



Prevalence of Syphilis in patients attending tertiary care hospital in Trichy district

Vazhavandal G*, Vallab Ganesh Bharadwaj B, Uma A, Chitra rajalakshmi P

Department of Microbiology, Chennai Medical College Hospital and Research Centre, (SRM Group), The Tamilnadu Dr.MGR Medical University, Tiruchirapalli, Tamilnadu, India.

ARTICLE HISTORY

Received: 06.01.2014

Accepted: 12.02.2014

Available online: 10.05.2014

Keywords:

Incidence, Rapid Plasma Reagin, Sexually transmitted disease, Syphilis, *Treponema pallidum*.

*Corresponding author:

Email : hemarathinam2006@gmail.com

Tel.: 91-9489780105

ABSTRACT

Syphilis is a sexually transmitted disease [STD] with protean manifestations resulting from infection by *Treponema pallidum*. It can be easily treated with long acting penicillin. Syphilis promotes the transmission of HIV and both infections can simulate and interact with each other. *Treponemes* may persist despite effective treatment and may have a role in reactivation in immunosuppressed patients.

A study was done to know the incidence of syphilis in the rural teaching hospital of Trichy district. A total of 4396 samples were collected from the patients during 2010 to 2013. Rapid Plasma Reagin [RPR] test was done. The incidence was found to be low [0.34%] and the maximum positivity was in the age group of 21-40 years. The incidence of syphilis at first prenatal visit was extremely low (0.31%). Partner notification, health education, and screening in high risk populations and pregnant women to prevent congenital syphilis are essential aspects in controlling the infection.

INTRODUCTION

Syphilis is a systemic disease caused by the spirochete *Treponema pallidum* [1]. It is primarily a sexually transmitted infection (STI). Syphilis can also be acquired through congenital transmission to the newborn and blood transfusion, but these are much less common.

Globally, about 340 million new curable Sexually Transmitted Infections occur each year and out of these infections, syphilis accounts for about 12 million cases, 2 million of them being pregnant women [2]. However, these figures represent only a minor part of the problem since a large number of cases go unreported and are also likely to be either untreated or improperly treated.

It is seen throughout India, the prevalence being especially high among those who indulge promiscuous sexual activity and practice unsafe sex.

Screening for syphilis infection is widely done in the country by using a non treponemal anticardiolipin antibody detection test namely RPR [3,4]. The results of the screening test always need to be confirmed by a specific treponemal test and correlated with the clinical history, signs and symptoms [5]. In India screening for anticardiolipin antibodies to determine exposure to syphilis is part of routine antenatal care. The test is also used in screening individuals with high risk behavior whether or not there

are clinical signs and symptoms of syphilis.

It occurs worldwide, and the incidence varies significantly with geographic location. Limited information is available on this issue in Tamilnadu, South India. We report our experience with the screening for syphilis over a period of 4 years in the outpatient and inpatient department of our rural tertiary care centre, situated in Trichy district of Tamilnadu.

MATERIALS AND METHODS

This was a retrospective hospital based study. The results of routine antenatal [2910] and those with suspected sexually transmitted disease [STD] [1486] were reviewed. Blood samples from 4396 individuals were collected after getting a verbal consent of the concerned over a 4 year period from January 2010-December 2013. All serum samples were tested using the RPR test [Carbogen Tulip Diagnostics [P] Ltd] as per the manufacturers instructions.

Qualitative method: One drop of patients sample, positive and negative controls were pipetted onto separate circles of the disposable slide using a sample dispensing pipette. Then one drop of well mixed Carbogen reagent was added to test specimen, positive control and negative control by using the reagent dropper provided with the kit. Care was taken that the dropper tip did not touch the liquid on the slide. By using a stick, the test specimen and the Carbogen reagent were mixed thoroughly spreading

Table 1. Gender wise prevalence of Syphilis

Year	Male tested	Male positives	Female tested	Female positives	Total tested	Total positives
2010	133	1(0.75%)	665	2(0.3%)	798	3(0.38%)
2011	69	0	859	3(0.35%)	928	3(0.32%)
2012	44	2(4.6%)	975	1(0.1%)	1019	3(0.29%)
2013	491	0	1160	6(0.52%)	1651	6(0.36%)
Total	737	3(0.41%)	3659	12(0.33%)	4396	15(0.34%)

Table 2. Year wise and age wise prevalence of Syphilis

Year	11-20yrs		21-40yrs		41-60yrs		>60 yrs		Total	
	Tested	Positives	Tested	Positives	Tested	Positives	tested	Positives	Tested	Positives
2010	26	0	488	2(0.41%)	248	1(0.40%)	36	0	798	3(0.38%)
2011	36	0	559	3(0.54%)	309	0	24	0	928	3(0.32%)
2012	49	0	594	2(0.34%)	336	1(0.30%)	40	0	1019	3(0.29%)
2013	263	0	938	3(0.32%)	408	2(0.49%)	42	1(2.38%)	1651	6(0.36%)
Total	374	0	2579	10(0.39%)	1301	4(0.31%)	142	1(0.7%)	4396	15(0.34%)

Table 3. Category wise prevalence of Syphilis

Category	Total number tested	Positives
Prenatal screening	2910 (66.2%)	9 (0.31%)
Screening of patients with suspected STD	1486 (33.8%)	6 (0.4%)
Total	4396 (100%)	15 (0.34%)

uniformly over the entire circle. Immediately the slide was placed on a mechanical rotator at 180 r.p.m for 8 minutes. The slide was observed for any flocculation macroscopically. A positive RPR implies that the sample is positive for syphilis. No specific treponemal tests were used for confirmation. The results were analyzed using chi-square test.

