Disease Pattern among Sexually Transmitted Infection Clinic Attendees: A Hospital-Based Study

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Abstract
Background: Sexually transmitted infections (STIs) have a definite role in the facilitation of HIV infection, which, in turn, also increases susceptibility to other STIs. Further, the social stigma and secrecy surrounding STIs create difficulty in estimating its true incidence and prevalence. Objective: The objective of this study was to know the pattern of diseases including different clinical presentations and final diagnosis among the STI clinic attendees. Materials and Methods: This study was a hospital-based study; a predesigned and pretested schedule was used to collect data from 140 patients after obtaining their consent. The study was carried out between January 1, 2016, and December 31, 2016. Statistical Analysis: Analysis was done using tabulation and proportion. Results and Observation: Genital ulcer (31.43%) was the most common clinical presentation among the attendees. Primary syphilis was the most common (17.14%) STI detected among the participants followed by herpes genitalis (16.43%). The most common mixed infection was primary syphilis with chancroid (36.36%) followed by herpes genitalis with primary syphilis (18.18%). Conclusion: Ulcerative STIs singly or in combination are more frequent than the non-ulcerative STIs. Further studies with large sample sizes are needed to obtain a more vivid picture.

Key Words: HIV, sexually transmitted infections

Introduction
Sexually transmitted infections (STIs) constitute a major public health problem in India. The patterns of diseases are variable and depend on the socioeconomic, cultural, geographic, and environmental factors prevalent in different parts of the country.[1-4] Moreover, the interest in STIs and their management have increased tremendously because of their proven role in the facilitation of HIV infection, which, in turn, also increases susceptibility to other STIs.[5] Social stigma associated with STIs has always been a reason for nondetection of cases, nondisclosure of source of contact, visits to quacks for treatment, and self-treatment. The secrecy surrounding STIs creates difficulty in estimating its true incidence and prevalence.[6] Knowledge about the pattern of sexually transmitted illness will provide a basis for their effective management and in the institution of preventive measures. In the current study, an effort was made to study the pattern of diseases among the attendees of STI clinic with isolated as well as mixed infections.

Materials and Methods
This study was a hospital-based cross-sectional study. It was carried out between January 1, 2016, and December 31, 2016, in the STI clinic attached to a tertiary care hospital in northeast India.

Data were collected in a predesigned and pretested schedule. Patients were fully oriented about the nature and intention of the study, and a written consent was obtained from each study participant regarding the willingness to participate in the study.

A total of 10,811 patients attended the dermatology outpatient department during the study period. There were 155 STI patients among them, out of which 140 patients agreed to participate and gave consent for the study. The current study was done on those 140 patients.

Diagnoses of various sexually transmitted diseases (STDs) were based on the underlying criteria:
1. Syphilis – identification of *treponema pallidum* by dark-field microscopy and/or venereal disease laboratory test – qualitative and quantitative
2. Gonorrhea – identification of *Neisseria gonorrhoeae* in gram-stained urethral smear
3. Chancroid – identification of *Haemophilus ducreyi* in gram-stained smear from an ulcer or unruptured inguinal bubo and on clinical grounds after ruling out other ulcerative STI
4. Lymphogranuloma venereum – by histopathological examination and on clinical grounds after excluding other STI and non-STI conditions
5. Donovanosis – identification of *Calymmatobacterium granulomatis* in tissue smear from the lesion
6. Herpes genitalis – Tzanck test and on clinical grounds after exclusion of other ulcerative STI
7. Nongonococcal urethritis – by excluding *N. gonorrhoea* from gram-stained urethral smear and by identifying five or more polymorphonuclear leukocytes per oil-immersion field
8. Candidiasis – identification of *candida* species of fungi in wet potassium hydroxide preparation
9. Trichomoniiasis – identification of *Trichomonas vaginalis* in wet film
10. Genital wart – clinically by the morphology of the lesion.

### Results and Observations

Of the 140 patients included in the study, there were 126 males and 14 females. On analysis of the collected data, it was observed that majority (31.43%) of the cases presented with genital ulcer, followed by urethral discharge (24.29%) and mixed presentation (20%). On further analysis, it was noted that majority (33.33%) of male participants presented with genital ulcer, while majority (35.70%) of female participants presented with warty lesion. A significant proportion of cases among both male (20.64%) and female (14.29%) came with mixed presentation, and most (71.43%) of them coming with genital ulcer + inguinal swelling [Table 1].

