

## FREQUENCY OF SYPHILIS AMONG ANTENATAL CLINIC ATTENDEE IN COMBINED MILITARY HOSPITAL ABBOTTABAD

Mamuna Qayum, Nasira Shaheen, Muhamamd Qaiser Alam Khan, Nomira Waheed, Waleed Ali

Combined Military Hospital Abbottabad Pakistan

### ABSTRACT

**Objective:** Frequency of syphilis among pregnant women attending Combined Military Hospital Abbottabad

**Study Design:** Descriptive study.

**Material and Methods:** A screening for syphilis of 500 married pregnant women presenting to antenatal clinics was carried out using the qualitative Rapid Plasma Regent (RPR) test/ Venereal Disease Research Laboratory (VDRL) test. The Treponema Palladium Haem-Agglutination Assay (TPHA) test was used as confirmatory test for all Venereal Disease Research Laboratory (VDRL) test positive cases.

**Results:** A total of 8 women (1.6%) were positive for Venereal Disease Research Laboratory (VDRL) test. Out of these 4 (0.8%) were positive for Treponema Palladium Haem-Agglutination Assay (TPHA) test. All of these cases have bad obstetrical history.

**Conclusion:** The sero-positivity of Venereal Disease Research Laboratory (VDRL) test is (1.6%), considered high among pregnant women reporting in obstetrics clinics of Combined Military Hospital Abbottabad. Similarly sero-positivity of Treponema Palladium Haem-Agglutination Assay (TPHA) test is (0.8%) considered high among the Venereal Disease Research Laboratory (VDRL) test population. Therefore

Screening of syphilis in pregnancy especially in patients having bad obstetrical history (BOH) should be incorporated into the study.

**Keywords:** Antenatal Screening, Prevalence, Syphilis, TPHA, VDRL.

### INTRODUCTION

Syphilis is a chronic systemic infection which is caused by spirochete bacterium *Treponema Palladium* subspecies Palladium. It is predominantly sexually transmitted, with untreated cases in pregnancy resulting in trans-placental transmission. Adverse obstetric outcome has been observed to be higher in syphilis positive than negative mothers, with complications<sup>1</sup>. Syphilis is a major cause of reproductive morbidity, mortality and poor pregnancy outcomes. Primary syphilis may present as a painless genital ulcer 3-6 weeks after the infection is acquired (condylomatalata), this may be on cervix and go unnoticed. Secondary manifestation occurs 6 weeks to six months after infection and present as a maculopapular rash or lesion affecting the mucous membranes. Ultimately 20% of untreated patients will develop symptomatic

cardiovascular tertiary syphilis and 5-10 per cent will develop symptomatic neuro-syphilis.

Frequency is higher in developing countries where treatment is less accessible. The prevalence of syphilis in pregnant women in some developing countries ranges from 1%-20%, and sexual transmitted diseases (STDs). STD epidemic is characterised by rate of complications, antibacterial resistance and interaction with Human Immune Deficiency Virus (HIV)<sup>2</sup>. World Health Organisation (WHO) progress report 2011, revealed that 1.9 million pregnant women had active syphilis<sup>3</sup>. According to World Health Organisation (WHO) progress report estimate, half (460000) will result in abortion or perinatal death, and 270,000 cases will present with low birth weight and prematurity. In pregnant women with early untreated (primary or secondary) syphilis, 70-100 percent of infants will be infected and approximately 25 percent will be stillborn<sup>4</sup>. Mother to child transmission in pregnancy is associated with fetal growth restriction, fetal hydrops, congenital syphilis, stillbirth, preterm birth and neonatal death. Due to serious complications associated with syphilis infection to pregnant woman World Health

**Correspondence:** Dr Mamuna Qayum, House no. 206, Street # 03, Sector-A, DHA Phase-V, Lahore, Pakistan

Email: mamunawaheed123@gmail.com

Received: 05 Dec 2014; received revised: 30 Mar 2015; accepted: 09 July 2015

Organisation (WHO) has recommended universal screening at first antenatal (booking) visit<sup>5</sup>.

