

Clinico-epidemiological profile of sexually transmitted infections in patients attending a tertiary health care hospital in southern Himachal Pradesh: A retrospective study

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Abstract

Introduction: Sexually transmitted infections (STIs) are a public health problem and are a burden to the individual, his family and community. The prevalence of STIs is very high in developing nations including India and varies widely across different regions. There is enormous need to study the pattern of STIs in various regions of country for implementation of control strategies. **Aims:** To estimate the prevalence and to study the clinico-epidemiological profile and trends of sexually transmitted infections in patients attending the STI clinic of a tertiary care hospital in southern Himachal Pradesh. **Material and methods:** Records of patients attending the STI clinic during last two years i.e. from January 2019 to December 2020 was retrieved and analysed retrospectively. **Results:** Vulvovaginal candidiasis was the most common (non viral) STI seen in 624(39.3%) patients. While genital warts (8.7%), molluscum contagiosum (8.2%) and herpes genitalis (7.2%) were the common viral STIs. Bacterial STIs like gonococcal urethritis(7.9%), chancroid (6.6%), bacterial vaginosis (6.3%), non gonococcal urethritis (3.9%), lymphogranuloma venereum (LGV) (3.6%) and non gonococcal cervicitis (3%) were not uncommon. Rapid plasma regain test (RPR) was found to be reactive in 24(1.5%) patients, out of which, 14(0.9%) were males and 10(0.6%) were females. HIV seropositivity was seen in 2(0.2%) patients and both of them were males. **Conclusion:** Fungal STI was more common as compared to viral STIs. Trend for viral STIs is increasing and that for bacterial STIs is declining among STI clinic attendees, which is consistent with other studies from different regions.

Keywords: Sexually transmitted infections, Retrospective, Gonococcal urethritis, Herpes genitalis, Vaginal discharge

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Introduction

Sexually transmitted infections are loosely defined as constellation of infections and syndromes that are epidemiologically heterogeneous, but all of which are almost or at least often transmitted sexually[1]. Approximately 5% of the Indian population suffers from one or the other form of STIs other than human immunodeficiency virus (HIV) infection every year[2]. The trend and pattern of STIs varies from region to region, especially in large nations like India[3]. As per statistics released by the National AIDS Control Organization 2008–2009, HIV prevalence rate in the general population in our country is 0.29% and STI clinic HIV prevalence is 2.5%[4]. To know the exact prevalence of STIs is of great importance for a region or a country for planning and implementing STI control strategies to prevent HIV transmission as well as transmission of STIs. STIs are encountered more frequently in day to day practice. This region has various industries and hence more of migrated population. A number of regional studies are available from different parts of India[3,6-9] but to the best of our knowledge none available from this region. The aim of the present study was to estimate the prevalence and to study the clinico-epidemiological profile and trends of STIs in patients attending the STI clinic of a tertiary care hospital of southern Himachal Pradesh.

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Material and methods

Records of patients attending STI clinic of tertiary care hospital in southern Himachal Pradesh over a period of two year (January 2019-December 2020) were retrieved and analyzed retrospectively. The recorded data included age, sex, address, marital and socio-economic status of patients. Clinical information like complaints at the time of presentation, duration of complaints, similar complaints in partner and any treatment taken were noted for all patients. Diagnosis was based on history, clinical examination and relevant laboratory investigations. As per records gram stain and potassium hydroxide (KOH) mount was done in all urethral and vaginal discharge. Serological tests including HIV antibody testing by enzyme-linked immunosorbent assay (ELISA) and rapid plasma regain test (RPR) were done in all patients. As per records after establishing diagnosis, patients were sent to STI counselor for counseling. If RPR test was positive, it was confirmed by Treponema pallidum haemagglutination (TPHA) test. STIs were categorized according to various etiological agents.

Results

During the study period of two years, there were 4648 new clinic attendees. Of these 4648 new clinic attendees, 1590(34.2%) were diagnosed with STIs. The age of the patients ranged from 18 years to 64 years. Females 1077 (67.8%) outnumbered males 513 (32.3%) forming a female to male ratio of 1: 2.09. Maximum of patients 662 (41.7%) were in the age group of 25-44 years followed by 20-24 years age group 660(41.5%), > 44 years age group 231(14.6%) and <19 years age group 37 (2.4%) in decreasing order [vide Table 1].