Primary syphilis was the most common (17.14%) STD detected among the participants followed by herpes genitalis (16.43%), gonococcal urethritis (14.29%), and condyloma acuminate (11.43%), while granuloma inguinale (0.71%) and molluscum contagiosum (0.71%) were the least detected cases [Table 2].

On further analysis of the data, it was noted that the most common mixed infection was primary syphilis with chancroid (36.36%) followed by herpes genitalis with primary syphilis (18.18%), and in both the conditions, the participants clinically presented with genital ulcer and inguinal swelling [Table 3].

### Discussion

*Mishra et al.*[^7] in their study of profile of patients attending STD clinic in a hospital in Gwalior found that discharge was present in all (100%) the female attendees and so was the most common presenting symptom among females followed by lower abdominal pain (61.3%), ulcers (16.6%), and nodules in genitails (11.4%). While among males, genital ulcer was the most common (80%) presenting symptom followed by discharge (14.7%), lower abdominal pain (14.7%), and nodules in genitalia (11.4%). Al-Mutairi et al.[^6] found in their study that the most common presenting symptom was urethral discharge (54.1%) followed by genital ulcer (17.8%), papules/growth (16.4%), and urethral/ pubic pain without associated discharge/ulcer (5.9%). In the present study, genital ulcer was the most common presenting symptom among the males (33.33%) followed by discharge (26.99%) which was more or less in conformity to the findings of Mishra et al., and among

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**Table 1: Different syndromic presentations by the sexually transmitted diseases cases**

| Clinical presentation | STD cases |
|-----------------------|-----------|
| Genital ulcer         | Male: 42 (33.33) | Female: 2 (14.29) | Total: 44 (31.43) |
| Urethral discharge    | Male: 34 (26.99) | Female: - | Total: 34 (24.29) |
| Warty lesion          | Male: 13 (10.31) | Female: 5 (35.70) | Total: 18 (12.86) |
| Skin lesion           | Male: 8 (6.35) | Female: 3 (21.43) | Total: 11 (7.85) |
| Subpreputial discharge| Male: 3 (2.38) | Female: - | Total: 3 (2.14) |
| Vaginal discharge     | Male: - | Female: 2 (14.29) | Total: 2 (1.43) |
| Mixed                 | Male: 26 (20.64) | Female: 2 (14.29) | Total: 28 (20.00) |
| Total                 | Male: 126 (100) | Female: 14 (100) | Total: 140 (100) |

Figures in parenthesis indicate column-wise percentages.
STD: Sexually transmitted diseases

**Table 2: Distribution of patients according to STDs**

| Diagnosis                | STD cases |
|-------------------------|-----------|
|                        | Male | Female | Total |
| Primary syphilis        | 23 (18.25) | 1 (7.14) | 24 (17.14) |
| Herpes genitalis        | 21 (16.67) | 2 (14.29) | 23 (16.43) |
| Gonococcal urethritis   | 20 (15.87) | - | 20 (14.29) |
| Condyloma acuminate     | 12 (9.53) | 4 (28.57) | 16 (11.43) |
| Nongonococcal urethritis| 14 (11.11) | - | 14 (10.00) |
| Secondary syphilis      | 8 (6.35) | 5 (35.71) | 13 (9.28) |
| Mixed infection         | 11 (8.74) | - | 11 (7.86) |
| Chancroid               | 9 (7.14) | - | 9 (6.43) |
| Balanoposthitis         | 6 (4.76) | - | 6 (4.29) |
| Vulvovaginitis          | - | 2 (14.29) | 2 (1.43) |
| Granuloma inguinale     | 1 (0.79) | - | 1 (0.71) |
| Molluscum contagiosum   | 1 (0.79) | - | 1 (0.71) |
| Total                   | 126 (100) | 14 (100) | 140 (100) |

Figures in parenthesis indicate column-wise percentages.
STD: Sexually transmitted disease
The females warty lesion was the most common (35.7%) followed by skin lesion (21.43%) which was contrary to the findings of the above-mentioned studies. The present study was done on 126 male and 14 female STD cases; this difference in the sample size could be a reason for the variations in the findings.

