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Original Article

Urethritis in men: evaluation of risk factors and aetiological pathogens among our population

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Abstract

Background Despite all the advances in medicine, sexually transmitted diseases (STDs) are a serious public health problem among younger population in all societies of the world. The same holds true in our community in spite of social and religious restraints.

Objective The study aimed to evaluate the risk factors and the etiological pathogens of urethritis, which is one of the commonest STDs in men among our population.

Patients and methods The study was conducted in Military Hospital Rawalpindi from Jan, 2002 to Jan, 2003. 60 sexually active male patients of all ages with urethral discharge were included in the study. Those patients who did not have urethral discharge and those who had taken treatment for their present illness were excluded from the study. A standardized questionnaire was used to evaluate the sexual behavior risk factors for acquiring urethritis. This was followed by clinical examination to confirm the presence of urethral discharge. Urethral smear for Gram's staining and microscopic examination and urethral swab for culture of *Neisseria gonorrhoea* were done. Endourethral swab for *Chlamydia* elementary bodies and dark ground illumination for *Trichomonas vaginalis* were performed. Blood VDRL and HIV screening were also done in all cases.

Results The majority of patients (40) were in 20-30 year age group. Half of the patients were married, 52 (87%) patients were living without family and 52 (87%) patients belonged to the low socioeconomic group. 44 (73%) were army personnel. 56 (93%) men had heterosexual relations, while only 4 patients (7%) reported homosexual contact. 42 (70%) men had more than one lifetime sexual partner. 52 (87%) patients had never used condoms. Nobody reported drug addiction and visit abroad. 26 (43%) out of 60 had gonococcal infection. Endourethral swabs for *Chlamydia* were positive in 14 (23%) patients. 6 patients out of these also had concomitant gonococcal infection. 6 (10%) patients revealed *T. vaginalis* infection, whereas no causative organism could be isolated in 20 (33%) patients.

Conclusion High-risk sexual behaviours exist in our population. The prevalence of these behaviours among patients attending STD clinics indicates unawareness regarding precautions to avoid the risk of acquiring STDs. Gonococcal urethritis is the leading cause of urethritis among our population

Key words
Urethritis, risk factors, aetiological pathogens.

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Introduction

Historically venereal diseases have been recognized and traced back to 3500 BC in

ancient Egypt.[1] Urethritis is inflammation of the urethra and is a multifactorial condition, which is primarily sexually acquired. It is characterized by urethral discharge and/or dysuria but may be asymptomatic. The diagnosis of urethritis is confirmed by demonstrating an excess of polymorphonuclear leukocytes in the anterior urethra. Urethral discharge is the most common presenting symptom of a STD in men. A few discharges may be physiological but most are pathological. Urethritis in men has been characterized as gonococcal, due to infection with *Neisseria gonorrhoeae*, or nongonococcal.[2] Urethritis with an identified pathogen other than *N gonorrhoeae* is referred to as nongonococcal urethritis (NGU). The major pathogens causing NGU are *Chlamydia trachomatis* and *Ureaplasma urealyticum*.[2] *Trichomonas vaginalis* may be involved occasionally. The term non-specific urethritis (NSU) describes urethritis caused by an unidentified organism. In up to one half of cases, an aetiological organism may not be identified.[2] Specific infections of the urethra due to *Chlamydia* and other non-gonococcal organisms are common and because they are often not apparent clinically, are underdiagnosed.[3] *Mycoplasma genitalium* may be associated with the development of nongonococcal urethritis independent of *C. trachomatis*.[4] NGU frequently occurs in men after infection of the lower genital tract with a genital pathogen and is mostly associated with complaint of scanty thin discharge and urinary symptoms.[5] NGU may be due to infection with *Candida albicans* and sometimes to intraurethral lesions such as herpes genitalis, warts or a syphilitic chancre. All the infections are acquired sexually. Attempts at intraurethral self-medication with chemicals may cause a discharge, as may trauma from the use of sexual aids or the self-inflicted lesions of dermatitis artefacta. The use of spermicides may cause a chemical urethritis, with associated dysuria findings that mimic those of infectious urethritis. Small amounts of clear or mucoid urethral discharge after sexual intercourse are the result of sexual stimulation. In the absence of sexual arousal, the discharge may be due to spermatorrhoea or prostatorrhoea, both of which may be noticed at urination or defecation. Various causes of urethral discharge are listed in **Table 1**.