[Table-1]: Distribution of sexually transmitted infections among male and female patients according to their age groups

Age group in years	Male	Female	Total	Percentage
	n=1590			
<20	8	29	37	2.4%
20-24	188	472	660	41.5%
25-44	2163	399	662	41.7%
>44	54	177	231	14.7%

Vulvovaginal candidiasis was the most common (non-viral) STI observed in 624(39.3%) patients in our study followed by genital warts 138(8.7%), molluscum contagiosum 131(8.2%), gonococcal urethritis 125(7.9%), herpes genitalis 113(7.2%), chancroid 104(6.6%), bacterial vaginosis 100(6.3%), non-gonococcal urethritis 63(3.9%), genital scabies 62(3.8%), LGV 56(3.6%) and non gonococcal cervicitis 48(3%) [vide Table 2].

[Table-2]: Patterns of various STIs among male and female patients attending STI Clinic.

STIs	Number of Patients		Percentage [Total] (n=1590)
	Male (n=513)	Female (n=1077)	
Vulvovaginal candidiasis	0	624	39.3%
Genital warts	82	56	8.7%
Molluscum contagiosum	41	90	8.2%
Gonococcal urethritis	125	0	7.9%
Herpes genitalis	58	55	7.2%
Chancroid	74	30	6.6%
Bacterial vaginosis	0	100	6.3%
Nongonococcal urethritis	63	0	3.9%
Genital scabies	17	45	3.8%
LGV	37	19	3.6%
Non-gonococcal cervicitis	0	48	3.0%
Syphilis	14	10	1.5%
HIV	2	0	0.2%

Among the study population, RPR test was found to be reactive in 24(1.5%) patients, out of which 14(0.9%) were males and 10(0.6%) were females. HIV seropositivity was seen in only 2(0.2%) male patients and none of female patients were observed to be HIV seropositive [Table 2]. We observed vulvovaginal candidiasis to be the most commonest STI. Viral STIs like, genital warts, molluscum contagiosum and genital herpes were second commonest. Bacterial STIs and genital scabies (which is not included in syndromic management) was not uncommon. Counseling regarding risk involved in unprotected sexual contact, vulnerability to acquire HIV infection in presence of other STIs, need for partner treatment, use of condom was done by STI counselor. Partner management was done in 26(1.7%) cases.

Discussion

Sexually transmitted infection is a medical problem that causes significant social stigma and have a tremendous impact on public health. STIs are responsible for significant proportion of infertility in both sexes, morbidity, economic loss to the family and increased susceptibility to HIV infection. Early diagnosis and appropriate treatment definitely curbs the transmission of HIV/AIDS. The number of new STI cases is showing a gradual decline overall, which can be attributed to the better diagnostic and management facilities by active NACO intervention.

In our study, the peak age group of patients ranged from 25 to 44 years (41.7%). Vast majority of patients in this age group were females (64%) constituting the major bulk of the STI patients. This age group is the sexually active and is at a high risk of being behaviorally more vulnerable to STI acquisition as they generally have higher number of sexual partners, more concurrent partnerships and change partners more often than older age groups[5]. This is also the predominant age group observed to be having STI in other Indian studies[6-9].

In the our study, females 1077 (67.8%) outnumbered the males 513 (32.3%) with a female to male ratio of 1: 2.09 which was similar to a study by Singh S et al.[10], Sharma A et al.[11], and Nyati A et al.[12], where the female patients predominately outnumbered the male patients. This might be due to increased referral to STI clinic

from Gynaecological OPDs. This was in strike contradiction to the earlier studies where the majority of the patients were males[6-9].

Overall common non-viral STI was the vulvovaginal candidiasis observed in 624(39.3%) patients followed by viral and bacterial STIs. Although contradictory to the findings of most other studies where either viral or bacterial STI was common, this corroborates with the findings of Goel et al.[13], an Arakkal et al., study[14]. They also observed that the most common STI in male and female was candidal infection followed by viral STIs like herpes genitalis and condylomata acuminata. Patel et al.[15], concluded that the current scenario has changed with fungal infections (54%) being the most common STI. Increasing trend of fungal infection was also recorded by Zamzacin G et al.[8].

