International Research Journal of Medicine and Biomedical Sciences Vol.4 (2),pp. 23-27, May 2019
Available online at http://www.journalissues.org/IRJMBS/
https://doi.org/10.15739/irjmbs.19.004

ISSN 2488-9032

Original Research Article

Seroprevalence of venereal disease in pregnancy: Our experience in Federal Medical Centre Yenagoa Bayelsa State Nigeria

Received 28 February, 2019 | Revised 2 April, 2019 | Accepted 15 April, 2019 | Published 11 May, 2019

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In growing nations, syphilis and its congenital form remain significant public health problems that affect 10%–15% of pregnant women. To determine the Seroprevalence Venereal Disease in pregnancy and to make evidence based recommendation in our obstetric population at Federal Medical Centre, Yenagoa. This is a descriptive cross sectional study. Two hundred and twenty (220) consecutive healthy pregnant women attending the antenatal booking clinic of the hospital were recruited into this study. Blood was collected and tested for qualitative detection of antibodies to Treponema Pallidium using commercially available in vitro diagnostic kits. Data was collected via a structured interviewer administered questionnaire. Data entry and analysis was done using SPSS 22 statistical package (SPSS Inc., Illinois, USA). The predominant age group was 20-29 years (50.0%). The mean age is 28.8 years ± 5.2. The Seroprevalence of venereal disease in this study was 25.9%. The Seroprevalence of venereal disease in pregnancy is very high in our obstetric population. Early diagnosis and treatment within the first trimester of each pregnancy, on-site screening and public health awareness of this venereal disease is essential for mothers, sexual partners and unborn babies.

Key words: Venereal disease, syphilis, pregnancy, perinatal morbidity, yenagoa

INTRODUCTION

Globally, in 2016 WHO reported that 988,000 pregnant women were infected with syphilis, resulting in over 200,000 stillbirths and newborn deaths. (WHO fact sheets, 2016)

Mother-to-child transmission of syphilis during pregnancy can lead to serious fetal outcomes in the later part of pregnancy including early fetal death, stillbirth, neonatal death, preterm birth, low birth weight and congenital infections in infants (Korenromp et al., 2019; Lawn et al., 2016). To corroborate this, syphilis is the second most infectious cause of stillbirth globally and an essential avoidable contributor to infant morbidity and mortality (Korenromp et al., 2019).

In growing nations, syphilis and its congenital form remain significant public health problems that affect 10%–15% of pregnant women. Africa has the highest incidence of the disease, representing 63% of cases reported every year in pregnant women (Newman et al., 2013; Wijesooriya et al., 2016).

Syphilis as a venereal disease is a sexually transmitted disease (STD) transmitted primarily through sexual intercourse, blood transfusion and contaminated needles (Oliveira et al., 2016). Acute and chronic manifestations can be seen in Syphilis infection, all caused by the bacterium *Treponema Pallidum* subspecies *Pallidum* (*T. Pallidum*) and transmitted either by sexual intercourse, direct contact, or congenitally from a pregnant mother to her unborn baby (Kumar et al., 2013; Geoffrey and Robert, 2017).

In pregnancy, a syphilis infected woman can transmit the infection to the fetus through the placenta beginning in the 10th to the 15th weeks of her pregnancy. This can lead to congenital infection and if not treated in its early stages, it can result to perinatal death, abortion, stillbirth and premature delivery. Post-delivery, babies may have

congenital syphilis in childhood, exhibiting Hutchinson teeth (peg-shaped, notched central incisors, mulberry multicusped first molars), interstitial keratitis, saddle nose, bone defects, periostitis, joint swellings and different central nervous system abnormalities. (Sarah and Sarah, 2018; Elom et al., 2016).

