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IP Indian Journal of Clinical and Experimental Dermatology

Journal homepage: www.ijced.org/

Original Research Article

Contact-tracing outcomes among male syphilis patients at a tertiary care hospital in North Eastern India

Puja Gogoi[1]*, **Debajit Das**[2], **Bhaskar Gupta**[1]

[1]*Dept. of Dermatology, Venereology and Leprosy, Silchar Medical College and Hospital, Silchar, Assam, India*
[2]*Dept. of Dermatology, Tinsukia Medical College and Hospital, Tinsukia, Assam, India*

ARTICLE INFO

Article history:
Received 20-02-2024
Accepted 23-05-2024
Available online 01-06-2024

Keywords:
Syphilis
Contact tracting

ABSTRACT

Background: Syphilis is a sexually transmitted infection (STI) with a surge in its prevalence in recent times nationwide. Early detection, timely treatment, and preventive measures are key to managing and preventing the spread of the disease. Contact tracing is a critical public health practice used to control spread of STIs like syphilis.
Aims and Objectives: This study compared the results of contact tracing between male syphilis patients who reported having sex with men (MSM), with women alone (MSWO), or with both.
Materials and Methods: A cross-sectional study where 100 male syphilis positive patients patients of age-groups 18-60 years, appearing Department of Dermatology, Venereology & Leprosy, Silchar Medical College with cutaneous manifestations were enrolled in study over 1 year from November 2023 to October 2024. A group of patients came with reactive VDRL & RPR report having history of exposure but no clinical signs were included as latent syphilis.
Results: 45 (45%) of the male patients in our study were between the ages of 21 and 30. Male patients reported engaging in sex with women only (MSWO) in 68 cases, sex with men (MSM) in 27 cases, and sex with both male and female partners in 5 cases. 189 (57.9%) of the 326 contacts had latent syphilis, 41 (12.5%) had secondary syphilis, and 96 (29.4%) had primary syphilis.
Conclusion: Innovative, fresh methods are required to control syphilis**.** Creating awareness regarding such manifestations and their probable association with sexual practices is also imperative.

1. Introduction

Among sexually transmitted infections (STIs), syphilis is a caused by a spirochete infection, namely, Treponema pallidum.[1] It is transmitted through sexual route, mother to child during pregnancy or childbirth.[2] The infection affects many sections of body and proceeds through multiple stages, resulting in a wide range of symptoms. The syphilis stages are: Primary Stage: A few weeks after exposure, a painless sore or ulcer called as a chancre develops at infection site, which is typically mouth, anus, or genitalia. After a few weeks, this sore goes away on its own. Secondary Stage: The body, particularly palms and soles, may develop rashes weeks to months after chancre heals. In addition, there may be sore throats, fever, exhaustion, and enlarged lymph nodes. Over course of several weeks, these symptoms could appear and disappear.Latent Stage: If not treated, infection enters a hidden or latent stage where no noticeable symptoms are present. This stage, divided into early-latent and late-latent, can last for years, and during this time, bacteria can still be active in body. Tertiary Stage: Years after the initial infection, syphilis may occasionally advance to this stage if treatment is not received. Serious harm to heart, brain, nerves, bones, and other organs can

* *Corresponding author*.
E-mail address: pujagogoighy@gmail.com (P. Gogoi).

https://doi.org/10.18231/j.ijced.2024.038

result from tertiary syphilis. It may result in major health issues and even pose a threat to life.

Direct observation of organisms under dark ground microscope and blood tests that identify antibodies produced in reaction to infection can be used to diagnose syphilis.Early detection and treatment with antibiotics, usually penicillin, are crucial to avoid progression of disease and its complications.[1] Partners of infected individuals should also be traced, tested and treated. Using condoms correctly and consistently, limiting number of sexual partners, and receiving regular STI screenings are all important parts of safe sex practices that can prevent syphilis. Pregnant individuals should receive prenatal care to prevent transmitting infection to their babies. If left untreated, syphilis is a dangerous infection with potentially disastrous health effects and complications. Early detection, timely treatment, and preventive measures are key to managing and preventing spread of disease.

Contact tracing is a critical public health practice used to control spread of sexually STIs like syphilis.[3,4] It entails locating and alerting those who could have come into contact with an infected person, so that they can be tested, receive treatment if necessary, and take steps to prevent further transmission. This contact tracing works by following in context of syphilis: Identifying Index Cases, Gathering Information, Notification, Testing and Treatment.