Thappa et al. in their study of the prevalence of sexually transmitted infections in Cuttack, India noted that herpes genitalis (21.89%) and syphilis (16.27%) were the two most common sexually transmitted diseases while molluscum contagiosum (2.14%) was the least common STI. Findings of Thappa et al. were in conformity to the findings of the current study. Arora Chetna et al. in their study found that among the males herpes genitalis (31.8%) followed by venereal warts (30.1%), gonorrhoea (10.7%) and syphilis (9.7%) were the four most common diseases. Among females pelvic inflammatory disease (PID) with or without secondary syphilis (32.2%), trichomoniasis (17%) and herpes genitalis (15.3%) were the commonest. As far as the males were concerned the findings of the current study were in conformity to the findings of Chetna Arora but regarding females the findings seemed to differ and the reason again could be projected to the small proportion of females within the sample in the current study.

Vibhu et al. in their study found that among the mixed infections condyloma acuminate with syphilis was the most common (22.2%) followed by condyloma acuminate with herpes genitalis (11.1%), whereas Park et al. in their study in Seoul, Korea, found that among the mixed infections syphilis and nongonococcal urethritis were the most common followed by syphilis with vaginitis. In the current study, the most common mixed infection was primary syphilis with chancroid (36.36%) followed by primary syphilis with herpes genitalis (18.18%). However, a firm conclusion regarding mixed infections could not be made from the current study; a future research with specific focus on this topic would be most appropriate.

**Conclusion**

As per the current study, the majority of the patients presented with genital ulcer creating the profile of a patient who was at high risk of acquiring HIV infection in comparison to the nonulcerative STD cases. Thus, it was most essential to treat the STD cases on a priority basis with an intention to reduce the HIV prevalence. However, firm conclusion could be obtained only with a large sample size which, in turn, depended on the awareness and social stigma prevalent in the community, which had possibly affected the current study as was evident by the small sample size. To obtain a clear picture, further researches are needed keeping in mind the above fact.

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**Conflicts of interest**

There are no conflicts of interest.

**References**

1. 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.
2. Khanna N, Pandhi RK, Lakhn Pal S. Changing trends in sexually transmitted diseases in Chandigarh. Indian J Sex Transm Dis 1996;17:79-81.
3. Bajaj JK, Kulkarni JD, Damle AS, Patwardhan NS, Karyakarte RP, Deshmukh AB. HIV seropositivity in STD patients. Indian J Med Microbiol 2000;18:44.
4. Khandpur S, Agarwal S, Kumar S, Sharma VK, Reddy BSN. Clinico-epidemiological profile & HIV seropositivity of STD patients. Indian J Sex Transm Dis 2001;22:62-5.
5. Wasserheit JN. Epidemiological synergy. Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. Sex Transm Dis 1992;19:61-77.
6. Park K. Textbook of Preventive and Social Medicine. 20th ed. Banarasidas Bhanot Publishers. 2009 p. 289-95.
7. Mishra A, Verma P, Marathe N, Srivastava D. Study of the profile of patients with STDs attending an STD clinic in J.A.H. Gwalior. Indian J Community Med 2008;33:263-4.
8. Al-Mutairi N, Joshi A, Nour-Eldin O, Sharma AK, El-Adawy I, Rijhwani M, et al. Clinical patterns of sexually transmitted diseases, associated sociodemographic characteristics, and sexual practices in the Farwaniya region of Kuwait. Int J
9. Thappa DM, Kaimal S. Sexually transmitted infections in India: Current status (except human immunodeficiency virus/acquired immunodeficiency syndrome). Indian J Dermatol 2007;52:78-82.

10. Arora C, Mishra B, Malik JS. Study of STD pattern and its associated risk factors – A hospital study. J Commun Dis 2006;38:70-3.

11. Vibhu M, Koranne Ravindra V, Bhawna H. Profile of sexually transmitted infections in HIV positive patients. Indian J Sex Transm Dis 2004;25:18-21.

12. Park J, Yoo S, Jung Y, Park E, Kwon S, Kim Y, et al. Trends of sexually transmitted diseases during recent three years: Among users of 11 public health centers in Seoul. J Korean Acad Fam Med 1998;19:150-66.