Section: Dermatology

Original Research Article

CLINICO-DEMOGRAPHIC TRENDS OF SYPHILIS IN A TERTIARY HOSPITAL OF NORTHERN ODISHA, INDIA

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Abstract

Background: Classic sexually transmitted disease, syphilis manifests in wide variety of presentations in individuals. Due to existence of synergy with HIV, there has been steady rise in cases of both the diseases all over the world and also in our country. Several studies have been published regarding its rising trend and other factors contributing the disease. In our outpatient department (OPD) located in northern part of Odisha we noticed an increasing number of cases of syphilis in last few years, therefore the current cross-sectional study was conducted to assess the trends of syphilis in patients who reported to tertiary care hospital. **Materials and Methods:** The current study is a record based cross-sectional study of 113 patients of syphilis from various sources who reported to the tertiary care hospital. Data were collected from 2018 to 2022 and were divided year wise to assess the trend. Demographic details, clinical examination findings and laboratory investigations reports were also collected. **Result:** There was overall rising trend of syphilis except in year 2020. All 113 syphilis patients were found to be both RPR & TPHA positive. Male, female & transgender were 67.2%, 26.5% and 6.1% respectively. Most of the patients belong to age group 31-40(40.7%), Mean age being 34.6 year. Majority of the patients were from rural area 61 (54%). HIV positive were found in 11 (9.7%) number of syphilis patients. Plaque type was the most common form of lesion found in syphilitic patients. Lymphadenopathy was the most common systemic findings found in 18 (36.7%) syphilitic patients. **Conclusion:** There was overall rising trend of syphilis from year 2018 to 2022. Finding from this current study will be helpful for monitoring better trend of disease at community level and future control and prevention strategy.

INTRODUCTION

Syphilis, a classic sexually transmitted infection is caused by spirochetes Treponema pallidum is regarded as the 'Great Imitator'. Globally each year 887 new cases of syphilis are diagnosed per million population in age group of 15-49 years and in India the incidence ranges from 5.4% to 8.2%.[1-3] The disease is commonly transmitted by unprotected sexual practices particularly in MSM and in pregnancy from mother to fetus. If left untreated Syphilis can worsen into primary to secondary or tertiary.[2] As the disease presents in varied morphology it escapes the clinical diagnose by inexperienced eyes. It is a matter of concern that various recent studies from developed and developing countries have identified rising trend of syphilitic cases since beginning of 21st century.[4,5] It not only increases risk of transmission of HIV and other STDs in community, but also causes multisystemic complication in affected patient if left untreated. There remains a unique synergy between syphilis and HIV, where syphilis facilitates acquisition and transmission of HIV virus, HIV helps progression of Syphilis.[5] Although the organism Treponema pallidum has still maintained sensitivity to penicillin decades after its proven efficacy by Arnold and Mahoney in year 1943 but because of low investments and limited resources to health care setup in our country, it keeps challenging the public health systems.[6] However, most of the new cases can be

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attributed to changing ways of finding sexual partners due to widespread use of social media and dating application particularly in younger population.[7] Apart from that lack of education, socio-cultural practice and lack of awareness of the disease also contribute to the disease progression. In recent years different parts of our country has registered increase in cases of syphilis but no such study has been done in our area.[8] The aim of this study was to ascertain the recent trend of syphilis and to investigate various aspect of clinic-demographic feature of the disease in our area.

MATERIALS AND METHODS

The current study is a record based cross-sectional descriptive study of 113 patients of syphilis who reported to the tertiary care hospital. Detailed history & demographic data of patients visiting the Pandit Raghunath Murmu Medical College and Hospital, Baripada a tertiary care center of Northern Odisha was taken. Those details were always recorded in the available registered & files. The study was initiated after due approval from the institutional ethics committee. All patients were RPR positive & confirmed by TPHA. Patients from different sources between January 2018 & December 2022 were identified from available records & included in the study. Data were extracted from available records using a case data extraction sheet. To study the change in trends, patients were divided year wise from 2018 - 2022.

Study Tools

There is a norm of proper history taking & clinical examination (general & systemic), dermatological examination, laboratory investigations such as complete blood count, liver function test, renal function test, erythrocyte sedimentation rate, RPR, VDRL, HIV, HBsAg, HCV, Blood sugar in tertiary care hospital, Baripada & clinical examination & laboratory findings (TPHA) are recorded in available records & files. A data extraction sheet was developed & used to collect data regarding the patients as per study objective. Detailed information of all patients regarding demography such as age, gender, area of residence, occupation, marital status, education & clinical such as types of lesions, systemic involvement, co morbidities, association of other STD, HIV were extracted from records.

