The Prevalence of Syphilis and Pregnancy Outcome among Women Delivering at Jigme Dorji Wangchuck National Referral Hospital, Thimphu, Bhutan

RipaChakma[1], Deki Pem[2], Sangay Zangmo[3], Chencho Gyeltsen[4], Pema Choden Bhutia[5], Pradip Sharma[6], Renuka Monger[7], Oma Devi Basnet[8], Phurb Dorji[9]

[1]*Assistant Professor, FNPH, KGUMSB, Thimphu, Bhutan*
[2]*Assitant Professor, FNPH, KGUMSB, Thimphu, Bhutan*
[3,4,6,7]*Staff Nurse, JDWNRH, Thimphu, Bhutan*
[5]*Assistant Professor, Obs&Gyne, KGUMSB, Thimphu, Bhutan*
[8]*Professor of Obs&Gyne, KGUMSB; Head, HM'S Kidu Mobile Medical Unit, HMS, Thimphu, Bhutan*

Abstract

Background.*Syphilis infection during pregnancy has implications for both mother and her fetus.If diagnosed early, it can be completely treated to prevent all complications.*

Method.*This is a prospective cross-sectionalstudy was done tolook at theprevalence of syphilis and pregnancy outcome among the women with syphilis infection delivering at the Jigme Dorji Wangchuck National Referral Hospital between July 2018- July 2019. All seropositive for syphilis mothers during the study period were followed up from recruitment at antenatal booking toone week after delivery.*

Result.*The prevalence of syphilis infection was 1.0%. Mothers were treated after diagnosis. There were 54 seropositive mothers. Vertical transmission rate was diagnosed in 13 babies (24%). Babies were also treated. Among infected babies, 3 babies were sick and admitted in NICU.*

Conclusion. *Syphilis infection is present in our community. Syphilis is an important infection with vertical transmission occurring during pregnancy and delivery. We need to strengthen our STI programs to reach everyone in the community.*

Introduction

Syphilis is caused by Treponema palladium which can be spread by sexual contact, blood transfusion and via vertically from mother to fetus in utero to cause systemic illness (1). The World Health Organization estimates 10-12 million new infections of syphilis occur every year.

Pregnant women are a good cohort to screen for Sexually Transmitted Infections (STIs). Therefore, the universal screening package during antennal care booking includes testing for syphilis(2). According to the World Health Organizationin 2008 estimated that 2 million pregnant women were infected with treponema pallidum(3)In 2008,WHOestimated that, globally, 250 000 infants were born with congenital syphilis (4)

Vertical transmission of syphilis in from Mother-to-child transmission (MTCT) during pregnancy can lead to serious fetal outcomes in the second or third trimester including early fetal death, stillbirth, neonatal death, preterm birth, low birthweight and congenital infection in infants (3)

The worldwide number estimated that more than 900000 pregnant women infected with syphilis among them approximately 350000 pregnancies adverse outcomes stillbirth(5).

Syphilis is treatable with penicillin and clinical treatment avoided 80% of all adverse outcome doing pregnancy with syphilis. We have syphilis screening included in our antenatal care system.

But no study is done to find out the prevalence and outcome of pregnancy infected with syphilis so far in our setting.

Methodology

This study of syphilis positive women delivering in Jigme Dorji WangchckNational Referral Hospitalfrom July 2018 to July 2019.All mothers who camefor antenatal careat the Community Health Department in JDWNRH were tested for syphilis together with viral markers as part of the routine antenatal care (ANC) package through the Voluntary Counseling and Testing (VCT) center. All mothers who tested as seropositive for syphilis case were recruited in the study.All mother who came for delivery with no prior test report for syphilis wereoffered VCT in Birthing Center and werescreened for syphilis. Serum samples from all

patients were tested by qualitative rapid plasma regain (RPR) using standard procedures. Samples positive for RPR were subjected to a quantitative RPR test using serum dilutions from 1 in 2 up to 1 in 64. A specific treponemal test, Treponema pallidum hemagglutination assay (TPHA) was performed on samples positive in the quantitative RPR. Samples positive in both tests were designated as seropositive for syphilis.

