



Research

Sero-prevalence of syphilis among pregnant women attending Antenatal Care Clinic at Jimma University specialized Hospital, Ethiopia

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ABSTRACT

Background: Syphilis is a disease caused by bacteria called *Treponema pallidum*. It is transmitted through sexual contact, blood transfusion and via vertically from mother to fetus in utero. Untreated syphilis during pregnancy can greatly affect pregnancy outcome, resulting in spontaneous abortion, and stillbirth. The aim of the study was to determine the sero-prevalence of syphilis among pregnant women attending for Antenatal Care (ANC) service.

Methods: A cross-sectional study was conducted from January to June, 2016 at Jimma University specialized hospital, Southwest Ethiopia. A total 181 study subjects were recruited conveniently. Socio demographic and clinical data was collected by pre-tested structured questioners. Two milliliter of blood was collected to determine sero-prevalence of syphilis using Florescent *Treponema* antibody Absorption (FTA-Abs) test. The data was analyzed by using SPSS version 21. The association between independent and dependent variables was determined. p-value less than 0.05 was considered as statistically significant value.

Result: Among a total of 181 participants, only 2/181 (1.1%) women were seropositive for syphilis. Among participants, 41.4% of them were found in age group of 21-25 years, 77.9% of them were married while 3.9% were widowed. 66.3% of them were from urban area. Residence and sexual status of syphilis showed significant association.

Conclusion: Syphilis seropositive cases were observed among married women who come from rural area with age group of 26-35 years. Therefore, health education on etiology, prevention and control of syphilis has to be provided for the community.

Keywords: Sero-prevalence, Syphilis, Pregnant mothers.

INTRODUCTION

Syphilis is a systemic disease caused by *Treponema pallidum* which can be spread by sexual contact, blood transfusion and via vertically from mother to fetus in utero. The World Health Organization estimates 10-12 million new infections of syphilis occur every year. And also, Infection rates show extreme variation between countries of the same region as well as various subcategories of populations studied (World Health Organization, 2001). If not treated, syphilis can cause serious problems such as damage to the aorta, brain, eyes, and bones. In some cases it may be

resulted in fatal. Testing for syphilis during pregnancy and labor is medically important because, syphilis infection has a potential risk for congenital infection and fetal loss (WHO, 2014).

Syphilis has also a new potential for morbidity and mortality through association with increased risk for HIV infection (Zinabie S, 2018). Pregnant women should have serologic test for syphilis at the time of the first prenatal visit. In women suspected of being at increased risk for syphilis or for populations in which there is a high prevalence of syphilis, additional tests should be performed during the third trimester at

twenty-eight weeks and again at delivery. Seropositive women should be considered infected and should be treated unless prior treatment with fall in antibody titer is medically documented (Haroon SA, 2004).

The mother can transmit the infection transplacentally to the fetus or during passage through the birth canal by contact of the newborn with a genital lesion. Breast feeding does not result in the transmission of syphilis, unless an infectious lesion is present on the breast. Until recently, a commonly held but erroneous obstetric principle stated that infection of the fetus does not occur before 18 weeks. Silver and immunofluorescence staining of the fetal tissue, or polymerase chain reaction and rabbit infectivity testing of amniotic fluid showed that *T. pallidum* gains access to the fetal compartment as early as 9-10 weeks (Azeze B, 1995).

Untreated syphilis during pregnancy can affect pregnancy outcome, resulting in spontaneous abortion, stillbirth, non-immune hydrops-fetalis, intrauterine growth restriction, premature delivery and perinatal death, as well as serious sequel in live born infected children (Khan S, 2014). Appropriate treatment of pregnant women often prevents such complication. Screening in the first trimester with VDRL and RPR test combine with confirmation of reactive individuals with Treponema tests such as fluorescent Treponema antibody absorption (FTA-Abs) assay is a cost effective strategies.

METHODS AND MATERIALS

Study area

The study was conducted at Jimma university specialized hospital, Jimma town, south west Ethiopia. It is located 352 km southwest of Addis Ababa. It provides specialized health services for approximately 9000 inpatients and 80000 outpatients each year with bed capacity of 450 and a total of more than 550 staff. According to the national 2015 census, this town had a total population of 120,960 of whom 60,824 were men and 60136 were women.

Study design and period

Cross sectional study was conducted from January to June, 2016.

Sample size and sampling technique

A total of 181 pregnant women were conveniently selected for this study.

Data collection procedures

The socio-demographic characteristics of all pregnant women coming to antenatal care clinic were taken by using pre-tested structured questionnaire. The clinical data was taken by physician from all study participants. Two milliliter of blood was collected for Florescent Treponema antibody Absorption (FTA-Abs) test. The test was done for all 181 pregnant women in their first trimester pregnancy periods.

Data processing and 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 Table 1. The association between independent and dependent variables was determined. p-value less than 0.05 was considered as statistically significant value.

Quality assurance

The data was collected by trained data collectors and the result was recorded carefully and correctly. Standard operating procedure for the laboratory procedures (using Florescent Treponema antibody Absorption test (FTA-Abs) test) was strictly followed.

Ethical consideration

Ethical approval was obtained from Research and Review Committee of Jimma University. Official permission was obtained from head department of Jimma university specialized hospital. For all study participant the objective of the study was explained and written informed consent was obtained. Those pregnant mother positive for syphilis was referred to their respective clinicians for further management.

