PATTERNS OF SEXUALLY TRANSMITTED INFECTIONS IN A TERTIARY CARE HOSPITAL: AN ALARMING RISE IN THE PREVALENCE OF SYPHILIS

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ABSTRACT

It is essential to know the current patterns of sexually transmitted infections (STIs) for planning and implementing strategies. Recently, syphilis seems to be increasing in number but has not been documented. The objective of this study was to study the patterns of STIs in patients attending dermatology and venereology outpatient department of a tertiary care hospital. This was a cross-sectional study of the data obtained retrospectively from the records of STI cases attending the dermatology and venereology outpatient of a tertiary care hospital in Kathmandu from 1st April 2024 to 30th September 2024. The demographic details, clinical diagnosis, and investigation findings were extracted from the records and analyzed using SPSS-17. One hundred and sixty-three cases of STIs attended the dermatology outpatient department, 110 (67.5%) were males and 53 (32.5%) were females. The age of presentations ranged from 17 years to 75 years. Maximum number of cases (n=62, 38%) were in the age group of 15 to 25 years. Syphilis was the most common diagnosis (n=112, 68.7%), with hospital -based prevalence of 1.2% with male predominance. Late latent syphilis was more common among syphilis accounting for 38.4% (n=43) of all syphilis. Condyloma acuminata (n=25, 15.3%) was the second most common STI followed by gonorrhea (n=12,7.4%). In conclusion, syphilis was the common presentation in our study followed by condyloma acuminata and gonorrhea. Late latent cases were the most common presentation within the cases of syphilis. STIs were common in young age and male sex.

KEYWORDS

Serology, sexually transmitted diseases, syphilis

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INTRODUCTION

Sexually transmitted infections (STIs) continue to be a major public health burden worldwide. Recent data suggest that four curable STIs namely syphilis, gonorrhea, chlamydial infection and trichomoniasis together account for more than 1 million new infections each day.[1] In 2020, there were an estimated 374 million new cases of these STIs in adults aged 15–49 years.[2] However, viral STIs like genital herpes and condyloma acuminata had outnumbered these bacterial STIs. In 2020, around 520 million people aged 15–49 years were living with genital herpes simplex virus type 2 (HSV-2) infection and as per the data published in 2024, almost one in three men worldwide are infected with at least one genital human papilloma virus (HPV) type and around one in five men are infected with one or more high risk HPV types.[1] STIs are a growing problem in Nepal; a total of 140 968 cases of STIs were reported in Nepal in 2023, females outnumbering males.[3] The emergence of HIV as a global pandemic has gathered attention on the control of these diseases as they play an important role in acquiring and transmitting HIV.

The incidence of syphilis had dropped significantly with the use of penicillin in the mid-1940s, while an increase in number of cases was noted by the end of 20th century.[4] The rising incidence of syphilis has raised major concern all over the world. The number of new cases of syphilis in adults aged 15–49 years increased from 7.1 million in 2020 to 8.0 million in 2022, globally.[5] The cases of syphilis appears to be rising in Nepal in recent times, but exact studies on prevalence is lacking. In a recent study from one center in western region of Nepal, most common STI was syphilis accounting for 55.2% of cases of all STI.[6]

The global health sector strategies on HIV, viral hepatitis, and sexually transmitted infection (2022-2030) aims to end the epidemic of HIV, viral hepatitis and STIs by 2030.[1] A proper knowledge about the current pattern of STIs in different geographic region is therefore essential for allocating resources at planning level. This study was thus undertaken to see the current patterns of STIs in our center.

MATERIALS AND METHODS

This was a retrospective descriptive study carried out in the Department of Dermatology and Venereology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal, one of the largest referral centers for the cases of Dermatology, Venereology and Leprology. All the diagnosed cases of sexually transmitted diseases are recorded in a special register designated for sexually transmitted diseases. The cases of STIs who attended dermatology outpatient department from 1st of April 2024 to 30th of September 2024 were extracted from this record for the demographic details, clinical diagnosis, Gram's stain of urethral swab (in cases with urethral discharge) and serological tests for syphilis (RPR titer and TPHA), HIV, Hepatitis B and Hepatitis C reports. The data was recorded in a proforma and was then entered into SPSS-17 for analysis. The descriptive analysis of the data was done using frequencies and percentages. The study was performed as per the declaration of Helsinki and ethical approval was taken from the Institutional Review Committee of Institute of Medicine.

