Prevalence of sexually transmitted infections in a tertiary care centre of North India

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ABSTRACT

Background: Sexually transmitted infections (STI’s) are most common notifiable infectious diseases in the world. Knowledge of prevalence of STI’s is important to implement appropriate control strategies. This study is undertaken to see any changing trends in prevalence of STI’s by comparing with previous studies.

Methods: All the patients who attended STI clinic from July 2019 to June 2020 were included in the study. Diagnosis was made on basis of history, clinical examination and laboratory investigations.

Results: The 2188 patients were seen from July 2019 to June 2020 in STI clinic. Mean age group of patients is 25-44 years. Scabies (31.6%) was the commonest STI seen in outpatient department followed by balanoposthitis (16.4), vaginal discharge (12.5%), human immunodeficiency virus (HIV) (11.4%), herpetic genital ulcer disease (7.9%), genital warts (5.8%), molluscum contagiosum (2.4%), syphilis (2.4%), urethral discharge (1.7%), non-herpetic genital ulcer disease (0.4%), non-gonococcal urethritis (0.4%).

Conclusions: Scabies was the most common STI reported in our study followed by balanoposthitis and vaginal/cervical discharge. Among the viral STI’s, HIV is showing alarmingly rising trends and is most common viral STI seen in the study followed by herpes simplex virus (HSV). May be there is less reporting of genital herpes simplex infection due to its self-resolution. As compared to previous studies, rising trends of fungal infections are seen which can be due to syndromic management of bacterial STI’s, rising incidence of diabetes mellitus as well as illicit use of over-the-counter broad-spectrum antibiotics given by the local practitioners.

Keywords: STI’s, India, HIV, Genital ulcer, Vaginal discharge

INTRODUCTION

Sexually transmitted infections (STI’s) are most common notifiable infectious diseases in the world. Sexual intercourse with an infected partner is by far the most important risk factor for STI’s.1 STI’s are a major global health concern and are associated with serious co-morbidity and mortality.

Between years 2016-2017, national aids control society reported nearly 3.993 cases of STI’s.2 Sexually transmitted diseases (STD) includes infections resulting in clinical diseases that may symptomatic with clinical signs and involve genitalia and other parts of the body participating in sexual intercourse e.g., syphilis, gonorrhoea, chancroid, donovanosis, non-gonococcal urethritis, genital warts, herpes genitalis etc. whereas STI’s include STD’s and infections that may not cause clinical disease of genitals, but are transmitted by sexual interaction e.g., hepatitis B, HIV, HTLV-1 etc.

Adolescents are a high-risk group for acquiring STI’s. About 50% of STI’s in United States are seen in 15 to 24 years old.3
Other identifiable risk factors are younger age at first intercourse, multiple sex partners, illicit drug abuse, intravenous drug abuse, alcoholism, smoking, marital status. In the data derived from third release of the US national longitudinal mortality study, it was shown that divorced/separated people are more at risk of acquiring HIV than married people. Knowledge of prevalence of STI’s is important to implement appropriate control strategies.

**Objective of the study**

This study is undertaken to see any changing trends in prevalence of STI’s by comparing with previous studies.

**METHODS**

All the patients who attended STI clinic of Guru Gobind Singh medical college and hospital, Faridkot from July 2019 to June 2020 were included in study. Retrospective chart analysis was done. Diagnosis was made on basis of history, clinical examination and laboratory investigations. The data recorded was age, sex, marital status, history of extramarital sexual contact, history of contact with commercial sexual workers. Patients were sent to STI counsellor for counselling. HIV testing and venereal disease research laboratory (VDRL) testing was done in all patients. Non-infectious cases of genital ulcerations or discharge were excluded from the study. Counselling regarding risks associated in unprotected sexual contact, risk of procurement of HIV infection in presence of other STIs, partner notification and treatment, condom promotion by STI counsellor was done.