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<sup>6</sup>. There is

Treponemas palladium Heam-agglutination Assay (TPHA) test<sup>10</sup>. This test is usually positive two-four weeks after initial exposure to antigen. Venereal Disease Research Laboratory (VDRL) test is the only test where the result of a confirmed syphilis infection can become negative after successful treatment<sup>8</sup>. For the devastating effects of syphilis to be obviated, it

**Table-1: Socio-demographic risk factors.**

Risk Factors	N/T	Prevalence (95% C.I)	Odds Ratio (p-value)
Total	8/500	1.6 (0.8 – 3.2)	-
Age (Years)			
≤ 28	7/225	2.6 (1.2 – 5.5)	8.54 (0.047)
> 28	1/275	0.4 (0.0 – 2.6)	
Occupation			
Employed	2/45	4.4 (0.4 – 15.6)	3.48 (0.134)
Housewife	6/455	1.3 (0.5 – 2.9)	
Monthly Income (Rs.)			
10,000 +	1/221	0.4 (0.0 – 2.8)	-
≤ 10,000	7/279	2.5 (1.1 – 5.2)	5.66 (0.106)

generalized lack of awareness among general public and medical practitioners for sexually transmitted diseases (STDs) and social stigma associated with these diseases.

It is a concept, that sexually transmitted diseases (STDs) can't be important in conservative Muslim nations. However studies from Saudi - Arabia in year 2000 and 2007 have reported a rate of 0.7% and 0.02% among prenatal women respectively<sup>7</sup>. Its association with increased risk of Human Immune Deficiency Virus (HIV) has acquired a new strengthening<sup>8</sup>.

For effective management of pregnant females and to reduce the frequency of perinatal transmission a definitive and early diagnosis is extremely essential. Syphilis is diagnosed by a blood test known as Venereal Disease Research Laboratory (VDRL) test. The non-Treponemal serological screening test for syphilis is Venereal Disease Research Laboratory (VDRL), was developed in 1946 by Harris<sup>9</sup>. Its basis is that an antibody produced by patient with syphilis can be detected by accurate, safe and inexpensive blood test. During pregnancy there is high incidence of false positive result, so a confirmation test is compulsory. The confirmation is made with

is important to accurately diagnose and effectively manage, the patients with positive report. It is important to determine the socio-demographic factors of test positive cases, so that primary prevention can be taken as well. The aim of antenatal screening is to assess the frequency of syphilis among the antenatal clinic attendees in Combined Military Hospital (CMH) Abbottabad.

## MATERIAL AND METHODS

This descriptive study was carried out in Combined Military Hospital (CMH) Abbottabad during the period of January 2013-December 2013. From antenatal clinics, a total of 500 patients were selected through non-probability convenient sampling. All the patients underwent a detail history, complete physical examination and relevant laboratory investigations. Only those samples were considered for the study, which fulfil the criteria. Inclusion criteria were, bad obstetric history or conception after subfertility. The patients should be in first trimester for booking visit. Wives of army personal were included. Exclusion criteria were, pregnant women with any medical disease and pregnant patients coming for Venereal Disease Research Laboratory (VDRL) test for second instance.

Civilian patients were excluded as most of the husbands refused treatment and follow up. Blood sample was obtained from pregnant women for biochemical measurement. Measurement was performed according to standard method using universal safety precaution. Five ml of venous blood was drawn and Venereal Disease Research Laboratory

effects of socio-demographic risk factors on the syphilis patients. According to age 7 (2.6%) patients were less than 28 years and 1 (0.4%) patient was more than 28 years. In our study working ladies were 45 and out of these only 2 (4.4%) patients with positive report of Venereal Disease Research Laboratory( VDRL) test. In working ladies multiple jobs were

**Table-2: Obstetric history of patients.**

Risk Factors	N/T	Prevalence (95% C.I)	Odds Ratio (p-value)
Gravidity			
≤ 1	2/150	1.3 (0.0 – 4.1)	-
> 1	6/350	1.7 (0.9 – 4.2)	1.29 (0.756)
No. of alive children			
0	7/290	2.4 (1.1 – 5)	5.17 (0.126)
≥ 1	1/210	0.5 (0.0 – 2.9)	-
Previous Abortion or stillbirth			
Yes	5/315	1.6 (0.6 – 3.8)	-
No	3/185	1.6 (0.3 – 4.9)	1.02 (0.977)
Previous Low birth weight babies			
Yes	2/434	1.4 (0.7 – 3.9)	-
No	6/66	3 (0.2 – 11)	2.19 (0.343)
Contraceptive use before pregnancy			
Yes	2/100	2 (0.1 – 7.4)	1.33 (0.727)
None	6/400	1.5 (0.6 – 3.3)	-
Years of marriage			
≤ 1 year	6/340	1.8 (0.7 – 3.9)	1.41 (0.675)
> 1 year	2/160	1.25 (0.05 – 4.7)	-

