

SEROPREVALENCE OF SYPHILIS IN PREGNANT WOMEN ATTENDING PLATEAU SPECIALIST HOSPITAL JOS, NIGERIA

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ABSTRACT

Background: Syphilis is a systematic disease of public health of importance because of its adverse impact on pregnancy outcome.

Objectives: To determine the seroprevalence rate of syphilis among pregnant women attending the antenatal clinics at Plateau specialist hospital Jos in Nigeria. **Methodology:** Serum specimens from 164 consenting pregnant women were screened for *Treponema pallidum* infection using rapid test strip and positive samples confirmed using ELISA technique. The biodata of study participants were obtain using questionnaires. **Results:** Out of 164 pregnant women recruited for the study, three samples were positive 3 (1.8%) for syphilis using rapid

test strip. The three (3) positive sample were subjected to ELISA test, after wish two 2 (1.2%) were confirmed positive. Regarding prevalence in relation to history of STI, the rate of infection 1(1.9%) was higher in women with history of STI than those 1(0.9%) without history of STI. **Conclusion:** The present study has established a 1.2% prevalence of syphilis among pregnant women attending antenatal clinic at Plateau State Specialist Hospital, Jos. Nigeria. Despite the low prevalence, we advocate continuous screening of pregnant women because early diagnosis and treatment could prevent mother to child transmission.

KEYWORD: Syphilis, pregnancy outcome, seroprevalence.

INTRODUCTION

Syphilis is a sexually transmitted infection (STI) caused by a spirochete, *Treponema pallidum* subspecies palladium, an obligate human pathogen.^[8] Infection occurs when the parasite penetrates the host usually through intact or abraded skin which includes the lining of the mouth, lips or the genital area of both men and women.^[8]

Globally, around 340million cases of STI occur every year, of these syphilis accounts for an estimated 12million cases, 2million of them are among pregnant women.^[12]

Congenital syphilis occurs when an infected mother with symptomatic or asymptomatic early syphilis transfers the infection to the foetus transplacentally^[9] or during delivery when the infant passes through the birth canal in which there is a contact between the newborn and genital lesion of the mother.^[14]

Breast feeding does not result in the transmission of syphilis unless an infectious lesion is present on the breast.^[14] Transmission can occur during any stage of syphilis but risk is higher during primary and secondary syphilis.^[7]

Syphilis in pregnancy is one of the major cause reproductive morbidity and poor pregnancy outcomes in developing.^[10] Syphilis in pregnancy can result in adverse outcomes such as still birth, spontaneous abortion perinatal death and low-birth weight babies etc.^[10] Early detection and treatment of syphilis at least 30days to delivery can prevent congenital syphilis.^[2]

In the light of the aforementioned problems associated with congenital syphilis and the sparse information on the occurrence of syphilis in Jos. We therefore, screen pregnant women attending antenatal Clinic at Plateau Specialist Hospital Jos to determine the prevalence of syphilis.

MATERIALS AND METHODS

Ethical clearance

Ethical clearance was obtained from the Plateau specialist Hospital ethical committee.

Study population

All pregnant women attending antenatal clinic of Plateau State Specialist Hospital Jos, Plateau State, within the study period were invited to participate in the study.

Sample size

The minimum sample size for this study was calculated using the formula.^[3]

$$N = \frac{Z^2 P(1-P)}{d^2}$$

N= minimum sample size, Z= (1.96) constant mean deviation, 1= constant

P= local prevalence of similar previous study, d^2 = Degree of precision adopted for the study = 0.05

Sample collection and processing

A total of 164 pregnant women were recruited from the antenatal clinic of Plateau State Specialist Hospital, Jos located in the North Central Nigeria. Prior to sampling, informed consent was obtained before collection and questionnaires were administered to obtain biodata.

