

Current trends in sexually transmitted infections — Bangladesh experience

Aktualne trendy zapadalności na zakażenia przenoszone drogą płciową — doświadczenia z Bangladeszu

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ABSTRACT

Background: The burden of sexually transmitted infections (STIs) is huge and is disproportionately affecting developing nations. Epidemiologically sound data on the prevalence of sexually transmitted infections are dearth in Bangladesh.

Objectives: To study the prevalence and pattern of STIs as seen in a tertiary care hospital of Bangladesh.

Materials and methods: A descriptive retrospective cross-sectional study is carried out in Chittagong Medical College Hospital from the registered records of patients attending during the period between 2003 and 2011.

Results: A total number of 30,151 patients are analyzed. Among the patients there is 21,746 (72%) of male and 8,405 (28%) of female. The mean age is 30.94 ± 0.001 SEM. Common sexually transmitted infections are non-gonococcal urethritis (NGU) (31.37%), gonorrhea (27.81%), syphilis (18.06%), genital scabies (6.56%), chancroid (5.3%), genital herpes (4.8%) and genital wart (3.62%). NGU is the most common discharging STI, while syphilis is the most common ulcerative STI. Genital herpes is the most common viral STI. Human immunodeficiency virus (HIV) (0.10%) infections are rare. Lymphogranuloma venereum and Granuloma inguinale are not found among the attendees.

Conclusion: Although bacterial STIs are common findings in our study, viral STIs show also in increasing trend. Unlike HIV, many STIs can be treated and cured relatively easily and cheaply if diagnosed early enough. We hope that reporting this unique presentation of STIs in Bangladesh will be of educational value to increase awareness and offer possible options of planning and management for STIs.

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Key words: STIs, Bangladesh, NGU, Syphilis, Gonorrhea, Genital herpes, HIV

STRESZCZENIE

Wstęp: Liczba zachorowań na zakażenia przenoszone drogą płciową (STI, *sexually transmitted infections*) jest bardzo duża. Choroby te występują znacznie częściej w krajach rozwijających się. Brakuje wiarygodnych danych epidemiologicznych dotyczących występowania zakażeń przenoszonych drogą płciową w Bangladeszu.

Cel: Badanie przeprowadzono w celu oceny częstości występowania oraz przebiegu STI na przykładzie szpitala trzeciego stopnia referencyjności w Bangladeszu.

Materiał i metody: Opisowe retrospektywne badanie przekrojowe przeprowadzono w *Chittagong Medical College Hospital*, do którego wykorzystano dane z dokumentacji medycznej pacjentów zgłaszających się do tego ośrodka w latach 2003–2011.

Wyniki: Analizą objęto łącznie 30 151 chorych. W badanej grupie było 21 746 (72%) mężczyzn i 8405 (28%) kobiet. Średnia wieku (\pm błąd standardowy średniej) wynosiła $30,94 \pm 0,001$. Do częstych zakażeń przenoszonych drogą płciową należą rzeżączkowe zapalenie cewki moczowej (31,37%), rzeżączka (27,81%), kiła (18,06%), świerzb (6,56%), wrzód weneryczny (5,3%), opryszczka narządów płciowych (4,8%) i kłykciny kończyste (3,62%). Rzeżączkowe zapalenie cewki moczowej jest najczęstszą chorobą przebiegającą z wysiękiem, natomiast kiła — najczęstszą STI powodującą owrzodzenie. Opryszczka narządów płciowych to najczęstsza STI o etiologii wirusowej. Zakażenia wirusem nabytego zespołu braku odporności (HIV, *human immunodeficiency virus*) (0,10%) są rzadkie. W badanej grupie nie stwierdzono ziarnicy wenerycznej pachwin ani ziarniniaka pachwinowego.

Wnioski: W badanej grupie często występowały bakteryjne STI, ale odnotowano również wzrastającą liczbę zakażeń wirusowych. W przeciwieństwie do HIV, wiele STI można łatwo i stosunkowo tanio wyleczyć całkowicie, jeśli zostaną wystarczająco wcześnie zdiagnozowane. Autorzy mają nadzieję, że przedstawienie niepublikowanych dotąd danych na temat STI w Bangladeszu będzie miało wartość edukacyjną poprzez zwiększenie świadomości na temat występowania tych zakażeń oraz zaproponowanie możliwości leczenia STI.