RESULTS

Among a total of 181 participants, only 2/181 (1.1%) women were sero positive for syphilis. From a total participant, 41.4% of them were found in age group of 21-25 years old. 77.9% of them were married while 3.9% were widowed. 66.3% of them were from urban while other 37.3% were from rural area. 32.6% of them had monthly income of 900-1200 Ethiopian birr while 5.5% had monthly income of <300 Ethiopian birr. 40.9% of them were house wife while 8.8% were student. 93.9% has no multiple sexual partner while others 6.1% had multiple sexual partner. 29.8% of them were can read and write. While 9.9% were illiterate. The age, marital status, monthly income, occupation and educational status of the participant showed no significant association while residence and

sexual status of syphilis showed significant association.

Table 1. Socio-demographic characteristics of pregnant women attending Antenatal Care Clinic at Jimma University specialized Hospital from January-June, 2016.

Variables		RPR result						P- value
		Positive		Negative		Total		
		No	%	No	%	No	%	
Age	15-20	0	0	22	12.2	22	12.2	0.364
	21-25	0	0	75	41.4	75	41.4	
	26-30	1	0.55	59	32.6	60	33.1	
	31-35	1	0.55	18	9.9	19	10.5	
	>36	0	0	5	2.8	5	2.8	
Marital status	Single	0	0	11	6.1	11	6.1	0.902
	Married	2	1.1	139	76.8	141	77.9	
	Widowed	0	0	7	3.9	7	3.9	
	Divorced	0	0	22	12.2	22	12.2	
Residence	Urban	0	0	120	66.3	120	66.3	0.046
	Rural	2	1.1	59	32.6	61	33.7	
Monthly income	<300	0	0	10	5.5	10	5.5	0.129
	300-600	0	0	32	17.7	32	17.7	
	600-900	2	1.1	38	21.0	40	22.1	
	900-1200	0	0	59	32.6	59	32.6	
	>1200	0	0	40	22.1	40	22.1	
Occupation	House wife	2	1.1	72	39.8	74	40.9	0.403
	Government employee	0	0	37	20.4	37	20.4	
	Student	0	0	16	8.8	16	8.8	
	Merchant	0	0	54	29.8	54	29.8	
Educational status	Illiterate	1	0.55	17	9.4	18	9.9	0.310
	Can read and write	1	0.55	53	29.3	54	29.8	
	Grade 1-6	0	0	45	24.9	45	24.9	
	grade 7-12	0	0	42	23.2	42	23.2	
	Grade >12	0	0	22	12.2	22	12.2	
Sexual partner	Yes	2	1.1	9	5.0	11	6.1	0.00001
	No	0	0	170	93.9	170	93.9	
Total		2	1.1	179	98.9	181	100	

DISCUSSION

Syphilis remains a major cause of morbidity and mortality in the world despite the availability of effective treatment. Interventions including early

antenatal care, massive screening and prompt treatment with antibiotics.

In this study from a total of 181 pregnant women only 2 (1.1%) of them were sero-positive for syphilis. Those are in the age group of 25-35 years. It is almost similar

to study done in Debre Berhan Ethiopia 1.8% (Zinabie S, 2018) but lower than study done in Gondar, Ethiopia, 2.9% (Amsalu A, 2018). It is also much smaller from study done in Labor Ward at Wolaita Sodo University Teaching Referral Hospital 3.7% (Ageru TA, 2018) and in rural hospital of Northwest Ethiopia 13.7% (Azeze B, 1995). This study also showed smaller sero-prevalence of syphilis among pregnant mother from study in Kahartoum State Sudan 3% (Abdelmola AO, 2018). Despite sample size difference, it is similar to a study done in Pakistan at Karachi hospital which showed among 100,000 women attending ANC, 875 women were seropositive for syphilis. The prevalence of syphilis in this study was 875 (0.9%) where seropositive case was found in age group greater than 25 years old (Shah SA, 2011). A comparable result was also obtained from research done in Brazil; where syphilis prevalence in pregnancy was 1.02% (Rosa MSMD, 2014) However, slightly higher in antenatal clinic in southern Nigerian 2.2% (Wuezobe IA, 2011). This difference might be due to sample size and type of test.

An increased prevalence of syphilis was observed among women with low or no education. And also the 2 seropositive participants were married. This is totally different from study done in Brazil (Rosa MSMD, 2014). This might be the difference in health education and awareness creation among study participants in the two country.

The present study showed that 93.9% were not having multiple sexual partner and 6.1% were have multiple sexual partner 2 (1.1%) were positive for syphilis and had multiple sexual partner. The prevalence of syphilis in individuals having multiple sexual partners is still higher and there is a significant association. This result was lower than the finding obtained from Nigeria (Wuezobe IA, 2011). This may be due to the difference in sample size and participant's knowledge or awareness on etiology, prevention and control of syphilis.

CONCLUSION AND RECOMMENDATIONS

Syphilis seropositive cases were observed among married women and those who come from rural area in the age group of 26-35 years. This indicates that there is still the problem of syphilis in the present study area. Thus, it is essential to strengthen the existing ANC services and health education on transmission and prevention of this disease. It is advisable for pregnant women to be screened for syphilis it will help to eliminate the adverse effects of untreated Syphilis.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

FUNDING

This work was funded from Jimma University core budget.

AUTHORS' CONTRIBUTIONS

BF-performed the laboratory activities. BF, SG and TA-analyzed the data. TA-wrote the manuscript. All authors read and approved the final manuscript.

ACKNOWLEDGMENT

We would like to thank Jimma for giving this opportunity and availing the resources. We also thank staffs and head of Jimma university specialized hospital for their help during data collection process.

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