Analysis of Data

After compilation of all required data, it was cleaned & analyzed with the IBM statistical package for the social sciences (SPSS) statistics for windows, version 21.0 (Developed by IBM corps, Armonk New York). Descriptive data were presented with frequency & percentage.

RESULTS

Total 25,236 number of samples were collected for testing of syphilis in central laboratory, PRM, Medical college & Hospital, Baripada. Out of which 12,266 samples collected from O&G Department, in which 17 samples were positive for syphilis and 12,970 samples collected from other sources, of which 96 were syphilis positive. All 113 were found to be RPR positive Among 113 syphilis patients, males, female and transgender were 76(67.2%), 30(26.5%), 7(6.1%) respectively. Male outnumbered female & transgender having a proportion of 11:4:1. The gender details of all 113 patients attending the facility are shown in Table 1.

Table 1: Showing the gender details of Patients (N=113)

Study period	2018	2019	2020	2021	2022
Number of patients	6	14	13	26	54
Male	2	7	8	19	40
Female	4	7	4	4	11
Transgender	0	0	1	3	3

There was gradual increasing number of syphilitic cases in all genders over the years from 2018-2022 as depicted in Figure 1.

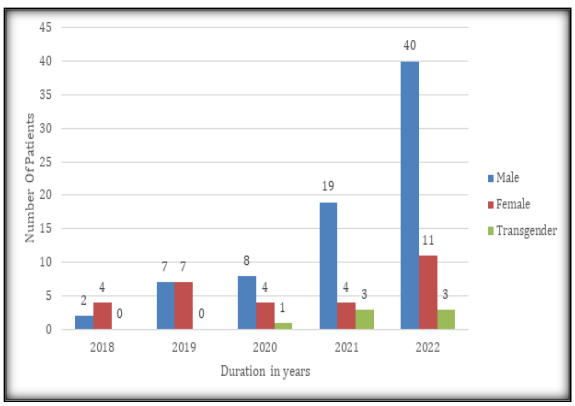

Figure 1: Gender of syphilitic patients over the year

There was an overall increase in the trend of syphilis except 2020. Again, syphilis patients have been increased remarkably in 2021 and 2022 in comparison to previous year as shown in Figure 2.

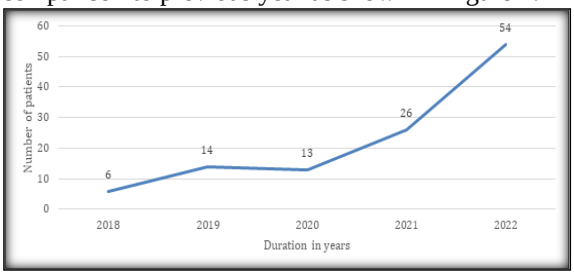

Figure 2: Trend of syphilis patients ranging from 2018-2022

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Percentage of patients from Different sources is depicted in Figure 3.

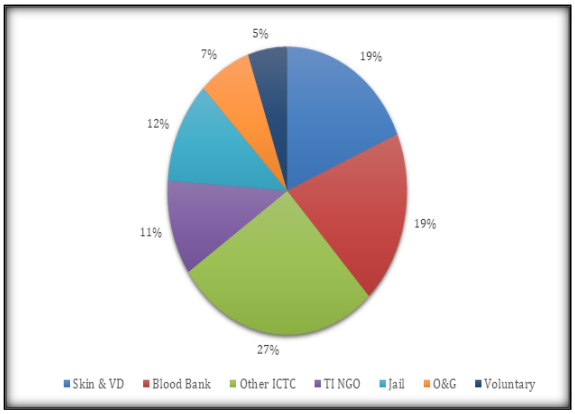

Figure 3: Total pool of patients from different sources

Most of the syphilis patients belong to age group 31-40(40.7%), Mean age 34.6 year as shown in Table 2.

Table 2: Age distribution of syphilis patients (n=113)

Year					
Age group	**2018**	**2019**	**2020**	**2021**	**2022**
≤20	0	0	2	0	2
21-30	5	4	3	6	21
31-40	0	6	6	14	20
>40	1	4	2	6	11
Total	6	14	13	26	54

Majority of the patients belong to rural area 61 (54%) as shown in Table 3.