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Słowa kluczowe: STI, Bangladesz, rzeżączkowe zapalenie cewki moczowej, kiła, rzeżączka, opryszczka narządów płciowych, HIV

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INTRODUCTION

Sexually transmitted infections (STIs) are perhaps as old as human civilization itself [1]. More than 20 different infections are known to be sexually transmitted [2]. The incidence and distribution of these diseases are also influenced by factors such as lifestyle and susceptibility of the individual, pathogenicity of the microbes, prevailing therapy and disease control measures [3]. STIs are among the most common causes of illness in the world and have far reaching health, social and economic consequences [4]. The World Bank has estimated that STIs collectively rank second in importance among diseases for which interventions are possible [5]. World health organization estimates around 340 million curable STIs each year worldwide with its highest prevalence in South and Southeast Asia [6]. Little information exists on the prevalence of reproductive tract infections/sexually transmitted infections (RTI/STI) in Bangladesh [7]. Chittagong is the commercial capital and second largest city of Bangladesh. There is an international airport and another important seaport of South-East Asia. The beauty of Chittagong attracts a large number of tourists, businessmen from different parts of the world. Chittagong is the most high risk zone for STIs and AIDS as the migrant workers and sailors from home and abroad travel through these ports. Chittagong Medical College Hospital (CMCH) is the oldest tertiary care teaching hospital of the country. The STI clinic of CMCH caters for patients from the city as well as from neighboring districts. This study from CMCH is conducted to find the prevalence and pattern of STIs in order to evolve effective prevention strategies as well as efficient means for treating STIs. It is important to have a better understanding of which STIs are most likely common and what are the common modes of transmission in this region.

MATERIAL AND METHODS

A descriptive retrospective cross-sectional study was carried out using registered records of patients attending STI treatment clinics in CMCH during the period between 2003 and 2011. The register of STI clinic contains following points: registration number, name of the patient, sex, age, weight, diagnosis, treatment, advice. In the STI clinic of CMCH the STIs patient were clinically evaluated by trained physicians.

The diagnosis was made by a specialist based on clinical history, physical examination and laboratory investigations. Complete urinalysis, urethral pus for Gram staining and culture and endo-urethral swab with urethral loop for seeing Chlamydial antigen by fluorescent microscopy were done in urethral discharge cases. Culture for *Ureaplasma* and wet mount specimen microscopy for *Trichomonas* were done. Non-gonococcal urethritis (NGU) was diagnosed on the presence of more than five polymorphonuclear leu-

cocytes per high power field in at least five fields of Gram stained urethral smear, in the absence of Gram negative diplococci. Vulvovaginal candidiasis (VVC) was diagnosed by a positive Gram-stain preparation with budding yeasts, pseudohyphae, and/or hyphal forms. Serological tests included anti-Herpes simplex virus (HSV) antibody, Chlamydial bivalent antibody test, Human immunodeficiency virus (HIV) antibody testing by enzyme linked immunosorbent assay (ELISA) and venereal disease research laboratory (VDRL) and rapid plasma reagin test (RPR) were done in all patients after due consent whenever it was necessary. If VDRL test was positive, it was confirmed by *Treponema pallidum* haemoagglutination (TPHA) test. A syndromic and clinical diagnosis was made on the basis of clinical features and laboratory investigation.

The following characteristics were used for analysis: age, sex, clinical diagnosis. On the basis of age patients were categorized into four age groups. The data were filed and processed using Microsoft Excel software, 2007 version. Data is presented in table, bar diagram, pie chart or line chart accordingly.

RESULTS

A total number of 30,151 patients had attended our STI clinic over the period. Among the attendees there was 21,746 (72%) of male and 8,405 (28%) of female. STIs were more common in men, with a male (21,746): female (8,405) ratio of 2.59:1. The mean age was 30.94 ± 0.001 SEM. The age specific cumulative case detection rate at 25–49 years was high ($n = 15,743$, 52.21%) among all age groups (Fig. 1). Common Sexually transmitted infections were NGU ($n = 9460$, 31.37%) gonorrhoea ($n = 8385$, 27.81%), syphilis ($n = 5446$, 18.06%), genital scabies ($n = 1978$, 6.56%), chancroid ($n = 1597$, 5.3%), genital herpes ($n = 1447$, 4.8%), genital wart ($n = 1090$, 3.62%), VVC ($n = 719$, 2.38%) and HIV ($n = 29$, 0.01%), (Fig. 2). Percentage of STIs by sex is displayed in Table 1. Discharging STIs (non-gonococcal urethritis, gonorrhoea, vulvo-vaginal candidiasis) were 18564 (61.57%). Ulcerative STIs (Syphilis, chancroid, and genital herpes) were 8490 (28.15%). Syphilis was the most common ulcerative STI; NGU was the most common discharging STI and genital herpes was the most common viral STI. Lymphogranuloma venereum, Granuloma inguinale, and Hepatitis B and C virus infection is not recorded.