**RESULTS**

A retrospective data analysis was done to study pattern of STI’s in males in a tertiary care centre in north India. 2188 patients were seen from July 2019 to May 2020 in STI clinic. Out of these, 8.2% of patients were referred from ICTC centre and 6% from gynaecology department. Males comprised 66.7% of total patients and females constituted the rest 33.3%. The 75.3% of patients were married and 24.7% of patients were unmarried (Figure 1). We tried our best to get the information, 55% of married men gave history of extramarital contact, out of these, 38% of men had history of contact with commercial sex workers (CSWs). Mean age group of patients is 25-44 years (Table 1). Scabies (31.6%) was the commonest STI seen in outpatient department followed by balanoposthitis (16.4%), vaginal discharge (12.5%), HIV (11.4%), herpetic genital ulcer disease (7.9%), genital warts (5.8%), molluscum contagiosum (2.4%), syphilis (2.4%), non-herpetic genital ulcer disease (0.4%), non-gonococcal urethritis (0.4%). The 4.2% of asymptomatic high-risk people were referred from ICTC centre for VDRL/RPR testing and 3.1% of asymptomatic high-risk people were tested for HIV, HBsAg, HCV and VDRL from OPD (Table 2).

![Figure 1: Age distribution of patients.](image)

| STI’s                             | Males, (n=1435) (%) | Females, (n=765) (%) | Total, (n=2200) (%) |
|-----------------------------------|---------------------|----------------------|---------------------|
| Scabies                           | 368 (16.7)          | 328 (14.9)           | 696 (31.6)          |
| Balanoposthitis                   | 360 (16.4)          | 0                    | 360 (16.4)          |
| Vaginal/cervical discharge        | 275 (12.5)          | 275 (12.5)           |                    |
| HIV positive                      | 240 (10.9)          | 11 (0.5)             | 251 (11.4)          |
| Herpetic genital ulcer disease    | 141 (6.4)           | 34 (1.5)             | 175 (7.9)           |
| Genital warts                     | 80 (3.6)            | 47 (2.1)             | 127 (5.8)           |
| High risk                         | 90 (4.1)            | 2 (0.09)             | 92 (4.2)            |
| Asymptomatic                      | 54 (2.4)            | 14 (0.6)             | 68 (3.1)            |
| Syphilis                          | 35 (1.6)            | 19 (0.9)             | 54 (2.4)            |
| Molluscum contagiosum             | 32 (1.4)            | 22 (1)               | 54 (2.4)            |
| Urethral discharge                | 17 (0.8)            | 13 (0.6)             | 30 (1.7)            |
| Non herpetic genital ulcer disease| 9 (0.4)             | 0                    | 9 (0.4)             |
| Non gonococcal urethritis         | 9 (0.4)             | 0                    | 9 (0.4)             |
DISCUSSION

STI’s are an important public health problem worldwide affecting quality of life. Individuals with STI’s also have significantly higher chances of acquiring HIV infection causing serious morbidity and mortality. The 2002 ICMR multi centre community prevalence showed that 5% to 6% of sexually active adult population suffers from STI/RTI. According to WHO, more than 1 million STIs are procured every day among which chlamydia, gonorrhoea, syphilis, and trichomoniasis are major STIs. The epidemiology varies from region to region and country to country due to differences in sociodemographic, economic and environmental and behavioural factors. This retrospective study is carried out to know the prevalence of STI’s in a North India so that proper planning and implementation of control strategies can be done.

Males in our study comprises 66.7% of patients with male to female ratio being 2:1. In study done by Meetesh et al 76% were males and 20% were females. Aggarwal et al also showed similar findings-72% males and 27.9% females. Study done in Puducherry also reported male: female to be 2:1. It is contrary to studies done by Sharma et al where they reported male preponderance with male to female ratio being 1:7. A study done in North India in 2004 also reported higher female prevalence.

Majority of patients in our study were in age group 31-40. A retrospective data analysis carried out to find pattern of STI’s from June 2004 to June 2006 at Puducherry showed maximum prevalence of STI’s in the age group 21-30. Also, a study done in Himachal Pradesh on pattern of STI’s in a district hospital reported 25-44 to be the most common age group. This indicates that STI’s are higher in sexually active age group and thus their education can lead to tremendous decrease in incidence as well as prevalence of STI’s.

