



SEROPREVALENCE OF SYPHILIS IN PATIENTS ATTENDING STI CLINIC OF TERTIARY CARE HOSPITAL IN ANDHRA PRADESH, INDIA

Vukkadala Nivedita Devi

Prof and HOD, Department of DVL, Rangaraya Medical College, Kakinada.

Panem Nazier*

Junior resident, Department of DVL, Rangaraya Medical College, Kakinada
*Corresponding Author

Boina Kinnera

Junior resident, Department of DVL, Rangaraya Medical College, Kakinada

ABSTRACT Syphilis is one of the major sexually transmitted infections which is showing a raising trend across the globe. The aim of the study is to study the prevalence of syphilis among STD clinic attendees of Government General Hospital, Kakinada from January 2019 to December 2019.

Materials and methods: This was a prospective observational study of one-year duration. The prevalence of syphilis among STI patients, their demographic profile, and sexual behaviour patterns were analysed.

Results: Among 835 STI clinic attendees, 35 patients were diagnosed to have syphilis showing a prevalence of 4.19%. Among 33 cases who accepted sexual exposure, all had practised unsafe sex. The major presenting complaint of these patients was skin rashes (20%-7 cases out of 35)

Conclusion: There is a rising trend of syphilis seen among STI clinic attendees after 2005 in our institute. The current study shows that syphilis incidence is increasing in high-risk communities like MSM and FSW.

KEYWORDS : Syphilis, STD clinic, MSM

INTRODUCTION

Syphilis is a sexually transmitted disease (STD) caused by spirochete *Treponema pallidum* sp. *pallidum*. It is transmitted mainly through sexual intercourse, including the genital, oral, and anal routes, and also blood transfusion, contaminated needles in intravenous drug users. It also transmitted transplacentally to the fetus.⁽¹⁾ Syphilis is one of the most crucial STD due to its prevalence, infectivity, complications of untreated disease and impact on the healthcare systems.

Each year, there are an estimated 6 million new cases of syphilis globally in persons aged 15 to 49 years.^(2,3,4) Over 300,000 fetal and neonatal deaths are attributed to syphilis, with 215,000 additional infants placed at increased risk of early death.⁽³⁾

The epidemiological profile of STI is not uniform and static always. There are country wise and regional variations and variations according to the time period found in the epidemiology of STI. Human immunodeficiency virus (HIV) infection and homosexual behaviour are cited as the major risk factors.⁽⁵⁾ Many recent studies have documented a resurgence of syphilis worldwide since the year 2000.

In Andhra Pradesh, Chandragupta TS et al. retrospective study at Government General Hospital, Kakinada revealed a decline in the prevalence of syphilis from 1.74% (87 cases) during the period 2000-2002 to 0.39% (28 cases) during 2003-2005.⁽⁶⁾ G Venkata Ramana et al. study at Osmania General Hospital, Hyderabad from Jan to Dec 2014 showed to have incidence of syphilis as 7.8% (87 out of 1558).⁽⁷⁾ Prabahar P et al. from Chennai during the period June 2015 to May 2016 revealed the prevalence of syphilis as 1.88% (169 out of 9008) in OPD patients and 4.53% (55 out of 1215) in MSM.⁽⁸⁾ The present study aimed at understanding the present seroprevalence of syphilis among various patient groups attending a tertiary care hospital in South India

AIM OF THE STUDY:

To study the prevalence of syphilis among STD clinic attendees of Government General Hospital, Kakinada, a tertiary care hospital in Andhra Pradesh from January to December 2019.

MATERIALS AND METHODS

This was a prospective observational study of one-year duration conducted at STI clinic of a Government General Hospital, Kakinada. As a routine, all STI clinic attendees were given counselling, and thorough clinical examination was done. STI screening was done with rapid plasma reagin test, Hbs Ag and HIV antibody tests after taking consent. The diagnosis was made by history, clinical examination and rapid plasma reagin test. All cases of RPR reactivity were confirmed with syphilis rapid test kits based on immunochromatography principle. Syphilis rapid test was also done for suspected cases of

syphilis infection coming with reactive RPR reports done at private hospitals and also for sexual partners with negative RPR reports.

All cases diagnosed to have syphilis were treated with Injection Benzathine Penicillin after the test dose. (figure.1) It is always better to treat ANC mothers with syphilis with benzathine penicillin as per NACO, CDC and WHO guidelines. For patients who were allergic to penicillin, non-pregnant women and men who were not willing for Inj. Benzathine Penicillin, Tab. Doxycycline 100mg twice daily orally was given for 14 days. The prevalence of syphilis among STI patients, their demographic profile, and sexual behaviour patterns were analysed.

RESULTS

The total number of STI clients attending OPD during the year 2019 was 835. Among this, 35 patients were diagnosed to have syphilis showing a prevalence of 4.19%. Twenty-three were males, and 12 were females (table.1). The male-to-female ratio was 1.9:1. The mean age of the study population was 29.4 years. The maximum number of syphilis cases (19 -11 males and eight females) were noted in the sexually active age group of 21-30 years. Sixty-nine per cent of patients were married, and 31% of patients were unmarried. Most of them belong to high-risk groups like drivers, cleaners, unskilled labourers, men who have sex with men (MSM-8) and female sex workers (FSW-2).