DISCUSSION

The study was carried out to determine the pattern and prevalence of STIs in the Chittagong region. As it is hospital-based, it may not entirely reflect the true prevalence of STIs in this region, but because of the large number of the patients over a long period of study involved, it provides a rough indicator which can serve as a baseline upon which

Table 1. Prevalence of sexually transmitted infections

Disease	Male % (n = 21,746)	Female % (n = 8,405)	Total % (n = 30,151)
Discharging STIs	42.05	19.51	61.56
NGU	26.83	4.54	31.37
Gonorrhoea	15.22	12.59	27.81
VVC	0.00	2.38	2.38
Ulcerated STIs	22.44	5.71	28.16
Syphilis	15.78	2.27	18.06
Chancroid	3.68	1.62	5.30
Genital Herpes	2.98	1.82	4.80
Viral STIs	5.04	3.48	8.52
Genital Herpes	2.98	1.82	4.80
Genital Wart	1.96	1.66	3.62
HIV	0.10	0.00	0.10
Genital Scabies	5.57	0.98	6.56

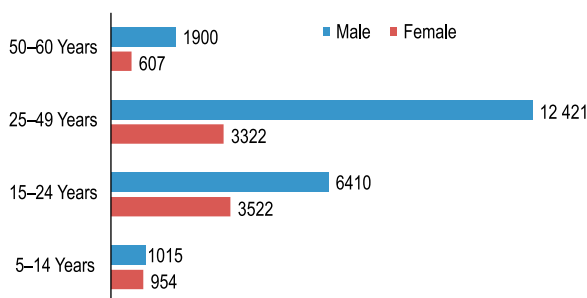


Figure 1. Distribution of STI by Age and Sex (n = 30151)

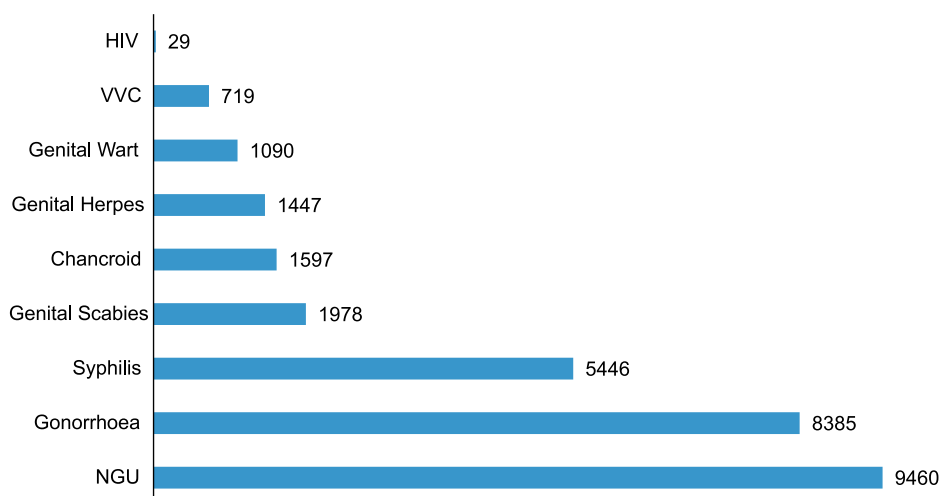


Figure 2. Distribution of STIs by frequency (n = 30151)

future studies can be built to enable effective planning of patient-oriented STI services and prudent allocation of scarce resources. Burden of STIs is not shared equally around the world. Men and women in the developing world suffer far more from the diseases than those of developed world due to non-availability of and inaccessibility to Health Services and social and cultural prejudices and practices.