Behavioral risk factors that have been significantly associated with a higher incidence of vaginal candidiasis include frequent sexual intercourse, receptive oral sex as well as the use of high estrogen oral contraceptives and spermicides. Host-related risk factors that have been significantly associated with candidiasis include antibiotic use, uncontrolled diabetes, conditions with high reproductive hormone levels, immunosuppression and genetic predisposition. Unless proved due to other medical causes such as diabetes, we considered candidal vaginal discharge to be a STI.

In developing countries, there is a constant increase in viral STIs. In our study second most STI was genital warts (8.7%) while the molluscum contagiosum (8.2%) and herpes genitalis (7.2%) were ranked thereafter. This finding is comparable with Vora R et al., [16] study and Devi et al.[17], study. Viral infections are more commonly seen because of their persistence and recurrences. Among bacterial STIs, gonococcal urethritis (7.9%) was most common while non gonococcal cervicitis (3%), was least common as compared with 7% and 12% in studies by Saikia et al.[7], study and Jain VK et al.[18], respectively. Non gonococcal urethritis (NGU) was seen in 3.9% of cases which is comparable with Vora R et al.[16], study and Jain VK et al.[18], study. The decreasing trend of bacterial STIs could be explained as a consequence of 'Syndromic treatment' of STIs by peripheral health workers, increasing sexual health awareness and due to widespread use of broad-spectrum antibiotics.

RPR reactivity was observed in 1.5% of the STI clinic attendees, which is comparable to a study by Sarkar et al.[19], and contrary to

the reports of Vora R et al.[16], and Mewada et al.[20], where the incidence of VDRL reactivity was 19.41% and 53.3%, respectively. This clearly indicates that there is definitely decline in the incidence of syphilis in recent times.

HIV infection was observed among 9.62% of patients with STI in a retrospective data analysis of north eastern India[21]. In the present study, HIV seropositivity among STI patients was 0.2% which is comparable to the reports of Sarkar et al.[19], but is lower as compared with the national average 2.5% taking recent NACO estimates into account[4]. But there are wide variations in seropositivity for HIV among STI patients 2.48 % in Vora R et al.[17], study, (8.21%) in Zamzachin et al.[8], study and 17.2% in Saikia et al.[7], study.

Changing trends of STI profile was depicted by Narayan et al.,[22]. They compared STI profile between 1990 to1993, 1994 to1997, 1998 to 2001, and 2002 to 2004. This period from 1990 to1993 was depicted as A, from 1994 to 1997 as B, 1998 to 2001 as C and from 2002 to 2004 as D. They observed that during period A, genital discharge whereas during periods B, C, and D, genital ulcerative disease, was predominant. A rising trend was seen in HIV seropositivity during different periods. However during their study period bacterial STIs like chancroid and gonorrhoea showed a declining trend and viral STIs such as genital herpes and genital warts showed an increasing trend. Although most common non viral STIs observed by us, was candidiasis but viral STIs showed a rising trend and bacterial STIs were found to be on declining trend. This finding corroborates with study by Nayaran et al.[22], except vulvovaginal candidiasis which was less frequent in their study but more common in our study. This is probably attributed to the availability of broad-spectrum antimicrobial for bacterial STIs. HIV seropositivity in our study showed declining trend which is in contrast to the study by Narayan et al.,[22].

Conclusion(s)

STIs are responsible for significant morbidity in both men and women. In our study, STIs were more prevalent among females. This can be due to increased referral to STI clinic from the Gynaecology OPDs in addition to Dermatology OPD. Our study concluded that fungal STIs and viral STIs(genital warts, molluscum contagiosum and genital herpes) are on a gradual upward trend while bacterial STIs are declining, which is similar with the other studies across the nation. There is enormous need to create the awareness and train the health care providers regarding the STIs, risk of HIV transmission, condom promotion, partner notification and partner management. Counseling regarding venereophobia should be undertaken to make STI control programs successful.