Table :1 Table showing gender distribution in various stages of syphilis

Stage of Syphilis	Female	Male		Total
		Heterosexual	MSM	
P Syphilis	0	0	2	2
S Syphilis	3	7	2	12
EL Syphilis	9	7	4	20
LL Syphilis	0	1		1
Total	12	15	8	35

Among 23 male patients with syphilis, 15 (65%) were heterosexuals, 8 (35%) were MSM. Out of the 8 MSM, three were married, and five were unmarried.

Out of 5 antenatal seroreactive syphilis cases, two were in the second trimester and 3 in the third trimester. One of them presented with a history of recurrent abortions, and another had a history of stillbirth in last pregnancy and lues maligna in present pregnancy.

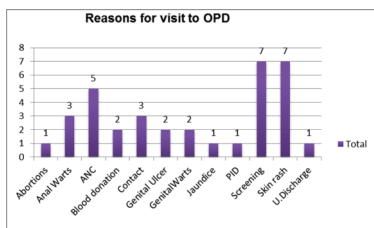
Two patients were diagnosed with RPR reactive while screening at blood donation. The chances of other modes of transmission like blood transfusion have been ruled out in these two persons making sexual transmission as more probable. Among 33 cases accepting sexual exposure, all had practised unsafe sex.

Clinical Profile- The major presenting complaint of these patients was skin rashes (20%-7 cases out of 35). Skin manifestations were macular eruptions, papular syphilides, palmo plantar syphilides (figure1) papulosquamous syphilides (psoriasiform syphilides), and papuloulcerative syphilides(lues maligna). Twenty per cent were found to be RPR reactive while screening for high-risk behaviour. Other complaints include genital ulcer disease (2 cases), genital warts(2), anal warts(3), urethral discharge(1) and lower abdominal pain(1) (GRAPH 1). Among 35 cases, various stages of syphilis have been diagnosed (GRAPH 2). Among this, primary syphilis constitutes about 6%(2 cases), secondary syphilis with skin rashes 34%(12 cases), early latent syphilis with 57%(20 cases) and late latent syphilis with 3%(1 case).

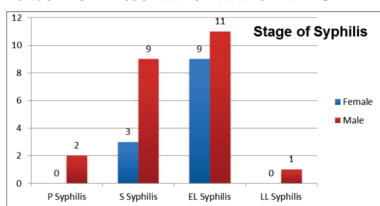
Regarding other STI associations, 6 cases (17%) of syphilis had HIV infection. Among this, one was newly detected HIV patient, and five were on antiretroviral therapy. Out of 6 HIV coinfecting cases, one had primary syphilis, 2 had skin rash of secondary syphilis, and three were found to be early latent syphilis. One case of jaundice was found to be having early latent syphilis with HIV and Hepatitis B co-infection. HPV was the next common co-infection with syphilis after HIV. One couple with secondary syphilis had genital warts. Three MSM with early latent syphilis presented with anal warts had unprotected anal receptive intercourse. Two MSM presented with primary chance over the shaft of penis who performed unprotected insertive anal intercourse. Two MSM with skin rash was found to be having secondary syphilis. One MSM who had taken treatment for urethral discharge was found to have early latent syphilis. One FSW presented with pelvic inflammatory disease (PID) was found to have early latent syphilis.

Regarding the treatment profile, 27 patients (88.6%) were treated with Injection Benzathine penicillin and 4 (11.4%) with Tablet Doxycycline. All pregnant women(5) were treated with Injection Benzathine penicillin along with their spouse. Five of the six people living with HIV and AIDS were treated with three doses of Injection Benzathine penicillin with weekly intervals for three weeks. Anogenital warts were treated with Podophyllin lotion 25% external application. Sixty per cent (21) of patients were willing for changing to better sexual practices.

Regular treatment and follow up were seen in 88.6% of patients. Four patients (11.4%) did not come for follow up. Only 9 cases (26%) brought their partners for screening and treatment, among the rest, partner evaluation failed.



GRAPH 1. Reason for Presentation at the DVLOPD



GRAPH 2. Diagnosis of Stage of Syphilis



Figure .1 showing palmar syphilide before and after injection benzathine penicillin

DISCUSSION

A rising trend in the prevalence of syphilis was reported worldwide, since the year 2000. As per CDC 2015, sexually transmitted diseases surveillance report in United States, the primary and secondary syphilis rates had increased every year since 2000-2001. Approximately two thirds of the cases of primary and secondary syphilis diagnoses in the United States are in MSM. In U.S., there was a 19% increase in reports of syphilis in 2015 when compared to 2014. Since 1996, syphilis has been on the increase in many European countries.⁽⁹⁾ Since early 2000, a dramatic increase in syphilis among MSM had been reported in Dublin, Ireland.⁽¹⁰⁾

In India also, the incidence of bacterial STI was comparatively low during 1995-2000 when compared with the rates of the years 1986-1990.⁽¹¹⁾ After the year 2000, the rising trend in the prevalence of syphilis was noted in other Indian studies also.⁽¹²⁾ In a study conducted at tertiary care centre Kerala, for the period of 10 years from 2003-2012, the later years of the study witnessed a rise in the number of syphilis cases.⁽¹⁰⁾

Table.2 Number of syphilis cases diagnosed at GGH, Kakinada.