RESULTS

A total of 13,656 new cases attended the Dermatology, Venereology and Leprology OPD from 1st April 2024 to 30th September 2024. Out of these were 163 cases of STIs, accounting for 1.2% of OPD attendance. Males outnumbered females with 110 (67.5%) versus 53 (32.5%) cases. The age of the cases ranged from 17 years to 75 years with a mean of 31.02 (SD 10.08). Maximum number of cases (n=62, 38%) were in the age group of 15 to 25 years, followed by 26 to 35 years (n=56, 34.4%), 36 to 45 years (n=28, 17.2%) and 46 to 55 years (n=15, 9.2%). There were 148 (90.8%) cases in the age group of 15 to 45 years.

Syphilis of different stages was the most common diagnosis (n=112, 68.7%), males were more commonly affected with 68 (60.71%) cases. Late latent syphilis was more common among syphilis accounting for 43 (38.4%) cases. Primary and secondary syphilis were 25% (n=28) and 12.5% (n=14) of all syphilis respectively. Early latent and latent syphilis of unknown duration were 8.9% (n=10) and 15.2% (n=17) respectively. Condyloma acuminata (n=25, 15.3%) was the second common STI and this was also more common among males. Gonococcal urethritis was diagnosed in 12 (7.4%) cases. Herpes genitalis and molluscum contagiosum were seen in 7 (4.3%) cases each. The demography and patterns of STIs have been summarized in Table 1.

Most of the cases of syphilis had reactive rapid plasma reagin (RPR) on different titers, 2 cases of late latent syphilis and one case

Table 1: Demography and patterns of STIs			
Characteristics	**n (%)**		
Total cases	**163**		
Gender			
Males	110 (68.4%)		
Females	53 (31.6%)		
Age	17-75 years (Mean 31.02±SD 10.08)		
Age groups			
15-25 years	62 (38%)		
26-35 years	56 (34.4%)		
36-45 years	28 (17.2%)		
46-55 years	15 (9.2%)		
56-65 years	1 (0.6%)		
>65 years	1(0.6%)		
Clinical diagnosis		**Males**	**Females**
Syphilis	112 (68.7%)	68 (60.7%)	44 (39.3%)
Primary syphilis	28 (25%)	18	10
Secondary syphilis	14 (12.5%)	9	5
Early latent syphilis	10 (8.9%)	7	3
Late latent syphilis	43 (38.4%)	29	14
Latent syphilis of unknown duration	17 (15.2%)	5	12
Condyloma acuminata	25 (15.3%)	20 (80%)	5 (20%)
Gonorrhoea	12 (7.4%)	12 (100%)	0
Molluscum contagiosa	7 (4.3%)	6 (85.7%)	1 (14.3%)
Herpes genitalis	7 (4.3%)	4 (57.14%)	3 (42.86%)

Table 2: RPR titers in different stages of syphilis										
Stage of syphilis	**RPR titer and number of cases**									
	1:2	**1:4**	**1:8**	**1:16**	**1:32**	**1:64**	**1:128**	**1:256**	**NR**	**Total**
Primary syphilis	4	5	3	7	6	2	0	0	0	28
Secondary syphilis	0	0	0	0	2	3	7	2	0	14
Early latent syphilis	0	0	1	1	3	5	0	0	0	10
Late latent syphilis	10	10	10	6	4	1	0	0	2	43
Latent syphilis of unknown duration	2	3	1	3	5	3	0	0	1	17
Total	**16**	**18**	**15**	**17**	**20**	**14**	7	**2**	**3**	**112**

of syphilis of unknown duration had non-reactive RPR (Table 2). Three cases of late latent syphilis were detected while screening for the contact of diagnosed cases of syphilis. Diagnosis of primary syphilis was clinical, all cases presented with single, indurated non tender ulcer in the genitalia. Out of 14 cases of secondary syphilis, 6 cases had condyloma lata and 8 had generalized rash. All cases of syphilis were *Treponema pallidum* hemagglutination assay (TPHA) positive. All 12 cases of urethral discharge had Gram negative diplococci in the urethral swab smear. One female with extensive condyloma acuminata came out to be HIV-I ELISA and anti HCV positive. HBsAg was non-reactive in all cases.