RESULTS

Out of the 4396 samples, 737 [16.8%] were males and 3659 [83.2%] were females. Majority of our study population comprised of antenatal screening women. Among the 4396 samples which were screened 15 [0.34%] were found to be positive for anti cardiolipin antibodies. Three of the 737 [0.41%] males and 12 of the 3659 [0.33%] females were positive [Table-1]. The difference was statistically insignificant [$p \geq 0.05$].

DISCUSSION

In our study the prevalence was found to be low [0.34%], and, we have not used the specific treponemal test for confirmation of diagnosis and so there may be some false positive results. Moreover the use of only one test may give a lower sensitivity [6]. The Studies from vellore district of Tamilnadu and Rengareddy district of Andra Pradesh, India have reported 0.55% and 0.12% prevalence respectively [7,8]. Some reports from Tamilnadu involving 3 districts, have shown an increased prevalence of 2.7% by using RPR test [9]. Thaker et al, reported 0.7% prevalence by TPHA, in their study at Nagpur, India [10].

In our study, the prevalence of syphilis at the first prenatal visit was extremely low [0.31%]. Nidhi Nair et al in Mumbai and Parveen et al in Renga Reddy district, Andra Pradesh, India, in

their studies among pregnant women reported 0.36% and 0.10% incidence respectively [11, 12]. Studies from Saudi Arabia in year 2000 and 2007 have reported a rate of 0.7% and 0.02% among prenatal women respectively [13,14]. WHO has recommended routine antenatal screening for syphilis at first antenatal visit as early as possible in pregnancy and repeating in 3rd trimester to detect infection acquired during pregnancy [15], as syphilis is a major cause of abortion and poor pregnancy outcome and congenital syphilis in new born.

Our data shows significantly lower prevalence of syphilis in rural population compared to urban population. In India, there is a paucity of information regarding the prevalence of syphilis in Southern Tamilnadu. Though insignificant, the data also reveals that prevalence in females was higher compared to males. The low incidence rate of syphilis among the rural population in our study could be due to greater awareness, improved access to health care, effective control programmes and efficacious treatment.

CONCLUSION

Syphilis continues to be a major problem in India. Even though, the incidence is low, these findings suggest that there is greater risk behaviour among rural population of Trichy area and the sexually active females are at higher risk of contracting the syphilis infection. The control of syphilis is important for the control of HIV as well as for avoiding adverse complications between the two infections. With the discovery of dramatic therapeutic response to penicillin it was clear that it may even be possible to eradicate syphilis, as the disease has no extra human reservoir. Prevalence of syphilis in pregnant women should be screened at the first antenatal visit because the disease is treatable, and it will help to eliminate the complications of untreated syphilis.

ACKNOWLEDGEMENT

Authors are thankful to Microbiology Department, Chennai Medical college Hospital and Research Centre, Irungalur, Trichy, Tamilnadu, India.

Source of Support: Nil

Conflict of Interest: None declared.

REFERENCES

- Heymann DL. Syphilis. In: Control of Communicable Diseases Manual 18th ed., American Public Health Association, Washington, 2004; 518-524.
- Singh AE and Romanowski B. Syphilis: review with emphasis on clinical, epidemiologic, and some biologic features. Clin Microbiol Rev 1999; 12(2):187-209.
- Gawande AV, Vasudeo ND, Zodpey SP, Khandait DW. Sexually transmitted infections in long distance truck drivers. J Commun Dis 2000;32:212-5
- Sharma VK, Khandpur S. Changing patterns of sexually transmitted infections in India. Natl Med J India 2004;17:310-9
- Chawla R, Bhalla P, Garg S, Meghachandra Singh M, Bhalla K, Sodhani P et al. Community based study on sero-prevalence of syphilis in New Delhi (India). J Commun Dis 2004;36:205-11.
- Koskela P, Vaarala O, Makitalo R, Palosuo T, Aho K. Significance of false positive syphilis reactions and anticardiolipin antibodies in a nationwide series of pregnant women. J Rheumatol 1988; 15:70-3.
- Balaji N, Balaji K, Karthikeyan L, Rekha N. Syphilis is predominantly an urban problem of Vellore district of Tamilnadu. Indian J Sex Transm Dis 2008;29(1):46-47.
- Shyamala R, Rao JR. The incidence of syphilis in a tertiary care hospital in South India. Der Pharmacia Lettre, 2013;5(3):56-57.
- Rajendran P, Thyagarajan SP, Pramod NP, Jovee AG, Murugavel KG, Balakrishnan P et al. Serodiagnosis of syphilis in a community: An evaluatory study. Indian J Med Microbiol 2003;21:179-83.
- Thaker YS, Chande Cmahullzy AD, Sauji AM. Seroprevalence and syphilis by TPHA test. Indian J Pathol Microbiol 1996; 39:135-138.
- Nair N, Urhekar AD, Pachpute S, Srivastava A. Incidence of Syphilis among pregnant women attending a tertiary care hospital in Navi Mumbai, India. Int. J. Curr. Microbiol. App. Sci. 2013; 2(8):79-84.
- Parveen. S S, Rao R M.V and Rao. J R. Declining seroprevalence of syphilis among pregnant women in a rural area. J. Microbiol. Biotech. Res., 2012, 2 (2):305-307.
- Zimmo SK, Riad HMA, Ramadani HM, Al Sebiani SA. Seroprevalence of sexually transmitted diseases among pregnant women in Jeddah, Egypt. J Derm Androl, 2000; 20(2): 71-76.
- Sharifa A, Al-Sibiani. Prenatal Screening Syphilis: Is Universal Screening Necessary in Saudi Arabia?. JKAU. Med. Sci. 2008;15(4):41-48.
- World Health Organization: Sexually Transmitted Infections: Reproductive Tract Infection assessment in pregnancy, childbirth and the postpartum period (online)