(VDRL) test was performed with the serum obtained from the collected blood sample. The subjects with Venereal Disease Research laboratory test positive were considered seropositive. These pregnant women and their husbands Treponema palladium Heam-agglutination Assay (TPHA) test were performed. Data and results of study were analysed on computer software SPSS 17 version. Descriptive statistics were used to describe the results. Chi-square test was applied to study the significance of different risk factors. A  $p$ -value < 0.05 was considered as significant.

## RESULTS

Out of total 500 women the Venereal Disease Research Laboratory (VDRL) test was positive in 8 (1.6%) patients. Table-1 shows the

identified such as teachers, beauticians, small scale business, ayah, sweepers, lady health visitors. On other-hand out of 455 house wives 6 (1.3%) patients were with positive Venereal Disease Research Laboratory (VDRL) test result. In socio-demographic risk factors it is revealed that the families with income more than Rs 10,000 /month, only 1 (0.4%) patient had positive report but with income less than Rs 10000/month 7 (2.5%) women had positive reports of syphilis out the 500 group.

In table-2 obstetrical histories of patients were analyzed for results and frequency of syphilis. Results revealed that it is more common in multipara. In primigravida patients 2 (1.3%) women out of 150 had Venereal Disease Research Laboratory (VDRL) test positive, and in multipara patients 6 (1.7%) out

350 were positive. The women with history of no live issue 7 (2.4%) were infected. In women with one live issue only 1 (0.5%) was infected. The women with previous history of abortion and stillbirth 5 (1.6%) were infected and without this history only 3(1.6%) were infected. The neonates with low birth weight 2 (1.4%) were infected, and without history 6(3%) were infected. Women with history of any type of contraception 2(2%) were infected and without any contraception 6(1.5%) were infected. In women married for one year or less 6 (1.8%) were infected and more than one year, 2 (1.25%) were infected.

## DISCUSSION

There is substantial burden of syphilis in both developed and developing nations. In our study the frequency of syphilis is 1.6%. In University of Uyo Teaching Hospital, Uyo, Akwalbom State, Nigeria the sero-prevalence is 2.2% among antenatal attendees<sup>11</sup>. We performed screening in the first trimester, same is recommended by The Northern Ireland Antenatal Syphilis Screening Programme<sup>12</sup>.

In this study we found that frequency of syphilis is higher in < 28 years (2.6%), than in > 28 years (0.4%). Same results were found in a study of Hyderabad India<sup>12</sup>, where all positive cases were young pregnant women in the age group of 19-22 years. These findings were also found in a study in Niger Delta Nigeria<sup>14</sup>. In Nigeria study majority of study population were married with primary level of education, house wives, multiparas in age group of 25-29 years. These findings further confirm the predominance among younger age group and need immediate attention of medical authority.

In our study it is 4.4% in working ladies and in house wives is 1.3%. The frequency in low income group is 2.5% and in group having income more than ten thousand per month income is 0.4%. Same results are found in a study in Karachi Pakistan<sup>15</sup>.

In our study it was more in multigravida (1.7%) than in primigravida (1.3%). Same results were found in university of Brasov<sup>16</sup> where 72.4% in multipara and 27.6% in primigravida

In our study 2.4% women with no live issue and cases of bad obstetric history (BOH) have syphilis infection 2.4% and with one or more children the rate of infection is 0.5%. All the participants had already given birth and were exposed to un-protected intercourse. This is also found in the study of Niger Delta Nigeria<sup>13</sup>.

Regarding obstetrical history i.e. number of previous pregnancies, mean gestational age, number of live births in previous pregnancies our study shows identical prevalence as in Brazilian study<sup>17</sup>.

In our study the Venereal Disease Research Laboratory (VDRL) test was positive in 1.6% and Treponema palladium Heam-agglutination Assay (TPHA) test was positive in 0.8%. The difference could be attributed to biologically positive cases especially in pregnant females where low titre Venereal Disease Research Laboratory (VDRL) test is positive. Hence Treponema palladium Heam-agglutination Assay (TPHA) is a useful test in confirming true positive syphilis cases. Same is found in a study conducted in India<sup>18</sup>.