Table 1 Causes of urethral discharge

Physiological	Spermatorrhoea/prostatorrhoea
	Sexual stimulation
Pathological	*Neisseria gonorrhoeae*
	Chlamydia trachomatis
	Ureaplasma urealyticum
	Trichomonas vaginalis
	Candida albicans
	Miscellaneous bacteria (*E. coli, Proteus*)
	Secondary to intraurethral lesions (syphilitic chancre, genital herpes, warts)
	Secondary to other genitourinary conditions (Pyelonephritis)
	Physical or chemical trauma and foreign bodies
	Allergy
	Unknown cause

Urethritis usually resolves without complication, even if untreated. Morbidity occurs in 1-2% of male patients with urethritis. These patients most commonly develop urethral stricture or stenosis because of post inflammatory scar formation. Other potential complications include prostatitis, acute epididymitis, abscess formation, proctitis, infertility, abnormal semen, disseminated gonococcal infection (DGI),

and Reiter syndrome. Patients with DGI may present with symptoms of rash, fever, arthralgias, migratory polyarthritis, septic arthritis, endocarditis, or meningitis. Mortality is minimal in patients with either GU or NGU.[3-5] The majority of persons at risk of acquiring sexually transmitted diseases are young adults. They increase their risk by having multiple sex partners, unprotected coitus, engaging in the exchange of sex for drugs.[6] Other risk factors include prostitution, inner city residence, belonging to an ethnic minority and poverty.

Despite all the advances in medicine, sexually transmitted diseases are a serious public health problem especially among younger population in all societies of the world. The same seems true in our community in spite of social and religious restraints in our society.[7] Purpose of the study was to evaluate the risk factors and the etiological pathogens of urethritis in men among our population.

Patients and methods

The study was conducted in Military Hospital, Rawalpindi from Jan, 2002 to Jan, 2003. 60 sexually active male patients of all ages presenting with urethral discharge were included in the study. Those patients who did not have urethral discharge and those who had taken treatment for their present illness were excluded from the study. The sampling technique was non-probability convenience sampling. Because of the varying literacy levels of the patients, a structured risk behavior interview (questionnaire) was administered to each study subject in confidence to evaluate the sexual behavior risk factors for acquiring urethritis. The interview focused on seeking information on demographic, sexual, and drug use behaviors during the subjects' lifetime upto his present age. The question concerning the past history of urethritis was phrased to deliver a concise description of the common signs and symptoms associated with gonococcal and nongonococcal urethritis. Specifically the question asked was: "have you ever had a painful, purulent urethral discharge a few days after sexual intercourse?" This was followed by clinical examination to confirm the presence of urethral discharge. When discharge was not seen spontaneously, urethra was milked to confirm its presence. Following laboratory investigations were conducted:

- Urethral smear for Gram's staining and microscopic examination.
- Urethral swab for culture of *N. gonorrhoea.*
- Endourethral swab for *Chlamydia* elementary bodies.
- Dark Ground Illumination for *T. vaginalis*.
- Blood VDRL (Venereal Disease Research Laboratory) test
- Urine routine examination.
- HIV screening.

A specimen of urethral discharge was collected for Gram-stained microscopic examination. A diagnosis of gonococcal urethritis was confirmed by the presence of Gram negative intracellular diplococci, whereas non-gonococcal urethritis was diagnosed by their absence but presence of 5 or more polymorphonuclear leukocytes per oil immersion field. Specimens of urethral discharge were also cultured for *N.*

gonorrhoea and direct immunofluorescence on urethral smears was performed to detect *Chlamydia* elementary bodies. For the detection of *T. vaginalis*, a specimen of urethral discharge was placed on a slide with one drop of saline, a cover slip added and examined without staining under the microscope with dark ground illumination. Blood sample was collected from all patients to exclude concurrent infection with syphilis and an anti-HIV test was offered to all the patients.

Results

A total of 60 patients were included in the study. Their sexual behavior characteristics as derived from the questionnaire are shown in **Table 2**. Patients were divided into 3 groups according to age. The majority of patients (40) were in 20-30 year age group. 8 (13%) patients were less than 20 years old while the remaining 12 (20%) patients were above 30 years old. Half of the patients were married, 52 (87%) patients were living without family and 52 (87%) patients belonged to the low socioeconomic group. 44 (73%) were army personnel. Regarding sexual orientation, 56 (93%) men had heterosexual relations; while only 4 patients (7%) reported homosexual contact. 21 (70%) men had more than one lifetime sexual partner. 52 (87%) patients had never used condoms. Nobody reported drug addiction and visit abroad.

