An observational study of clinical profile and outcome of syphilis infection during pregnancy in the tertiary care center

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INTRODUCTION

Syphilis is a sexually transmitted disease (STD) caused by the bacterium Treponema pallidum, but little is known about its mechanism of action.¹ In pregnancy it leads to adverse outcomes among more than half of the women with active disease, including early fetal loss, stillbirth, prematurity, low birth weight, neonatal and infant death.

ABSTRACT

Background: Syphilis is a sexually transmitted disease (STD) caused by the bacterium Treponema pallidum, but little is known about its mechanism of action. In pregnancy it leads to adverse outcomes among more than half of the women with active disease, including early fetal loss, stillbirth, prematurity, low birth weight, neonatal and infant death.

Methods: It is an observational study in the department of obstetrics and gynecology Mahatma Gandhi Memorial Medical College Maharaja Yashwant Rao Hospital, Indore between January 2014 to December 2015 total 20870. In Include written informed consent, All the patients attending STI/RTI clinic with clinical diagnosis of STD. In Exclusion criteria include patients not give informed consent. Case definition: All VDRL + TPHA positive patients.

Results: Out of 20870 females on which VDRL was performed 77 (0.036%) were found to be positive. The seroprevalence at study hospital thus came out to be 0.036%. These were further confirmed by TPHA and 73 (94.8%) out of 77 samples were positive. A total agreement was seen between TPHA and VDRL with a titer of 1 in 8 and above. Among total 20870 screened females, 77% (16101) were ANC patients of which 26 cases out of 77 that is 33.76% females were syphilis positive.

Conclusions: Low prevalence of syphilis in pregnant women and adult general population is very encouraging. participation of people and public health approach to promote awareness of syphilis among physicians and populations at risk in India are very urgently needed to avoid the adverse consequences which could result from undiagnosed or improper treatment.

Keywords: Congenital syphilis, Reproductive tract infection, Sexually transmitted infections, Syphilis in pregnancy
Sampling technique and procedure

A total 16101 pregnant women out of 20870 total female of were registered at the antenatal care clinics since January 2014 to December 2015. Samples proportional to pregnant women in the selected health facilities were allocated. Lists of pregnant women were prepared using unique identification numbers from records found in ANC clinics and sampled by systematic random sampling using the registers sampling frame. All pregnant women who had ANC records with complete information were included in the study while all pregnant women who had ANC records with incomplete information were excluded.

Data collection method

Data was collected from record log book and patient charts using semi structured questionnaires. The tool was pretested on the ANC chart on another health center which provides ANC service and which is not part of the study and necessary adjustments were made in the data collection instrument. Regarding syphilis test two millilitre of blood was drawn from the mother and VDRL test was done.

Ethical approval was obtained and actual data were collected. For all study participants the objective of the study was explained and written informed consent was obtained.

Statistical analysis

The collected data was clearly summarized, filled, and analyzed by using SPSS version 21. Descriptive statistics was employed and the result was presented by using Tables.

RESULTS

Out of 20870 females on which VDRL was performed 77 (0.036%) (Table 1) were found to be positive.

Table 1: Prevalence of VDRL positive females.

| Total no. of screen female patients | Total no. of positive cases | Percentage |
|------------------------------------|----------------------------|------------|
| 20870                              | 77                        | 0.036%     |

Table 2: Prevalence of TPHA positive spouse.

| Partner TPHA (N=77) | Number | Percentage |
|---------------------|--------|------------|
| Positive            | 42     | 54.5%      |
| Negative            | 35     | 45.5%      |

The seroprevalence at study hospital thus came out to be 0.036%. These were further confirmed by TPHA and 73 (94.8%) out of 77 samples were positive. Total number of spouse positive TPHA are 42 out of 77 that is 54.5%, and
negative TPHA are 35 out of 77 that is 45.5% (Table 2). A total agreement was seen between TPHA and VDRL with a titre of 1 in 8 and above. Among total 20870 screened females, 77% (16101) were ANC patients of which 26 cases out of 77 that is 33.76% females were syphilis positive. Prevalence more in urban population that is 62.3% (Table 3).

Table 3: Prevalence according to locality.

| Locality (N=77) | Number | Percentage |
|-----------------|--------|------------|
| Urban           | 48     | 62.3%      |
| Rural           | 29     | 37.7%      |

Prevalence of disease among illiterate population is more 44.1% than in literate (Table 4). Unemployed peoples are more affected 63.6% than unskilled and skilled individuals (Table 5). Married peoples are more affected 87% than other (Table 6).