Most common STI reported in our study was scabies (31.6%) of cases. Scabies is included in sexually transmitted diseases treatment guidelines.

Incidence in males and females was nearly equal. It was reported in 16.7% of males and 14.9% of females. Findings are consistent with a study done in Aligarh where they reported Scabies was the most common STI reported.

Although prevalence reported in other studies is lower. In a study done in South India, it is reported in only 3.4% of STI patients.

In a study done in Himachal Pradesh, genital scabies is reported only on 4.2% of patients.

The second most common STI in our study was candidal balanoposthitis (16.4%) in males followed by candidal vaginal discharge (12.5%) in females. It is similar to study done by Goel et al. It shows increasing trends of fungal infections.

Increasing trends can be due to high prevalence of diabetes, intake of oral contraceptive pills, poor hygiene, higher intake of over-the-counter antibiotics for other infections by local practitioners.

HIV is the most common viral STI in our study which is similar to study done by Devi et al.

Prevalence of HIV is alarmingly rising which is becoming major clinical and public health problem in the years to come. A rising trend of HIV infection from 0.6% to 8.8% has been shown by a retrospective study done from 1990 to 2004 in Vardhman Mahavir medical college and Safdarjang hospital, New Delhi.

In our study most common genital ulcerative disease is herpes genitalis (7.9%) higher prevalence is shown by studies done by Devi et al (32%), Thappa et al (20.5%) and Aggarwal et al (64%). Herpes genitalis (7.9%) has been the most common ulcerative STI reported through all these years. There has been ample of data to support that HSV may be a cofactor for HIV transmission and expression. Herpetic lesions cause an influx of activated CD4 T cells which result in increased expression of HIV on mucosal surfaces. The epidemiology of HSV-2 has been shown to differ between men and women with a greater probability of transmission from male-to-female, than female-to-male. Men with genital HSV-2 have been shown to have more recurrences than women, which may explain the higher...
rates of male-to-female transmission.\textsuperscript{18} Syphilis was second most common ulcerative STI seen with most latent syphilis (2\%) being the most common presentation. It is similar to other studies (10). Also, in a study done in transgender’s showed higher incidence of syphilis followed by HIV.\textsuperscript{19}

Genital warts are highly prevalent as seen in studies done by Devi et al (17.1\%) and Choudhary et al (17\%).\textsuperscript{10,20} In our study prevalence of genital warts is nearly 5.8\%. Prevalence of molluscum contagiosum has shown rising trends (2.4\%) as shown in other studies done in India done by Sarkar et al (4.7\%).\textsuperscript{1,20} Chugh et al showed Genital herpes (48.15\%) to be the most common STI followed by genital molluscum (37\%) and viral warts (29.63\%).\textsuperscript{21}

Viral infections are showing an upswing. This can be attributed to syndromic management of bacterial STI’s, indiscriminate use of broad-spectrum antibiotics, higher self-reporting or upgrading of health services. Proper understanding of prevalence and geographical patterns of viral STI’s is necessary for proper implementation of control strategies.

\textbf{Limitations}

Active search for the patients was not done. Only patients who visited STI clinic were included in the study.

\textbf{CONCLUSION}

Males in the reproductive age group were maximally affected with STI’s. Scabies was the most common STI reported in our study followed by balanoposthitis and vaginal/cervical discharge. Among the viral STI’s, HIV is showing alarmingly rising trends and is most common viral STI seen in the study followed by HSV. May be there is less reporting of genital herpes simplex infection due to its self-resolution.

As compared to previous studies, rising trends of fungal infections are seen which can be due to syndromic management of bacterial STI’s as well as illicit use of broad-spectrum antibiotics given by the local practitioners.