The results of the study were analyzed and compared with other previous studies. The male: female ratio showed a preponderance of males almost throughout the reference period. The male: female ratio was 2.59:1. It is comparable to the findings of Nepal with male 53.3%, female 22.75% and 1.4 % were transgender [8]. The Indian studies show that male: female ratio is 2:1 [9] but in Nigeria the scenario is quite opposite, the male are 5% and female are 95% among the attendees [10]. This low figures of females could be due to the stigma or shame and reluctance to mention their problems regarding STIs. In developing nations, women have limited access to information or health services than men and they are too busy in household or with child caring activities [11–13]. Women with STIs in particular are reluctant to access services for the fear of stigma. They have symptoms for longer period and they seek treatment less often than men. Also, when women are economically dependent on men, they have even problems with informing the disease to their partners and less often they visit a health centre without a male relative. Highest prevalence is seen among the age group 25–49 years (n = 15743, 52.21%), while lowest prevalence is observed among the age group 5-14 years (n = 1969, 6.53%). The mean age is 30.94 ± 0.001 SEM.

NGU ranked at the top of all STIs with a prevalence of 31.37% among the recorded cases of STIs with 26.83% in men and 4.54% in women. Indian studies show the incidence of NGU at 14.1% and 4.97% [9, 14]. NGU is more common in males and is usually contracted during sexual activity. Chlamydia trachomatis causes up to half of all acute NGU and at least one third of acute epididymitis in men. In women, it is responsible for half of all the cases of muco-purulent cervicitis and 20% to 40% of cases of pelvic inflammatory disease (PID) with a risk of subsequent infertility or ectopic pregnancy [15]. WHO estimates that the global frequency of the infection is 50 million cases per year [6]. In the USA, it is the commonest nationally notifiable infectious disease, with 3 million cases occurring annually [16]. Women are usually asymptomatic but may experience an increase or change in the amount and color of vaginal discharge or notice vaginal burning or itching. Most STIs, such as gonorrhea and chlamydia, are transmitted easily from men to women due to differences in the anatomy of male and female reproductive tracts. A person can spread NGU from the time they are infected until they are cured. All patients who experience symptoms should be tested for both gonorrhea and Chlamydia. In approximately one-third of cases, the cause of the symptoms is not identified. Specific diagnostic tests are not easily available at all health set up in a developing country like Bangladesh to identify these microorganisms. However, the risk factors may include a low socioeconomic status, lack of health education, lack of personal hygiene, not using latex condoms during sexual intercourse, lack of contact tracing and the use of intrauterine devices. Gonorrhea is the second most common STI, with a prevalence of 27.81% among the recorded cases of STIs, 15.22% in men and 12.59% in women. This finding is similar to the Pakistan study (27.5%) among male by Rehan [17] and comparable with the Indian studies of Thappa et al., Vora et al and Jeyasingh et al. where they rate 1.8%, 5.97% and 14.28% respectively [9, 14, 18]. VVC is found 2.38% among the females. This is likely to be related to the warm, humid climate of the region and increasing trend of antibiotic use as prescribed by the private practitioners and health workers at different levels.

Syphilis was the third most common STI with a prevalence of 18.06% among the recorded cases of STIs, 15.78% in men and 2.27% in women. In Pakistan Rehan has found 31.60% syphilis in men [17]. In India Vora et al., Jeyasingh et al., Manas et al. and Parmar et al. have found 9.95%, 30.29%, 15.60% and 28.10% syphilis respectively [14, 18–20]. Syphilis is an important risk factor in the transmission of HIV infection. In some developing countries, it remains a major public health problem with an estimated 12 million cases occurring worldwide annually [4]. Congenital syphilis is the most dreaded consequence of untreated syphilis in pregnant women and is estimated to occur in 25–75% of

exposed infants [21]. Screening of syphilis infection is necessary particularly during blood transfusion and antenatal checkup of pregnant women. Incident syphilis in young people is a highly accurate predictor of subsequent infection; hence the urgent need to respond. We should examine why syphilis is higher and warrants novel responsive public health response. Genital scabies ranked as the fourth most common STI, with a prevalence of 6.56% among the recorded cases of STIs, 5.57% in men and 0.98% in women. Scabies is the most common parasitic infestation in this region. The high prevalence of scabies is likely related to the warm humid climate, overcrowding and low socio-economic conditions. Scabies is transmitted by direct contact, in industrial societies; it is usually seen in sexually active adults [22]. Chancroid is the fifth most common STI, with a prevalence of 5.30% among the recorded cases of STIs, 3.68% in men and 1.62% in women. In Pakistan Rehan has found 17.30% in men [17]. In India Vora et al., Jeyasingh et al. have found 14.92% and 15.41% chancroid respectively [14, 18]. Chancroid has strong association with HIV transmission. It is common in conditions of poverty and poor hygiene and where the incidence of syphilis is still high [23].