Table 4: Prevalence according to education.

| Education (N=77) | Number | Percentage |
|------------------|--------|------------|
| Illiterate       | 34     | 44.1%      |
| Primary (5th)    | 24     | 31.1%      |
| Middle (8th)     | 13     | 16.8%      |
| High school      | 6      | 7.7%       |
| Inter/ diploma   | 0      | 0%         |
| Graduate/post graduate | 0   | 0%         |
| Professional     | 0      | 0%         |

Table 5: Prevalence according to occupation.

| Occupation       | Number | Percentage |
|------------------|--------|------------|
| Unemployed       | 49     | 63.6%      |
| Unskilled        | 22     | 28.5%      |
| Skilled          | 3      | 3.8%       |
| Semiskilled      | 2      | 2.5%       |
| Clerical/shopkeeper/farmer | 1  | 1.3%       |
| Semi-professional| 0      | 0%         |
| Professional     | 0      | 0%         |

When HIV status of these patients was studied it was found that of the total 77 cases 4 were positive for both VDRL and HIV (Table 7). Nuclear family more affected 72.7% than joint family (Table 8). Of the total female positive maximum belonged to 20-30 years age group that is reproductive age group (Table 9). Regarding sexual behaviour of the patients positive 41 patients had one sexual partner (53.24%), 34 had 2 partners (44.1%) and 2 had 3 partners (2.59%). Congenital syphilis was seen among 3 cases of the total 77 seropositive patients 3.89% of positives (Table 10) and 0.01% of the total females screened. The patients positive for syphilis included 26 pregnant females (0.16% of the ANC samples received), 4 (5.19%) HIV positive patients, 51 were from STD clinic (1.06% of samples received from STI clinic).

Table 6: Prevalence according to marital status.

| Marital status (N=77) | Number | Percentage |
|-----------------------|--------|------------|
| Single                | 5      | 6.5%       |
| Married               | 65     | 87%        |
| Remarried             | 3      | 3.9%       |
| Widowed               | 3      | 3.9%       |
| Divorced              | 1      | 1.3%       |
| Separated             | 0      | 0%         |

DISCUSSION

Comprehensive data on the prevalence of syphilis is not available from most developing countries. Serological surveys continue to be the best source of information on the prevalence of syphilis. Minimal estimates of yearly prevalence of syphilis are 12 million worldwide. Estimates reveal that South Asia has the highest number of syphilis cases in the world. Accurate figures on the prevalence of STDs are difficult to obtain not only because of inadequate reporting but because of the secrecy that surrounds them. All available data, however indicate a high prevalence of STD (from 1%-14%) in the vulnerable population groups while this study focuses on only female patients (pregnant and symptomatic). Seroprevalence of syphilis among females in this study came out to be 0.036% (Table 1) which is comparable to study conducted by Khan S et al, at Southern India. According to their study syphilis seroprevalence reduced from 0.88% in 2006 to 0.40% in 2008, which was statistically significant ($\chi^2=9.16, \ p=0.0103$).
Seropositivity was also highest among the age group 20-30 years, which could be due to increased risk of exposure in this group and most of pregnant females which constituted a large section of study group also fall in this category. In India the prevalence of syphilis ranges between 2.0-4.8% among women of reproductive age group.\(^1\)\(\text{-}^\text{17}\) So, in conclusion low prevalence of syphilis in pregnant women and adult general population is very encouraging. But all resources need to be continuously dedicated towards STI and HIV control programs in India. Public health interventions and participation to promote awareness of syphilis among physicians and populations at risk in India. And to avoid the adverse consequences which could result from missed diagnosis or improper treatment. And to contributing to the spread of HIV in India, untreated syphilis could also contribute to poor health outcomes resulting from the consequences of latent stages of the disease and maternal-infant transmission with resultant congenital syphilis. Elimination of parent to child transmission of syphilis (E-PTCT) is a new national strategy launched by STI/RTI control and prevention program under NACO in collaboration with reproduction, maternal, newborn child health and adolescent (RMNCH+A) program under National Health Mission. The national strategy on E-PTCT of syphilis will contribute to achieving millennium development goals 4 (reduce child mortality), 5 (improve maternal health) and 6 (combat HIV/AIDS, malaria and other diseases). In study hospital has adopted this strategy likewise all other stakeholders should take necessary action to strengthen the program.

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