References

1. Marfatia YS, Sharma A, Joshipura SP. Overview of sexually transmitted disease. In: Valia RG, Valia AR, editors. IADVL Textbook of Dermatology. 3rd ed. Vol. 59. Mumbai: Bhalani Publishing House; 2008. p.1766-78.
2. Alder MW. STI control in developing countries. *GenitoUrin Med.* 1996; 72:85-8.
3. Saini N, Meherda A, Kothiwala R. Study of pattern and trend of sexually transmitted infections at tertiary care hospital in central Rajasthan. *Indian J Clin Pract.* 2014;25:581-4.
4. NACO. Department of AIDS Control Ministry of Health and Family Welfare. Current Epidemiological Situations of HIV/AIDS. Annual Report 2009-2010. Available from: http://www.nacoonline.org/upload/AR%20200910/NACO_AR_English%20corrected.pdf. [Last accessed on 2016 Dec 13]
5. Wellings K, Nanchahal K, Macdowall W, McManus S, Erens B, Mercer CH, et al. Sexual behaviour in Britain early heterosexual experience. *Lancet.* 2001;358:1843-50.
6. Sharma S, Tiwari S, Paliwal V, Mathur DK, Bhargava P. Study of patterns of sexually transmitted diseases using a syndromic approach in the era of human immunodeficiency virus from a

tertiary care hospital of the Northern India. *Indian J Sex Transm Dis.* 2015;36(2):158-61.

7. Saikia L, Nath R, Deuori T, Mahanta J. Sexually transmitted diseases in Assam: An experience in a tertiary care referral hospital. *Indian J Dermatol Venereol Leprol.* 2009;75:329.
8. Zamzachin G, Singh NB, Devi TB. STD trends in regional institute of medical sciences, Manipur. *Indian J Dermatol Venereol Leprol.* 2003;69:151-3.
9. Krishnamurthy VR, Ramachandran V. STD trends in Chengalpattu hospital. *Indian J Dermatol Venereol Leprol.* 1996;62:3-12.
10. Singh S, Badaya S, Agrawal D. Current socioclinical trend of sexually transmitted diseases and relevance of STD clinic: A comparative study from referral tertiary care center of Gwalior, India. *Drug Dev Ther.* 2014;5:134-8.
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. Nyati A, Gupta S, Jain SK, Yadav D, Patidar BL, Sharma M. A retrospective study of the pattern of sexually transmitted infections from a tertiary care hospital of Rajasthan. *Indian J Sex Transm Dis.* 2017;38:147-51.
13. 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.* 2020;41:176-80.
14. Arakkal GK, Damarla SV, Kasetty HK, Chintagunta SR. Changing trends in sexually transmitted infection (STI) clinic attendees – Current scenario. *Int J Med Sci Public Health.* 2014;3:1215-8.
15. Patel N, Pitroda H, Rathod Y, Suthar H. Clinical and demographic trends in a sexually transmitted infection clinic in Ahmedabad (2003-2012): An epidemiologic analysis. *Int J Med Sci Public Health.* 2013;2:1077-80.
16. Vora R, Anjaneyan G, Doctor C, Gupta R. Clinico-epidemiological study of sexually transmitted infections in males at a rural based tertiary care center. *Indian J Sex Transm Dis.* 2011;32:86-9.
17. Devi SA, Vetrichevvel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. *Indian J Dermatol.* 2009;54:347-9.
18. Jain VK, Dayal S, Aggarwal K, Jain S. Changing trends of sexually transmitted diseases at Rohtak. *Indian J Sex Transm Dis.* 2008;29:23-5.
19. Sarkar S, Patra AC, Srinivas P, Ghosh A, Kushbaha G, Saha S. Pattern of sexually transmitted infections: A profile from a rural- and tribal-based sexually transmitted infections clinic of a tertiary care hospital of Eastern India. *J Family Med Prim Care.* 2018;7:1042-6.
20. Mewada B, Kotia N, Marfatia YS. Role of VDRL in syndromic management of sexually transmitted disease. *Indian J Sex Transm Dis.* 2000;21:38-40.
21. Jaiswal AK, Banerjee S, Matety AR, Grover S. Changing trends in sexually transmitted diseases in North Eastern India. *Indian J Dermatol Venereol Leprol.* 2002;68:65-6.
22. Narayanan B. A retrospective study of the pattern of sexually transmitted diseases during a ten-year period. *Indian J Dermatol Venereol Leprol.* 2005;71:333-7.

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