Year	No of STI attendees	No of cases reactive	Percentage
2000-2002 (3years)	5004	87	1.74%
2003-2005 (3 years)	7067	28	0.40%
2018 (1 year)	755	21	2.78%
2019 (1 year)	835	35	4.19%

The prevalence of syphilis in our present study was (35 cases) 4.2% during the year 2019. Our institutional statistics showed a statistically significant increased seroprevalence rate of syphilis when compared to previous years (1.74 % during the period Jan 2000 to Dec 2002 and 0.39% during Jan 2003 to Dec 2005.(table.2) These changing trends in the prevalence of syphilis could be interpreted as a result of syndromic management, HIV coinfection and MSM behaviour. Since the introduction of antiretroviral therapy (ART), rates of syphilis increased, especially among MSM, perhaps due to the reconstruction of sexual networks and increased frequency of sexual contact.⁽⁵⁾

There was a clear male predilection observed in our study too (male to female ratio was 1.9:1). This finding also correlates with the above study done at Kerala.⁽¹²⁾ In the present study, among male infected persons, almost 35% of the patients were men having sex with men. Similar higher prevalence of syphilis among MSMs was observed in other studies from India.^(8,13) In a study from Dublin, 86.8% of syphilis cases occurred in MSM.⁽¹⁰⁾ Importantly; early infectious syphilis cases were more common among MSMs in the present study.

The mean age of syphilis infected patients in our study is 29.4 years. Similarly, in studies conducted at India, the mean age of infected patients was between 20-30 years.⁽¹⁴⁾ Young MSM are increasingly engaging in high-risk sexual behaviour like unprotected anal intercourse, multiple sex partners, and using the internet to recruit sex partners which lead to increased transmission of STIs.⁽¹⁵⁾ CDC estimates that 19 million new infections occur each year, almost half of them among young people aged 15 to 24. This can be due to an increase in case reporting, screening efforts and use of more sensitive diagnostic tests, but also reflect an actual increase in infections.⁽⁹⁾

Out of 6 cases of HIV co-infection with syphilis 2 were MSM and one antenatal mother. One married MSM's wife presented with 4 months gestation and lues maligna. This indicates how these bisexual MSM bridging populations were spreading the infection to the community level with their high-risk behaviour.

The association of syphilis with HIV seropositivity was high, as seen in other studies.⁽¹⁶⁾ Syphilis may upregulate HIV expression and replication as well as CCR5 coreceptor prevalence, enhancing HIV transmission to susceptible hosts.⁽¹⁷⁾ This was an important fact epidemiologically owing to the infective nature of early syphilis and also the behaviour pattern of MSMs where the number of partners, rate of partner change and anonymity of the sexual partners are usually more.

Among the 12 female patients, 11 were married. The female pregnant patients (5 ANC cases) of our study were married women who acquired the infection from their husbands. One of them was HIV reactive also. All of them were given Injection Benzathine penicillin

along with their partners. On follow up, three delivered nonreactive healthy babies, and the remaining two were at the antenatal clinic. FSWs and unmarried woman with high risk behaviour were alarming high risk groups found in the present study.

Alcoholism and substance abuse are proven associated risk factors to sexually transmitted infections. In a study done at Sikkim showed that the addiction like alcoholism, smoking and drugs were also found in significant number with more than 50% individuals with at least one of these addictions.⁽¹⁸⁾ In our study, 52.2%(12) were alcoholic.

Regarding condom use in our study population in spite of knowledge about safe sex practices, almost the entire study group practised unsafe sex. Condom promotion is an integral part in HIV/STI prevention services. After the HIV/AIDS epidemic, there were nationwide intensive campaigns on condom and HIV/AIDS prevention making people know more about condom usage. In a similar study from Karnataka, the level of knowledge and practices towards condom among the participants was low.⁽¹⁹⁾

CONCLUSION

There was a rising trend of syphilis seen among STI clinic attendees in our institute. The current study shows that syphilis incidence is increasing in high-risk communities like MSM and FSW. Early infectious syphilis was more commonly seen among men having sex with men. Married MSM was the bridging community infecting their spouse. The significant number of pregnant women were also infected by syphilis. Careful evaluation of MSM history and clinical manifestations of secondary syphilis is vital in diagnosing syphilis. HIV and HBV coinfection with syphilis was also prevalent. This fact is important epidemiologically to plan screening procedures in these high risk population, ensuring a strong medication supply for providing treatment of identified cases and encouraging partner treatment. Knowledge about STI and safe sex practices should be disseminated among young people.

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