Five milliliters (5mls) of blood was collected into a plain bottle and centrifuged to obtain serum. Where delay was anticipated samples were stored at -20°C until ready for use. The samples were tested using Ultra Rapid test strip method, positive samples on rapid test strip were confirmed using Enzyme Linked Immunosorbent Assay (ELISA) technique.

Data analysis

All data were analyzed using the SPSS version 21 statistical software. Pearson chi-square was used to compare relationship between variables and positive cases at 95% confidence interval and $P < 0.05$ considered significant.

RESULTS

Of the 164 samples tested, 3 (1.8%) were positive for *Treponema pallidum* with the rapid syphilis test strip method and 2(1.2%) were confirmed positive with ELISA. The age groups of women tested and positivity were as follows: 12-21 years (strip: 1(2.9%), ELISA: 1(2.9%), 22-31 years (strip: 2(2.4%), ELISA: 1(1.2%) and 32-41 years (strip: 0(0.0%), ELISA: 0(0.0%) as shown in table 1.

Pregnant women in their first trimester had the highest prevalence of 2 (4.7%), while those of second and third trimester did not record a positive result table 2.

Table 4 shows the prevalence of *Treponema pallidum* in relation to history of sexually transmitted infection (STI). Women with history of STI recorded a prevalence of 1 (1.9%), while 1(0.9%) was observed in women without history of STI table 3.

Table 1 Sero-prevalence of *Treponema pallidum* in relation to age group of pregnant women

Age group	Number examined	No. positive on strip (%)	No. positive by ELISA (%)	p-value
12-21	35	1(2.9)	1(2.9)	0.552
22-31	84	2(2.4)	1(1.2)	
32-41	45	0(0.0)	0(0.0)	
Total	164	3(1.8)	2(1.2)	

Table 2 Sero-prevalence of *Treponema pallidum* in relation to trimesters of pregnancy

Trimesters	Number examined	No. Positive (%)	p-value
First	43	2(4.7%)	0.058
Second	43	0(0.0)	
Third	78	0(0.0)	
Total	164	2(1.2)	

Table 3 Relationship between syphilis positivity and history of sexually transmitted infection (STI)

History of STI	Number examined	No. positive (%)	p-value
Yes	54	1(1.9)	0.605
No	110	1(0.9)	
Total	164	2(1.2)	

DISCUSSION

The present study has revealed a low prevalence of 2 (1.2%). The reason for this low prevalence may be due to the advocacy for prenatal care which is in line with WHO guideline for eradication of syphilis^[4] and the Millennium development Goal of reducing infant death from syphilis and prompt treatment of infected mothers.^[11] The low prevalence is comparable to 2.97% that was recorded in an antenatal clinic in Oshogbo Nigeria^[13], 1.6% prevalence recorded by^[1] and higher than a similar work carried out by^[6] who reported a prevalence of 0.3%. In addition, the difference may be due to variation in sampling, variation in sexual practices and cultural practices. Intervention strategies and availability of antibiotics (penicillins) has been given as a possible reason for the reduction in prevalence.

The disparity in the result between rapid VDRL test strip 3(1.8%) and ELISA 2(1.2%) may be due to the possibility of cross reaction with other infections such as Malaria, pregnancy and some viral infections This is in agreement with^[5] in a similar study who also obtained false positive results using VDRL strips thus justifying the use of ELISA as the confirmatory method.

The results from the study shows that the two positive cases of syphilis occurred among women in their first semester, this may be due to the fact that the women were coming to the ante natal clinic for the first time and may not have had the opportunity for routine screening though an indication for prompt treatment and prevention of mother to child transfer. This contradicts the work done by^[13] who recorded prevalence at different trimesters. Syphilis co-infection with other STI was also considered, prevalence of 1(1.9%) was recorded by women with history STIs, however the result did not show any statistical significant relationship ($p=0.605$).

CONCLUSION

In conclusion we recorded a low prevalence of syphilis among pregnant women in Nigeria. Although this is likely to increase if adequate program is not put in place to ensure its total eradication.

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