20-29 years old. In accordance with the findings of this study and consequences of inappropriate treatment of Chlamydial infections as: PID, infertility, extra uterus pregnancy and epididmytitis the accurate diagnosis and subsequently medication is mandatory, particularly in the areas with high prevalence of UTI.

**Key words:** *Chlamydia trachomatis*, Urinary Tract Infection (UTI), culture negative

## INTRODUCTION

Urinary tract infections (UTI) are regarded as one of the most common infectious diseases worldwide, as in the United States alone UTI are ranked second after upper respiratory tract infections and many men and women experience it throughout their lives. The figures indicate that more than eight millions people who visit their doctors in the U.S annually complain about UTI and it is estimated that 50-70% of women experience UTI at least once in their lives and 20-30% of them undergo even continuous UTI (CDC, 1997).

A large number of UTI are asymptomatic and in some cases a considerable bacteriuria is not observed either, furthermore in 68% of the patients in spite of apparent clinical feature of UTI the urine culture is negative although in urinalysis pyuria is unmistakable (Schachter *et al.*, 1983; Blyth *et al.*, 1998; Jenkins *et al.*, 1986). Nevertheless, one of the infective agent capable of causing culture negative genitourinary tract infection as well as Sexually Transmitted Disease (STD) is *Chlamydia trachomatis* which can not only affect women's health adversely in terms of their fertility and reproduction but also can cause loss of fruitful lives of the victims (Bowie, 1978; Gupta *et al.*, 2001; Cates, 1991). Hence, inappropriate diagnosis and treatment of Chlamydial genitourinary tract infection can lead to infertility, PID, extra uterus pregnancy, chronic pelvic pain in women as well as epididymitis, reactive arthritis (Reiter's syndrome) in men particularly during active sexual drive (Johannisson *et al.*, 1982; Zdrowska Stefanow, 1997). It is believed that *Chlamydia trachomatis* is responsible for 30% of culture negative UTI and 50% of non-gonococcal urethritis (Johannisson *et al.*, 1982; Faro and Fenner, 1998). There has been a large number of studies concerning relationship between leukocyturia and Chlamydial infection, for instance in one of these reviews 76.5% of women who had leukocyturia and 12.5% without remarkable leukocyturia were stricken by *Chlamydia trachomatis* in genitourinary tract (Zdrodowska-Stefanow, 1997).

As a matter of fact, incidence of genital infections due to *Chlamydia trachomatis* in women is less marked in comparison to men since; such infections do not cause any specific symptom and is hardly validated by laboratory tests (Kunnin *et al.*, 1993). Therefore, lack of knowledge about incidence of such infections in women is inevitable (Kunnin *et al.*, 1993). In one of the researches carried out more than 70% of women suffering from Chlamydial infection did not show any clinical feature whatsoever and age was the most significant risk factor

for such infection and interestingly the highest occurrence was observed amongst youngsters with strong sexual drive (Schachter, 1998).

Nonetheless, as stated above due to high incidence of negative culture in sufferers of UTI (up to 60%) who had referred to Zahedan Bou-Ali Infectious Hospital in accordance with importance of Chlamydial genitourinary tract infections, we were determined to find out distribution of *Chlamydia trachomatis* in patients suffering from UTI particularly in above named hospital.

## MATERIALS AND METHODS

This descriptive study was carried out by including 320 patients who had referred to Zahedan Bou-Ali Hospital and sampling was non-accidental, i.e., the patients did show symptoms of UTI and their first urine culture was negative. Moreover, in smears prepared from the cases  $\geq 5$  leukocytes were seen under microscope with high resolution besides they had not taken any antibiotic. The urine samples from the patients were collected at early morning (first urination). The samples were then centrifuged and the precipitant was separated, the latter was utilized as antigen in the subsequent ELISA test. In this research study Chlamy-check-1 kits from VEDA-LAB of France were employed for the test.

## RESULTS

The samples were collected within 11 months (from December 2002 till November 2003) and within this period of time out of 1742 culture negative urine specimens only 320 suitable ones were chosen. From 2476 samples of urine culture, 734 were positive and 1742 were negative, subsequently out of the latter number only 320 specimens had required criteria to be included in the study. Further investigations revealed 95 samples to possess antigens of *Chlamydia trachomatis*.

Furthermore, from 1742 studied patients, 1054 patients had UTI, out of this figure 734 samples (69.64%) were reported positive and 95 specimens (9.02%) were accounted for Chlamydial infection. Though, 225 samples (21.34%) were reported negative for Chlamydial infection but did need further laboratory tests for proof of any infection.