Genital herpes ranked at the sixth position among the recorded cases of STIs, with a prevalence of 4.80%, 2.98% in men and 1.82% in women. In Pakistan Rehan has found genital herpes in 18.30% men, while genital herpes was the commonest STI (28.70%) in the Indian study done by Chaudhry et al. [17, 24]. The year-wise trend of genital herpes is in increasing trend (Fig. 3) in our study. This infection has important public health implication because: 1) Undiagnosed cases contribute to the population reservoir and transmission of the virus, 2) Perinatal transmission to the neonate may result in disseminated disease, neurological damage and high mortality, 3) Herpetic ulcers facilitate HIV transmission [25]. Genital wart ranked seventh among the recorded cases of STIs, with a prevalence of 3.62%, 1.96% in men and 1.66% in women. It is comparable with Indian studies done by Thappa et al. (17.60%), Vora et al. (22.38%), and Kumar et al. (25.20%), where all of them described by the increasing trend of genital wart [9, 14, 26]. The year-wise increasing trend is also seen in our study (Fig. 3). Genital HPV infection is the commonest viral STI in the developed world, with an estimated 30 million new cases diagnosed annually worldwide [27]. Approximately 15% of the general population harbor subclinical infection [28]. HIV disease shows only an incidence of 0.10% among the recorded cases of STIs. Year wise trend of HIV is shown in Figure 3. All the recorded HIV patients are male. They are migrant workers working mainly in the Middle-East countries. The low prevalence of HIV recorded in our study, is most probably due to the fact that, HIV cases usually visit the private practitioners. It may not reflect the true prevalence of HIV, but

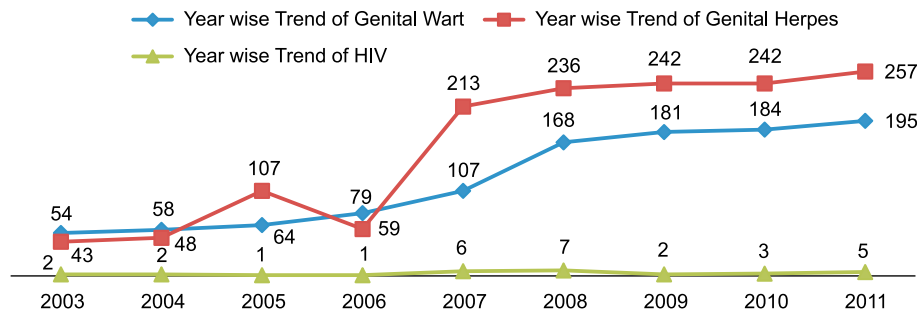


Figure 3. Year wise Trend of Viral STIs (n = 2566/30 151)

it probably provides a rough index of what can be found in this region. There is a low prevalence of HIV in Bangladesh but it is no longer an HIV/AIDS free country. There are many risk factors like high prevalence of HIV in neighboring countries, lack of awareness, low condom use, continuous international migration of labors etc. Strengthening of laboratory services in terms of trained manpower as well as provision of specific medicines and reagents to the existing health infrastructure including the community clinics are important issues that the government of Bangladesh must address on urgent basis. Effective action to control and prevent STIs from spreading requires national leadership and political commitment.

LIMITATION

The limitation of the study is that it is hospital based and findings may be difficult to extrapolate to the general population. However, this type of study is still necessary because it gives account of ongoing changes and provides a reference point for future community based studies.

CONCLUSIONS

NGU (31.37%) is the most common discharging STI, while syphilis (18.06%) is the most common ulcerative STI. Genital herpes (4.80%) is the most common viral STI and HIV (0.10%) infections are rare. Although bacterial STIs are common findings in our study, viral STIs show also as an increasing trend. Unlike HIV, many STIs can be treated and cured relatively easily and cheaply if diagnosed early enough. To fight STIs, authorities must try to expand access to testing and treatment facilities, to educate people about safer sex and risk reduction; and to counter the prejudice surrounding STIs. We hope that reporting this unique presentation of STIs in Bangladesh will be of educational value to increase awareness and offer possible options of planning and management for STIs. We suggest that similar studies should be undertaken across other referral hospitals in Bangladesh in concurrence with large population based surveys.

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