Table 3: Area wise distribution of syphilis patients (n=113)

Year					
Age group	**2018**	**2019**	**2020**	**2021**	**2022**
Rural	4	9	11	12	25
Urban	2	5	2	14	29
Total	6	14	13	26	54

The patients had received higher education 30 (26.6%) as shown in Table 4.

Table 4: Educational Status of syphilis patients (n=113)

Year	**2018**	**2019**	**2020**	**2021**	**2022**
Illiterate	4	2	2	5	10
Primary Education	1	2	3	1	4
Secondary Education	1	7	7	14	20
Higher Education	0	3	1	6	20

Among syphilitic cases 23.8% patients were doing business as shown in Table 5.

Table 5: Distribution of occupation of syphilis patients (n=113)

Type of profession	**2018**	**2019**	**2020**	**2021**	**2022**
Farmer	1	1	0	2	3
Independent profession	0	2	2	4	5
Business	1	3	4	6	13
Labourer/Unskilled worker	2	2	1	4	12
Unemployed	1	2	3	5	10
None	1	4	3	5	11

When the marital status was assessed 68 (60%) patients found to be married. Data shown in Table 6.

Table 6: Marital Status of syphilis patients (n=113)

Marital Status	**2018**	**2019**	**2020**	**2021**	**2022**
Married	4	13	9	18	24
Unmarried	2	0	3	8	26
Widow	0	0	0	0	3
Separated	0	1	1	0	1

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There was gradual increase in number of HIV positivity among syphilis patients as shown in Table 7.

Table 7: Clinical details of syphilis patient (n=113)

Study period	2018	2019	2020	2021	2022
No. of syphilis positive patients	06	14	13	26	54
HIV positive among syphilis patients	0	0	1	5	5

There was increasing trend of syphilis patients from 2018-2022 and the increase is more marked in the year 2021 and 2022. Among the patients, 25 were asymptomatic (without STI). In addition to that there is concurrent 11 HIV positive patient found among the patients of syphilis (9.76%) as shown in Figure 4.

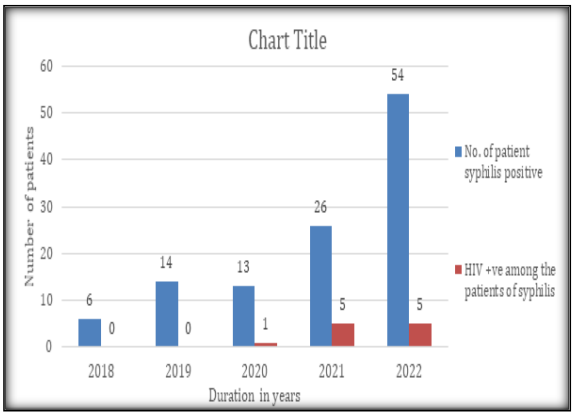

Figure 4: HIV positivity among syphilitic patients

Plaque type was the most common form of lesion 32(47.7%) found in syphilis patients, while ulcerative lesions were found in 11 (16.4%) number of patients. Table 8.

Table 8: Types of lesions observed among syphilis patients (n=113)

Types of lesions	2018	2019	2020	2021	2022
Papular	1	2	2	4	5
Plaque	2	4	3	9	14
Scaly	0	0	0	1	2
Ulcerative	1	1	0	3	6
Vasculitic	0	1	1	2	3

Lymphadenopathy was the most common systemic involvement found among syphilis patients 18 (36.7%) followed by myalgia16 (32.7%) and pneumonitis 12(24.5%) respectively, as shown in Table 9.

Table 9: Systemic involvement among syphilis patients (n=49)

Systemic Findings	2018	2019	2020	2021	2022
Pneumonitis	0	2	0	4	6
Lymphadenopathy	1	3	2	3	9
Myalgia	1	1	0	5	9
Hepatitis	0	0	0	1	1
Orchitic	0	0	0	1	0

Among the Co-morbidities diabetes was the most common 19 (34%). Among the other associated STDs genital herpes was found in 8(14.2%). As shown in Table 10.