There are a variety of signs and infection corresponding to Syphilis stages of infection - primary, secondary, latent and tertiary (Chaudhary et al., 2017). The primary syphilis most often manifests as a solitary, painless chancre that develops at the site of infection in an average of three weeks after exposure to T. Pallidium (Apparao and Siddartha, 2016). Without treatment, blood-borne spread of T. Pallidium over the next several weeks to months results to secondary syphilis which has numerous clinical manifestation. The predominant features are fever, diffuse rash lymph-adenopathy and perineal or genital condyloma latum (Coffin et al., 2010). During the latent stage of syphilis, patients are relatively asymptomatic as skin lesions resolve. Nevertheless, serologic tests are positive for T. Palladium while Tertiary or late syphilis develop years after the initial infection and can involve multiple organ system. The most dreaded complications are cardiovascular and neurological complications that can lead to significant disability and premature death (Coffin et al., 2010). The most widely used screening tests for syphilis are the Venereal Disease Research Laboratories (VDRL) and the Rapid Plasma Reagin (RPR) tests. Prevention of congenital syphilis needs to be viewed as much in a public health context as an individual problem, and as such, is best tackled within the context of a district health system. This may require different tailored intervention for prevention to be most cost effective. Prior to disease control, its epidemiology needs to be clearly understood (David and Jennifer, 2003).

This study was conducted to assess the seroprevalence of this disease among pregnant woman in Yenagoa environment and to re-evaluate the need for routine ante-natal screening for syphilis.

METHODOLOGY

Study area

This study was carried out at the Antenatal clinic of the Federal Medical Centre, Yenagoa, Bayelsa state in the South-south region of Nigeria between 4th September to 28th October, 2016.

Study design

A descriptive cross-sectional study.

Inclusion criteria

This included all pregnant women who presented for booking at the antenatal clinic of FMC Yenagoa and gave consent.

exclusion criteria

This included all pregnant women who declined to participate and those who withheld their consent for inclusion in the study.

Sample size

The sample size was calculated using the statistical formula based on reported prevalence rates of syphilis from previous study and a confidence interval of 95%.

Study population

The minimum sample size was thus calculated to be 212 with an attrition of 20%. However, a total of 220 consecutive healthy pregnant women attending the antenatal booking clinic of the hospital who met the inclusion criteria were recruited into this study after pre test counselling and obtaining consent from them. Blood was collected and tested for qualitative detection of antibodies to Treponema Pallidium.

Sample collection and processing

Five millilitres (5ml) of peripheral venous blood was collected from consecutive subjects in the antenatal booking clinic into plain sterile bottles. Blood samples were centrifuged for ten minutes at 6,000 rpm, serum was obtained and stored at -20^{0}C until used.

Samples were analyzed in batches with commercially available in vitro diagnostic kits (*LabACON@ Hangzhou Biotest Biotech Co,. Ltd China)* - one step test strips. The Syphilis Ultra Rapid Test Device is a rapid chromatographic immunoassay for the qualitative detection of antibodies (IgG and IgM) to Treponema Pallidium in whole blood, serum or plasma to aid in the diagnosis of Syphilis.

In this test procedure, recombinant Syphilis antigen is immobilized in the test line region of the device. After a specimen is added is added to the specimen well of the device, it reacts with the Syphilis antigen coated particles in the test. This mixture migrates chromatographically along the length of the test strip and interacts with the immobilized Syphilis antigen. The double antigen test format can detect both IgG and IgM in specimens. If the specimen contains TP antibodies, a coloured line will appear in the test line region, indicating a positive result. Tests in which only the control line was distinctly coloured red was recorded as negative while tests in which the control line fails to appear was regarded as invalid and was repeated.

Questionnaire

Women were enrolled and underwent pretest counseling and were administered a structured interviewer-

administered questionnaire.

Data analysis

Data was analyzed using SPSS (statistical package for social sciences) 22 statistical package (SPSS Inc., Illinois, U.S.A).

Ethical considerations

Approval for the study was obtained from the ethical committee of the Federal Medical Centre, Yenagoa. The study was carefully explained to the patients and their informed consent obtained before being recruited into the study.