DISCUSSION

This study was carried out for a short duration of six months and unexpectedly many cases of STIs were detected, with a hospital prevalence of 1.2%.

Out of total cases, 110 (67.5%) were males and 53 (32.5%) were females. This finding is contradictory to the national data where more females suffered from STIs.[3] Being a tertiary care hospital, most of the female cases are managed in the Gynecology Department, and this may be the reason why we had a smaller number of females with STIs. However, in many studies conducted at the Dermatology and Venereology Department, male predominance was observed.[6-8] Maximum number of cases (n=62, 38.0%) were in the age group of 15 to 25 years and 148 (90.8%) cases belonged to 15 to 49 years age group. Similar finding was described by Mendiratta *et al*,[9] Amin *et al*[10] and Thapar *et al*.[11]

Though there is a global rise in the syphilis cases, viral STIs like genital herpes and human papilloma virus infections remain on top as per the report by WHO in May 2024.[1] In our study, syphilis in different stages accounted for 68.7% of total cases of STIs. Rise in the number of syphilis cases was described by Pinchera *et al*[4] in a retrospective study of data of patient from 2013 to 2020 in a tertiary care hospital in Italy involving 97 patients. In a study published in 2023 from western Nepal, most common STI was syphilis accounting for 55.2% of cases of all STIs.[6] Late latent syphilis was the commonest (38.4%), followed by primary syphilis (25%), latent syphilis of unknown duration (15.2%) and secondary syphilis (12.5%) in our study. Suresh *et al*[12] on analyzing the trend of syphilis for 20 years reported that, late syphilis/ syphilis of unknown duration was common till 2013, and gradually, with time increase in early syphilis was documented. In the European Union, in the year 2022, ten countries reported more than half of the cases as primary and/or secondary syphilis, compared to five in 2021.[13] Increase in the number of early infective stage is alarming and needs monitoring in the background of reports of re-emergence of syphilis worldwide.

All cases of syphilis were TPHA positive. RPR titer was as high as 1:256 in 2 cases of secondary syphilis. Low titer of 1:2 and 1:4 was detected in 14 and 18 cases, among which majority were late latent syphilis. All cases of primary syphilis were RPR reactive in titer ranging from 1:2 to 1:64.

RPR testing is a relatively inexpensive and simple procedure, suitable for screening of syphilis in a resource poor country like ours. Positive RPR serology usually occurs within three to six weeks of exposure to syphilis.[14] The RPR test is 86.0% sensitive in primary syphilis, 100.0% sensitive in secondary syphilis and 73.0% sensitive in latent syphilis.[14] Being a quantitative test, RPR titers can be used to assess treatment response. However, treponemal or confirmatory tests like TPHA are needed for definite diagnosis before initiating treatment.

Condyloma acuminata was among the second most common STIs in our study. In a study from Nepal, it was the most common STI accounting for 53.5% of total STIs.[7] Though herpes genitalis is supposed to be the leading attendance in STI clinics, we had very few cases. Genital herpes is the leading STIs according to the WHO, and this is supported by few other studies as well.[1,12,15]

Nepal has adopted a global health sector strategies on HIV, Viral hepatitis and STIs (2022-2030).[16] The target of this strategy is to reduce incidence of *T. pallidum*, *Neisseria gonorrhoeae* by 90.0% and less than 50 cases of congenital syphilis per 100,000 live births annually. Furthermore, the strategy targets 90.0% coverage of HPV vaccination.[16] The findings of this study which shows syphilis as a major prevalent disease thus poses a challenge to this 2030 strategy and needs to be closely monitored by policy makers.