2. Materials and Methods

With ethics committee clearance, a one-year hospital-based prospective observational study was carried out at Silchar Medical College and Hospital in Silchar, Assam, from November 2022 to October 2023. The study population consisted of 100 cases of male syphilis positive patients had inclusion and exclusion criteria.

2.1. Inclusion criteria

1. Diagnosed case of syphilis in male patients having history of exposure.
2. Consent to participate.
3. Latent syphilis cases who came with positive report and history of exposure.

2.2. Exclusion criteria

1. Female syphilis positive patients.
2. Syphilis d'emblee.
3. Patients will not take part in study.

All selected patients were attended and a detailed medical and family history, exposure history was taken in each case from patients. Chief complaints, duration of illness, onset of disease, nature of primary lesion(s), evolution of disease, secondary changes if any, associated infection, inflammation were recorded. Specific enquiry was made regarding contacts (men and women) with number of sexual partners, known or unfamiliar to patient, nature of exposure, frequency of exposure, use of contraception. The index patient was asked to give names and location of their sexual contact. History of sexual interaction three months prior to primary syphilis diagnosis, six months prior to secondary syphilis diagnosis, and one year prior to early and late latent syphilis diagnosis.[5] After obtaining appropriate consent, contacts were discovered, identified by index patient, and brought to outpatient department for examination and treatment.

2.3. Statistical analysis

Following collection and entry into Microsoft Excel spreadsheet, recorded data was transferred to SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA) for use as a data editor. To summarize variables, percentages and frequencies were employed. The statistics were graphically illustrated using pie and bar diagrams. P values were deemed statistically significant if they were less than 0.05.

3. Results

Our study comprised a total of 100 male syphilis patients who tested positive for both TPHA and RPR. Table 1 indicates that 45 patients (45%) fit to age group of 21–30 years, and 24 patients (24%) belonged to age group of 31–40 years followed by 17 patients (17%) in 41-50 years age group, 10 patients (10%) in 51-60 years age group and least in 18-20 years age group that is 4 patients (4%).

Male patients reported engaging in sex with women only (MSWO) in 68 cases (68%), sex with men (MSM) in 27 cases (27%), and sex with male and female both partners in 5 cases (5%) as depicted in pie diagram 1. 16 (16%) of 100 patients were receiving anti-retroviral medication and had PLHA status.

Table 1: Age distribution

Age (Yrs)	No. of cases	%
18-20	04	4%
21-30	45	45%
31-40	24	24%
41-50	17	17%
51-60	10	10%

Table 2 indicates that, out of 100 cases, 22 (22%) were classified as primary, 10 (10%) as secondary, and 68 (68%) as latent syphilis. The distribution of syphilis stages did not show any discernible differences between heterosexual men, MSM, and women.

The index patient is asked to list the number of "contacts," or partners, he has had sex with during the interview process. While MSM index patients reported having 162 total sexual partners during the infection period and named 80 (49%), MSWO index patients reported

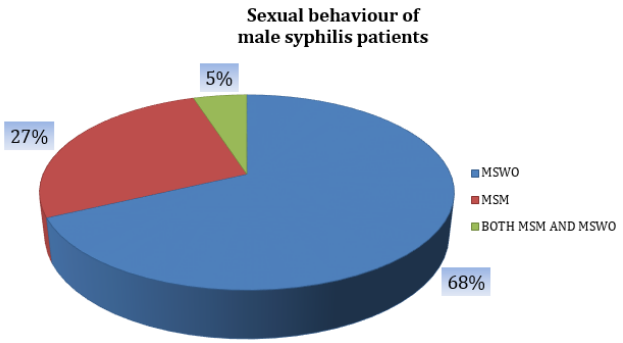

Figure 1: Sexual behaviour of male syphilis patients

Table 2: Prevalence of stage of syphilis of male patients

Syphilis stages	No. of cases	Percentage
Primary	22	22%
Secondary	10	10%
Early latent	7	7%
Late latent	61	61%

having 340 total sexual partners and named 224 (65.8%). Patients on the MSWO reported having more sexual partners than those on the MSM index (p = 0.16).

Twenty (52.6%) of the 38 sexual partners of index patients with both MSWO and MSM behaviour reported were named. 22 of 27 (81.4%) MSM index patients did not name any contacts, whereas 46 of 68 (67.6%) MSWO patients did (p value = 0.08).