Intracellular Gram negative diplococci were seen in 22 (37%) patients. 4 patients in whom gram stained smears were negative, showed positive culture for *N. gonorrhoea*. In all, 26 (43%) out of 60 had gonococcal infection. Endourethral swabs for *Chlamydia* were positive in 14 (23%) patients. 6 patients out of these also had concomitant gonococcal infection. 6 (10%) patients revealed *T. vaginalis* infection,

Table 2 Sexual Behaviour characteristics

Risk factor		*n (%)*
Age (years)	<20	8 (13.3)
	20-30	40 (66.7)
	31-40	12 (20)
Occupation	Army personnel	44 (73.3)
	Civilian employed	12 (20)
	Self employed	4 (6.7)
Socioeconomic group	Low	52 (86.7)
	Middle	8 (13.3)
	High	0
Marital status	Single	30 (50)
	Married	30 (50)
Living with family	Yes	8 (13.3)
	No	52 (86.7)
Education	Nil	6 (10)
	Primary	6 (10)
	Middle	38 (63.3)
	Matric	10 (16.7)
	Above	0
Sexual orientation	Homosexual	4 (6.7)
	Heterosexual	56 (93.3)
	Bisexual	0
Last sexual partner	Wife/regular partner	28 (46.7)
	Casual	22 (36.7)
	Commercial sex worker	10 (16.7)
No. of life time sexual partners	1	18 (30)
	2-5	36 (60)
	>5	6 (10)
Any symptom in sexual partner	Yes	10 (16.7)
	No	50 (83.3)
STDs in the past	Yes	0
	No	60 (100)
Use of condoms	Yes	8 (13.3)
	No	52 (86.7)
Smoking	Yes	10 (16.7)
	No	50 (83.3)
Drug addiction	Yes	0
	No	60 (100)
Visit abroad	Yes	0
	No	60 (100)

Table 3 Aetiological pathogens of urethritis (n=60)

Aetiological pathogen	*n (%)*
N. gonorrhoeae	20 (33.3)
C. trachomatis	8 (13.3)
N. gonorrhoeae + C. trachomatis	6 (10)
Trichomonas vaginalis	6 (10)
Unknown	20 (33.3)

whereas no causative organism could be isolated in 20 (33%) patients. **Table 3** enlists the causative pathogens along with their frequency of occurrence.

Discussion

The worldwide incidence of STDs is estimated to be over 125 million cases a year.[8] The prevalence of bacterial STDs has declined dramatically over the last two decades. This has largely been due to the availability of effective antibiotics, reliable diagnostic tests and changes in sexual behavior following the advent of acquired immunodeficiency syndrome.[9] Patients attending STD clinics exhibit higher risk sexual behavior than the general population. Even within this group, STI acquisition has been linked to young age, number of sexual partners, and commercial sex.[10] The data from our patient sample revealed that young age (20-30 years), paid or casual sex, having more than one lifetime sexual partners and lack of condom use were main risk factors. These findings are consistent with those of earlier study.[11] The high proportion of non-users of condom in our sample is certainly a cause of concern and most likely reflects cultural aspects, since explicit information about condom use on electronic and print media is nearly unavailable. None of our patients gave history of drug addiction, visit abroad and STD in the past. The study was conducted in the military hospital and 22 (73.3%) of patients were army personnel while the remaining individuals were dependents of army personnel or civilian employees of the armed forces. Majority of army personnel of low ranks does not keep their families at their place of duty and visit their homes on leave. This type of behavior leads to looking for extramarital relations and acquisition of STDs including urethritis. The number of lifetime sexual partners is a major high risk factor and is probably the most studied marker in measuring risk of acquiring STDs including urethritis.[12-14] Our study revealed significant prevalence of *N. gonorrhoea* (43%) in cases of urethritis, which is higher than the previous study done in 1991 in Army Medical College, Rawalpindi which showed 25% of patients of purulent urethritis to be of gonococcal origin.[7] The frequency of trichomoniasis and chlamydial infections was lower (10% and 13.3%, respectively) in our study as compared to the previous studies done in Malavi, Egypt, Turkey and USA.[15-19]

Since STDs and HIV share many behavioral risk factors, efforts to encourage individuals to modify sexual behaviours and adopt safer sexual practices will have a beneficial impact on both as a significant reduction in the incidence of STDs and HIV is documented when this modified approach for treatment of STDs was used.[20]

Conclusion

High-risk sexual behaviours exist in our population and gonococcal urethritis is the leading cause of urethritis among our population. Continuous efforts are needed to encourage individuals to modify sexual behaviours and adopt safer sexual practices

and simply using condoms may help substantially decrease the chance of STD transmission.

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