RESULTS

The predominant age group was 20-29 years (50.0%). The mean age was 28.8 years ± 5.2. Majority (50.0%) of the respondents were from the Ijaw ethnic group and it is followed closely by the Igbo ethnic group (28.2%). Most (96.8%) of the respondents were Christians. Majority (41.8%) of the respondents were involved in doing business as an occupation. Majority (91.8%) also, of the respondents were married, and most of the marriages were of the polygamous type or setting (83.7%). Most (77.8%) had a secondary education.

Respondents knowledge about person to person transmission of the infection was assessed; 25 (11. 4%) of the respondent had knowledge while majority 195 (88.6%) of the respondent had very little or no knowledge.

Regarding multiple sexual partners; majority 166 (75.5%) of the respondents had more than one sexual partner while 54 (24.5%) do not have more than one sexual partner.

It was also observed that majority of the respondent had not attended STI clinics 180 (81.8%), while 39 (17.7%) had attended.

Table 1 above shows majority of the respondent had no knowledge 188 (85.5%) about what VDRL/ syphilis infection and only 32 (14.5%) had knowledge.

Table 2 above presented the response of the respondents regarding the mother to baby transmission 11(5.0%) of the respondent says yes while majority 209 (95.5%) don't know about the means of transmission.

Table 3 above shows that 57 (25.9%) were reactive to VRDL; while the other 163 (74.1%) were non reactive.

Table 1. Do you know about VDRL/syphilis infection?

	Frequency	Percentage(%)
Yes	29	14.5
No idea	188	85.5
Total	220	100

Table 2. Can this infection be transmitted from mother to baby

	Frequency	Percentage(%)
Yes	11	5
No idea	209	95.5
Total	220	100

Table 3. Seroprevalence of Venereal Disease

	Frequency	Percentage(%)
Reactive	57	25.9
Non Reactive	163	74.1
Total	220	100

DISCUSSION

The seroprevalence of venereal disease/syphilis in pregnancy reported in this study was 25.9% which is quite high compared to previous work conducted by Olowe et al 2014 which reported a seroprevalence of approximately 1.0% in 209 pregnant women investigated as compared to our own present study of 220 cases. (Olowe OA et al , 2014). A study in Ibadan, in South Western Nigeria also reported a low prevalence of 0.13% from a study population of 2318 antenatal clinic patients (Adesina and Oladokun, 2010). In Maiduguri, Mustafa AL et al (2014), reported 1.9% seroprevalence of syphilis out of 108 pregnant women. Aboyeji and Nwaburi (2003) reported 1.7% in Enugu, Southeastern, Nigeria while Shazia et al. (2012) reported 0.10% in Ilorin, North Central, Nigeria.

In other parts of Africa, studies report prevalence of between 4 and 19%, for example, researchers in Mozambique reported a seroprevalence of 18.3% (Lindstrand et al, 1993) in antenatal care attendees, and a much lower rate of 5% seroprevalence was reported in pregnant women in Malawi by Kwie et al in 2008. According to Saith et al. (2007) in India, a seroprevalence of syphilis of 1.8% was obtained from their study. In Botswana, seroprevalence of 4.3% was reported by Creek et al (2005).

Several factors could account for these highly varied findings, which includes majority of the respondents had little or no knowledge (88.6%) on VDRL/Syphilis infection, high multiple sexual partners 166 (75.5%), access to health information on Sexual Transmitted Infection (STI) health care related programs, public awareness and other preventive measures as reported in several African countries and also the level of public awareness about the activities of several agencies across the nation. In some studies, syphilis was not detected from samples, for instance, in Afghan women receiving antenatal care at three government maternity hospital in Kabul, out of 4452 pregnant women recruited, there was no positive case of syphilis (Todd et al., 2008).

CONCLUSION

The seroprevalence of venereal disease in pregnancy is very high in our obstetric population. Early diagnosis and treatment within the first trimester of each pregnancy, on-site screening and public health awareness of this venereal disease is essential for mothers, sexual partners and unborn babies.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of the paper.

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