However, Table 1 shows that out of 320 tested samples 95 had antigens of *Chlamydia trachomatis* (29.69%) and 225 were negative for such antigens (70.31%).

Table 2 demonstrates that: *Chlamydia trachomatis* was more abundant in women aged between 20-29 years

Table 1: The frequency of *Chlamydia trachomatis* in culture negative urine samples amongst patients

Microorganism	Frequency	
	No.	Percentage
Positive for Chlamydia	95	29.69
Negative for Chlamydia	225	70.31
Total	320	100.00

Table 2: The incidence of culture negative UTI with *Chlamydia trachomatis* origin in accordance with gender and age

Age group	Frequency					
	Men		Women		Total	
	No.	Percent	No.	Percent	No.	Percent
9 years or less	1	1.05	1	1.05	2	2.10
10-19 years	6	6.34	8	8.41	14	14.73
20-29 years	12	12.63	18	18.94	30	31.60
30-39 years	12	12.63	15	15.78	27	28.42
40-49 years	10	10.52	7	7.35	17	17.89
50 years or more	2	2.10	3	3.20	5	5.26
Total	37	38.94	58	61.06	95	100.00

(18.94%) than men (54.73% compared to 45.27%) and the least incidence was observed within the range of 9 years or less.

### DISCUSSION

Most of the medics come across with the patients who do complain of dysuria and frequent urination whose urine cultures are reported negative, even though they are prescribed with antibiotics but still proper treatment is not achieved. In such situations the physicians should ask for a simple urinalysis to make sure presence of pyuria and must think of the agents that can induce pyuria. Therefore, amongst the suspected agents *Mycobacteria*, *Trichomonas vaginalis*, *Neisseria gonorrhoea*, *Chlamydia trachomatis*, cysto or nephrolith and etc must be taken into consideration for specific cure. As stated earlier, *Chlamydia trachomatis* has been looked upon as one of the causative agents of genitourinary tract infections, but regretfully there has not been any documented data on incidence of this organism in this country. Thus, our main objective in this project was to search for frequency of *Chlamydia trachomatis* in culture negative UTI. In our study 320 samples of culture negative urine were collected within 11 months and in all patients pyuria was evident (WBCs =5 by magnification of 1000) besides, in 95 samples antigen of *Chlamydia trachomatis* was detected, that comprised 29.69% of the total specimens. As mentioned earlier, the occurrence of the organism in culture negative urine samples was not reported in Iran so far but, Faro and associates acknowledged that in Chicago more than 30% of non-bacterial UTI along with pyuria are caused by *Chlamydia trachomatis* (Faro and Fenner, 1998). Another

report from the U.S has documented 30-50% of acute urethritis as a result of *Chlamydia trachomatis* (Stephens, 1999). Adjei and Lal (1994) reported the frequency of *Chlamydia trachomatis* in urine samples of men 15% versus 18% in women. Nonetheless, in this study out of total number of samples (n = 320) 52 women and 43 men were found positive for *Chlamydia trachomatis* antigens, that comprises 16.25 and 13.44% of all specimens respectively. Furthermore, according to our study the incidence of *Chlamydia trachomatis* was more in women than men (54.73% as compared to 45.72%).

Age, too has been viewed as one of the main risk factors in occurrence of *Chlamydia trachomatis* infections and doubtlessly it is more common in youths with strong sexual drive (Schachter, 1998). The data in this study also revealed the same phenomenon and incidence of the infection was very high in age groups between 15-49 years (88.41%). Besides, in different studies the frequency of infection in elderly men has been quite low (Johannisson *et al.*, 1982). Surprisingly in this study too after the age group of less than 9 years, the least incidence of positive *Chlamydia trachomatis* infection was noticed amongst victims with more than 50 years i.e. 5.26%. Since *Chlamydia* UTI manifest non-specific and feeble signs, therefore most of the physicians are not familiar with such symptoms and importance of *Chlamydia trachomatis* as possible cause of culture negative UTI is ignored; this is why in most cases UTI is not treated accurately. The latter might lead to severe consequences that in case of appropriate diagnosis and following treatment, are preventable.

In the other hand, nowadays all laboratories unfortunately do not have access to necessary facilities for proper diagnosis of *Chlamydia trachomatis* in culture negative urine samples. However, with right detection of *Chlamydia trachomatis*, not only suitable treatment can be initiated soon but also prevent iatrogenic effects of inappropriate drugs prescribed as a result of misdiagnosis.

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