Table 10: Co-morbidities observed among syphilis patients (n=113)

Co-morbidities	2018	2019	2020	2021	2022
Diabetes	1	3	2	4	9
Hypertension	0	2	2	3	7
Pulmonary TB	0	1	1	2	3
Alcoholic Liver disease	0	0	0	1	3
Genital wart	0	0	0	0	2
Herpes	1	1	1	2	3
Oral Candidiasis	0	0	0	0	2

DISCUSSION

There has been a steady rise of various STD cases all over the world in the recent years, this is due to rising trend of HIV and changing sexual practices.[2] In our study, there was overall rising trend of syphilis from year 2018 to 2022 except 2020, which could be due to less reporting of STD cases during Covid-19 pandemic. This finding is similar to various other studies conducted in different parts of India &

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western countries.[3] Increasing trend of syphilis in our study may be attributed to lack of awareness about the disease, safe sexual practices, and migration & socio- cultural issues as majority of patients were from tribal community.

It should be noted that there was sharp rise of cases in year 2021 & 2022 as compared to previous years in this study. This could be due to less public health expenditure to contain the spread of sexual transmitted diseases as most of the resources were spent in preventing and containing the spread of Covid-19 virus.[9] Male outnumbered females in most of the studies i.e. Sundararaj S et al and Nair N et al which is in accordance with our study.[10,11] This might be due to less reporting to STD clinic by female patients due to social stigma & health seeking behavior.

By the age group, most of the patients belong to 31-40 years (40.7%) similar to other studies conducted by Behera SK et al (46.7%) & Sundaraj S et al (56.5%).12 This finding indicates that there is higher rate of sexual activity in this age group. Majority of patients belong to rural area (54%) contrary to urban population (61%) was found by Behera SK et al.[10] This may be due to migration and other socio-cultural practices in tribal community.

Educational status has been revealed in many studies. Studies by Jain A et al and Saha BJ et al shows lack of higher education, consent and awareness play a contributing factor for spread of STD & syphilis.[14] This observation reflected in our study where only 26.5 % had received higher education. Among the syphilis patients 18.5% were laborer, 18.5% unemployed & 23.8% were doing business similar to study carried out by Olokoba AB et al.[15] Migration & use of social media & dating applications particularly in young unemployed population seems to be supporting these occupational findings.[7]

It is noteworthy that 42% of married patients had extramarital sexual affairs as assessed by Jain A et al, our results were no different (60%).[13] Such an observation attributed to high-risk polygamous sexual behaviors.

Primary chancre in form of plaque & ulcerative lesions were found in 38% of cases in accordance with the study conducted by Jain A et al (46%).[13] This could be due to due to intake of antibiotics in syndromic approach at community level hence secondary & tertiary cases of syphilis were lesser than primary.

Herpes progenitalis was most common (14%) viral STD associated with syphilis similar to Jain A et al & Shah BJ et al findings.[13,14] So genital herpetic lesions with high-risk behavior should always be examined to diagnose the missing cases of syphilis.

Hybrid phenomenon of HIV and syphilis results in numerous atypical bizarre ulcers along with various morphological patterns. HIV co infection was always found in syphilis i.e., Agmon-Levin N et al (14.1%) which was similar to our study (9.76 %).[16] It is because of the unique synergy between two pathogens. Chancre erosion helps HIV transmission while expression of CCR.[5] on human monocyte by Treponema pallidum enhances HIV shedding and transmission. Lymphadenopathy was most common systemic involvement (36.7%) found in our study; it is due co-existence with other bacterial STD as well as HIV infections whereas Lymphadenopathy was found in 83% & 50% in studies by Jain A et al & Shah BJ et al respectively. Two cases of genital wart were encountered in our study which signified the act of unnatural sexual practice.

There were 25 asymptomatic cases (without STI) could be attributed to hematogenous transmission (syphilis d' embele) or patients may unaware of lesions in primary stage.

Limitations of The Study

This was a record based cross-sectional descriptive study in a tertiary care hospital which reflects the tip of iceberg. It was a single center study with small sample size. Multicentric studies with larger sample size at the community level should be carried out to establish better trends of disease.

CONCLUSION

There was over all rising trend of syphilis from 2018 to 2022 reporting to a tertiary care center in Odisha. Most of the patients belong to age group 31-40 (40.7%) with rural background (54%). Among 113 patients of syphilis 11 were HIV positive (9.76%). The rationale behind increasing trend of syphilis should be searched for factors like public awareness, socio cultural issues & health seeking behaviors. Findings from this current study will be helpful for monitoring better trend of disease at community level & future control & prevention strategy.

No Conflict of Interest

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