## CONCLUSION

Syphilis is predominant among younger age group and needs immediate attention of medical authority. Antenatal screening of, bad obstetric history (BOH) cases in early years of marriage provides a favourable cost-benefit ratio even in the low endemic areas. The benefit of screening is that, syphilis positive cases can be detected in young house wives of low income group and with bad obstetric history. Timely treatment will improve their clinical prognosis and risk of secondary transmission can be reduced and prevented.

## CONFLICT OF INTEREST

This study has no conflict of interests to declare by any author.

## REFERENCES

1. Goh BT, Thornton AC. Antenatal screening for syphilis. *Sex Trans Infect* 2007; 83: 345-346.
2. Nidhi A.D. Urhekar, Samir PachputandAmbrish Srivastava. Incidence of Syphilis among pregnant women attending a tertiary care hospital in Navi Mumbai, India *Int J Curr Microbiology App Sci* 2013; 2(8): 79-84.
3. World Health Organization. Toward eliminating congenital syphilis. *Progress Report* 2011.

4. Sarah Vause. Perinatal Infections. Obstetrics by Ten Teachers. Book Power edition of Nineteenth Edition.2011.
5. World Health Organization.2005. Actionfor global elimination of congenital syphilis : rational and strategy. Geneva , WHO Department of Reproductive Health and Research.
6. Olokoba AA, Salawu FK, Danburam FK A, Desalu OO, Midala JK, Badung LH et al. A. 2009. Syphilis in Pregnant Nigerian Women: Is it Still Necessary to Screen ? EJSR.29: 315-19.
7. Sharifa A, Al-Sibiani. Med. Sci 2008; 15(4): 41-48.
8. Olokoba AB, . Olokoba LB, Salawu FK, Danburam A, Desalu OO, Midala JK. Int JTrop Med 2008; 3(3): 70-72.
9. Harris A, Rosenberg AA, Riedel LM, A microfloculation test for syphilis using cardioliopin antigen: Preliminary report. J vener.Dis inform 1946 ; 27 :159-172.
10. Bulletin of the Transilvania University of Brosov \* Series VI \*Vol 5(54) No.2-2012.
11. Onwuezobe IA ,Ochang EA , Umoyoho A ,Bassey EA, Umoffia EM. Prevalence of Syphilis seropositivity in antenatal clinic clients in a teaching hospital in South-South region of Nigeria.Asian Pacific Journal of Tropical Diseases 2011; 21-23.
12. Syphilis\_guidelines.pdf.www.dhsspsni.gov.uk.
13. Saraswathi KS, al jabri F. Decreasing incidence of Syphilis among pregnant women in a tertiary care hospital. J Microbiol. Biotech. Res 2013; 3(4): 22-23 (<http://scholarsresearchlibrary.com/archive.html>).
14. Buseri FI, Selyaboh E, Jeremiah ZA. Surveying infections among pregnant women in the Niger Delta, Nigeria. Journal of Global infectious diseases 2010; 2(3): 203-211.
15. Shah SA, Kristensen S , Memon MA, Usman G, Ghazi A, John R et al. Prevalence of syphilis among antenatal clinicattendees I Karachi: Imperative to begin universa . J Pak Med Assoc 2011; 61(10): 993-997.
16. C.ANASTASIU . M. MOGA. A.M.DULL. Maternal untreated Syphilis infection and pregnancy outcome-An Observational Study. Bulletin of the Transilvania University of Brasov Series VI: Medical Science 5 (54) No.2-2012.
17. Nobrega I , Dantas P, Rocha P, Rios I, Marcos A , Eduardo M. Netto, et al. Syphilis and HIV among parturient women in Salvador, Brazil : Low prevalence of syphilis and high rate of loss to follow-up in HIV-infected women. BRAZ J INFECT DIS.2013 ;17(2) :184- 193.
18. Fatima N, Malik A, Khan PA, Ali S, Khan HM, Nabeela. Sero Prevalence of Syphilis Infection among Patient Attending Antenatal Care &Sexually Disease(STD) Clinic: Observation from a Tertiary Care Hospital of Northern India. American Journal of Internal Medicine.Vol2, No 1, 2014.pp 6-9. Doi: 10.11648/j.ajim.20140201.12.