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\textbf{REFERENCES}

1. Sarkar S, Shrimal A, Das J, Choudhury SR. Pattern of sexually transmitted infections: A profile from a sexually transmitted infections clinic of a tertiary care hospital of Eastern India. Ann Med Health Res. 2013;3:206.
2. Available at: https://www.medindia.net/health statistics/diseases/sexually-transmitted-diseases-india-statistics.asp. Accessed on 2021 Feb 5.
3. Ryden J. Sexually Transmitted Infections 13. Sex- and Gender-Based Women’s Health: A Practical Guide for Primary Care. 2020;187.
4. Kposowa AJ. Marital status and HIV/AIDS mortality: evidence from the US National Longitudinal Mortality Study. Int J Infect Dis. 2013;17:e868–74.
5. WHO. Sexually Transmitted Infections (STIs). Available from: http://www.who.int/mediacentre/factsheets/fs110/en/index.html. Accessed on 2013 Sep 15.
6. Thappa DM, Kaimal S. Sexually transmitted infections in India: Current status in except human immunodeficiency virus/acquired immunodeficiency syndrome. Indian J Dermatol. 2007;52:78.
7. Agrawal M, Sharma P, Saxena A. A study of sexually transmitted infections among HIV–infected patients in correlation with their CD4 T cell counts. IP Indian J Clin Exp Dermatol. 2020;6:257-60.
8. Aggarwal A, Arora U. HIV seropositivity among patients with sexually transmitted diseases. Indian J Dermatol Venereol Leprol. 2003;69:23-4.
9. Puri N, Kumari P. A study on sexually transmitted diseases in patients in a STD clinic in a district hospital in North India. Our Dermat Online. 2014;5:240.
10. Devi SA, Vetrichevvel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. Indian J. Dermatol. 2009;54:347.
11. Sharma A, Rattan R, Sood A. Pattern of sexually transmitted infections in a district hospital from Himachal Pradesh. Int J Community Med Public Health. 2017;4:1028-31.
12. Otero L, Varela JA, Espinosa E, Sánchez C, Junquera ML et al. Sarcoptes scabiei in a sexually transmitted infections unit: a 15-year study. Sexually Transm Dis. 2004;31:761-5.
13. Amin SS, Sachdeva S, Kirmani S, Kaushal M. Clinico-social profile of sexually transmitted infections and HIV at a tertiary care teaching hospital in India. Comm Acquired Infect. 2014;1:25.
14. Thappa DM, Singh S, Singh A. HIV infection and sexually transmitted diseases in a referral STD centre in south India. Sex. Transm Infect. 1999;75:191.
15. Goel S, Chopra D, Choudhary V, Riyat A, Chopra S. Changing trends of sexually transmitted infections and estimation of partner notification at a tertiary care center in North India. Indian J Sex Transm Dis AIDS. 2020;41:176.
16. Sharma VK, Khandpur SU. Changing patterns of sexually transmitted infections in India. Natl Med J India. 2004;17:310-9.
17. Wagh P, Bardekar NS, Kerkar SC, Warke H, Chaudhari H, Mania-Pramanik J. Genital discharge, human papillomavirus screening and contraceptive use in a tertiary care hospital in Mumbai, India. Indian J Dermatol Venereol Leprol. 2020;86:583.
18. Kumarasamy N, Balakrishnan P, Venkatesh KK, Srikrishnan AK, Cecelia AJ, Thamburaj E, Solomon S, Mayer KH. Prevalence and incidence of sexually transmitted infections among South Indians at increased risk of HIV infection. AIDS patient care STDs. 2008;22:677-82.
19. Toibaro JJ, Ebensrtejn JE, Parlante A, Burgoa P, Freyre A e. Sexually transmitted infections among transgender individuals and other sexual identities. Medicina. 2009;69:327-30.
20. Choudhry S, Ramachandran VG, Das S, Bhattacharya SN, Mogha NS. Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted infection clinic of a tertiary care hospital. Indian J Sex Transm Dis AIDS. 2010;31:104.
21. Chugh S, Garg VK, Sarkar R, Sardana K. Clinico-epidemiological profile of viral sexually transmitted infections in seropositive patients attending a tertiary care hospital in North India. J Int Assoc Provid AIDS Care. 2017;16:331-7.

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