In conclusion, STIs appears to be rising in this study with syphilis leading the race. The authors are of opinion that this study on current trends of different STIs with respect to the demographic profiles' can guide in planning of interventions towards control of STIs in our scenario. Since this observation is based on a single hospital-based study, a more multi-center and community-based study will be required in future for confirmation of these observations.

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REFERENCES

1. WHO.Implementing the global health sector strategies on HIV, viral hepatitis and sexually transmitted infections, 2022–2030: report on progress and gaps 2024. Available from: https://www.who.int/publications/i/item/9789240094925 (Accessed on: Sept. 2024).
2. WHO. Global progress report on HIV, viral hepatitis and sexually transmitted infections. Geneva:

WHO; 2021. Available from: https://iris.who.int/bitstream/handle/10665/341412/9789240027077-eng. pdf?sequence=1 (Accessed on: Sept 2024).

3. Annual Report, Department of Health Services (DoHS); and IHMIS/DHIS2 Routine Program Data, FY 079/80.
4. Pinchera B, Viceconte G, Buonomo AR *et al*. Epidemiological and clinical features of syphilis in the 21st century: a seven-year observational retrospective study of outpatients. *Clin Epidemiol Glob Health* 2022; 16: 101100.
5. WHO. Syphilis Estimates. Global HIV, hepatitis and STIs programmes (HHS), WHO, 2024. Available at: https:// www.who.int/teams/global-hiv-hepatitis-and-stisprogrammes/stis/strategic-information (Accessed on: May 2024).
6. Karki S, Adhikari S, Poudel P, Nepal A. Pattern of sexually transmitted infections from a tertiary care hospital, Pokhara: a six-month retrospective study. *Asian J Med Sci* 2023; 14: 162–5.
7. Paudel S, Parajuli N, Dahal S, Paudel S. Sexually transmitted infections in a tertiary hospital of Kathmandu: a retrospective study. *Nepal J Dermatol Venereol Leprol* 2021; 19: 44–8.
8. Thapa DP, Rana A. Awareness and pattern of sexually transmitted diseases: a hospital based study. *Nepal J Dermatol Venereol Leprol* 2023; 21: 20–7.
9. Mendiratta V, Meena A, Verma D. Epidemiology and changing trends of sexually transmitted diseases over the past 17 years in a tertiary care center: a retrospective study. *Indian J Sex Transm Dis* 2023; 44: 152.
10. Sachdeva S, Urfi, Amin S, Kaushal M, Kirmani S. Clinico-social profile of sexually transmitted infections and HIV at a tertiary care teaching hospital in India. *Comm Acquir Infect* 2014; 1: 25.
11. Thapar R, Riyaz M, Kaur N. Prevalence and pattern of sexually transmitted diseases in a tertiary care hospital in Chamba, Himachal Pradesh. *Int J Contemp Med Res* 2018; 5: E5-E9.
12. Suresh A, Jose R, Sasidharanpillai S, Chathoth AT, Ajithkumar K. Linear trends over 20 years in sexually transmitted infections among patients attending a tertiary care centre in north Kerala, India. *Indian J Dermatol Venerol Leprol* 2021; 89: 60–4.
13. European Centre for Disease Prevention and Control. Syphilis. In: ECDC. Annual Epidemiological Report for 2022. Stockholm: ECDC; 2024.
14. Lum B and Sergent SR. Rapid plasma reagin. [Updated 2023 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; Jan 2024. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557732/ (Accessed on: Oct. 2024)
15. Chavan RB, Belgaumkar VA, Deshmukh NS, Krishnegowda R. Recent trends of syndromic sexually transmitted infections at a tertiary care center in Maharashtra, India: a retrospective analysis. *J Skin Stem Cell* 2021; 8: 1-7.
16. Ministry of Health and Population. National guidelines on management of sexually transmitted infections. Kathmandu: Ministry of Health and Population, 2022.