Treatment was given with benzathine penicillin2 doses to all mothers who were not treated before and to those with positive titers after treatment by the physicians as part of the routine care during pregnancy. Cord blood at birth was tested to check congenital infection to babies. Positive babies were treated. All syphilis positive women were followed up through delivery and till one week after delivery.

Statistical analysis of data was done by using SPSS version 16. Results were summarized using descriptive statistics.

The ethical clearance for this study wasgiven by the Research Ethics Board of Health (REBH), Ministry of Health, Bhutan. Patient information obtained during the study was kept confidential.

Result

There were 5279 deliveries during the study period. Mean ages of pregnant mothers who are seropositive for syphilis were 25.5(±5) years whereas mean ages of pregnant mothers who are seronegative for syphilis were 26.6(±5.2) years. A total of 54 mothers were found to be seropositive. The prevalence of seropositive syphilis infection in pregnancy was found as 1.0%. Table 2 shows the demographic profile of syphilis positive mothers. Majority (72.2%) were in age above 25 years and majority (59.3%) were housewives. Majority (72.2% and 64.8%) were literate and also never used alcohol.

Table1 Demographic and Social profile of Syphilis positive mothers

Maternal Profile		No	%
Age	< 25 years	15	27.8
	>25 years	39	72.2
Occupation	Housewives	32	59.3
	Office worker	15	27.8
	Manual worker	7	13
Period of Gest	< 37 weeks	7	13
	>37 weeks	47	87
Education	Illiterate	15	27.8
	Literate	39	72.2
Partner	Fist Husband	43	79.6
	Second husband	11	20.4
Alcohol use	Yes	19	35.2
	Never use	35	64.8
Treatment	Completed	48	88.9
	Not complete	3	5.6
	Not treated before delivery	3	5.6
Mode of Delivery	NVD	52	96.3
	Caesarean	2	3.7

Out of 54 babies born, 13 babies got vertical transmission. Table 2 shows the outcome of babies. The perinatal transmission rate of syphilis found in this study was 24.0%. Table 2 shows the outcome of the babies born to seropositive mothers. 14.8% had sick looking at birth. Majority (88.9%) had birth weight above 2500g. All positive babies were treated by the pediatric teams. During follow up of all babies after one week, 3 (5.6%) babies were still sick and admitted in Neonatal Intensive Care Unit (NICU).

Table 2 Outcome of babies

Baby Profile		No	%
Condition at Birth	Sick	8	14.8
	Health	46	85.2
Birthweight	< 2500g	6	11.1
	> 2500g	48	88.9
Syphilis	Positive	13	24
	Negative	41	76
Baby condition after 1 week	Healthy	51	94.4
	Sick in NICU	3	5.6

Discussion

The seroprevalence of syphilis in this study was 1.0% which is comparable to the studies conducted in Jimma (1.1%) and Debre Berhan (1.8%)(6). The prevalence of syphilis in pregnant women has not changed and is similar to sentinel survey in 2006 (7). But it is lower than studies done in Ethopia(3.7%) (8) and our is higher than done in India(9)(10). Our figure is near to the global prevalence of maternal syphilis of 0.69% (11). It is much lower than in Brazil 4.4% (12).

In our study we found 20.4% had multiple partner. Multiple partner is a high-risk for syphilis as seen a study in Jimma(6). All mothers with multiple partner in a study (13) had 30% syphilis infection.

Congenital syphilis or mother to child transmission (MTCT) of syphilis was 24% in this study. This is lower than in African Region 62% and 61% (11). Most of these women were tested for syphilis at initial booking which usually happens before 20 weeks. In future, we should be very careful about congenital syphilis as big risk to fetus as the transmission seen here is quite high.

This study had low birthweight of 11.1%. This is higher than study done in Tanzania 7% (14) and in study by Newman (4). In this study we haven't seen complications like stillbirth. In a study the syphilis was the cause of stillbirth in 7.7%(15).

Conclusion

From this study it is seen that syphilis infection is present in our community. Syphilis is an important infection with vertical transmission occurring during pregnancy and delivery. We need to strengthen our STI programs to reach everyone in the community. Our antenatal care with syphilis testing needs to be more robust and babies need to be followed up.

Limitation

This is more like a descriptive type and we couldn't analyze associated factors. In future, study should be done to look into risk factors for syphilis.

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Conflict of Interest

The authors have declared no conflict of interest.

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