The contacts were deemed to have been "exposed to infection," necessitating a check-up, serological testing, and a "routine examination–no symptoms." RPR with titre and TPHA with titre are performed to support diagnosis. Table 4 shows that of 326 contacts, 96 (or 29.4%) were diagnosed as primary syphilis, 41 (12.5%) as secondary syphilis, and 189 (or 57.9%) as latent syphilis. Although the percentage of contacts with infectious (primary and secondary) syphilis was higher in patients with an MSWO index cases, this difference was not statistically significant.

Table 3: No. of contacts named by Index patient

Sexual behaviour	Number of Contacts in total	Number of Contacts named	Percentage
MSWO	340	224	65.8%
MSM	162	80	49%
Both MSM and MSWO	38	20	52.6%

4. Discussion

In order to break the chain of transmission, it is advised that partners be informed after a sexually transmitted infection (STI) diagnosis.

Table 4: No. of Contacts with syphilis

	No. of Contacts	Percentage
Primary Syphilis	96	29.4%
Secondary Syphilis	41	12.5%
Early Latent Syphilis	17	5.2%
Late Latent Syphilis	172	52.7%

MSWO index patients reported higher number of contacts (340 contacts) as compared to MSM index patients (162 contacts). A higher incidence of late latent syphilis was found amongst contacts who were symptomless (52.7%). There is significant association between syphilis seropositivity and PLHA status.

As opposed to urban areas in many industrialized countries[3–6] where more MSM behavior have been reported, it has not of much prevalence in North-East India. This may be due to cultural norms and lack of social exposure. A difference of sexual practices is also seen in North-East India as per our study. Compared to our study, more MSM index patients than MSWO index patients report anonymous partners in studies like Fulton County (56%) and elsewhere.[7–9] It makes sense to believe that various contact-tracing results could happen. However, summaries of contacts discovered or diagnosed with syphilis would not demonstrate variations in contact-tracing outcomes if MSM index patients named approximately the same number of contacts as MSWO index patients. Rather, the difference may show up as more unidentified sexual partners.

Social stigma, fear of identity disclosure, social boycott, and the high proportion of index patients obtaining care from private providers—all of which have been proposed as reasons for poor contact-tracing efficacy between MSM, may have had an impact on contact tracing efforts in our study.[10,11]

A key challenge to effectiveness of contact tracing is stigma, which is defined as negative attitude or conduct towards an individual or group who shares recognizable symptoms of health condition or disease.[12] Evidence suggests that most significant instances of stigmatization around a medical condition occur when condition is linked to acts or behaviours that are thought to be at odds with social norms.[13]

In the end, a sizable portion of case-patients were unreachable for an interview. The presence of their unidentified contacts may provide the impression that the contact-tracing yield for MSM and MSWO is the same, even if it is conceivable that these case-patients were more likely to be MSM.

Diagnosis of HIV, syphilis, and gonorrhea, including asymptomatic sexual contacts, is greatly aided by contact tracing in our population.[14,15] In MSM's sexual networks, more attempts to boost contact tracking yield may help lower prevalence of gonorrhea, syphilis, and HIV.

5. Conclusion

In scenario of rising rates of STDs among population, syphilis makes a notable contribution. This is due to its disease course with no aberrant clinical symptoms that alarm patients. Therefore, it becomes a necessity for screening of population, especially those who are in contact with infected individuals. Contact tracing holds key in controlling this infection. Patient education and public awareness regarding disease and its outcome and treatment are equally important in controlling syphilis.

6. Declaration of Patient Consent

The authors certify that they are in possession of the required patient authorization documentation. The patient or patients have given written authorization for clinical data about them to be published in a journal. The patients understand that anonymity cannot be guaranteed, even though every effort will be made to conceal their identity and that their names and initials will not be published.

7. Abbreviations

STD: Sexually transmitted disease; MSM: Men having sex with men; MSWO: Men having sex with woman; RPR: Rapid plasma regain; TPHA: Treponema pallidum hemagglutination assay.

8. Conflict of Interest

None.

9. Source of Funding

None.

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Author biography

Puja Gogoi, Junior Resident https://orcid.org/0009-0007-0845-5666

Debajit Das, Associate Professor https://orcid.org/0009-0001-8727-2476

Bhaskar Gupta, Professor https://orcid.org/0000-0002-0701-2018

Cite this article: Gogoi P, Das D, Gupta B. Contact-tracing outcomes among male syphilis patients at a tertiary care hospital in North Eastern India. *IP Indian J Clin Exp Dermatol* 2024;10(2):214-217.