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อุบัติการณ์ของผลบวกในการตรวจกรองก่อนคลอดเชื้อซิฟิลิสครั้งที่สองที่โรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น

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Incidence of Positive VDRL in the Second Antenatal Screening for Syphilis at Srinagarind Hospital, Khon Kaen University

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หลักการและวัตถุประสงค์: เพื่อหาอุบัติการณ์ของผลบวกในการตรวจกรองก่อนคลอดเชื้อซิฟิลิสครั้งที่สอง ในสตรีตั้งครรภ์ที่มาคลอดที่โรงพยาบาลศรีนครินทร์

วิธีการศึกษา: เป็นการศึกษาเชิงพรรณนาแบบย้อนหลังในสตรีตั้งครรภ์ที่มาคลอดที่โรงพยาบาลศรีนครินทร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่นทั้งหมด ในระหว่างวันที่ 1 มกราคม พ.ศ. 2546 ถึงวันที่ 31 ธันวาคม พ.ศ. 2550 และมีผลการตรวจกรองก่อนคลอดเชื้อซิฟิลิสด้วยวิธี Venereal Disease Research Laboratory (VDRL) สองครั้ง โดยเก็บรวบรวมข้อมูลของสตรีตั้งครรภ์ที่มาคลอด ทารกและผลของการคลอดที่มีผลการตรวจคัดกรองซิฟิลิสด้วยวิธี VDRL ในสตรีตั้งครรภ์ครั้งที่สองเป็นบวก

ผลการศึกษา: จากการศึกษาพบว่า สตรีตั้งครรภ์ที่มาคลอดที่โรงพยาบาลศรีนครินทร์ทั้งหมด 13,527 ราย ไม่มีข้อมูลการตรวจหรือผล VDRL 627 ราย ดังนั้นจึงมีจำนวนสตรี 12,900 ราย ที่นำมาวิเคราะห์ ในจำนวนนี้มีสตรีที่ได้รับการตรวจซิฟิลิส 2 ครั้งมีจำนวน 12,652 ราย มีสตรีที่มีการตรวจคัดกรองซิฟิลิสให้ผลบวกครั้งใดครั้งหนึ่ง 45 ราย โดยเป็นการตรวจคัดกรองซิฟิลิสให้ผลบวกครั้งแรก 32 ราย ดังนั้นจึงมีสตรี 12,620 ราย ที่มีการตรวจคัดกรองซิฟิลิสให้ผลลบครั้งแรกและนำมาเข้าการวิจัยนี้ พบมีสตรีมีผลการตรวจ VDRL ครั้งที่สองเป็นบวก โดยที่การตรวจคัดกรองครั้งแรกเป็นลบเป็นจำนวน 13 ราย คิดเป็นร้อยละ 0.1 (13 ใน 12,620) ซึ่งในจำนวนทั้ง 13 รายนี้มีการตรวจยืนยันการติดเชื้อจริง ร้อยละ 0.02 (2 ใน 12,620)

สรุป: อุบัติการณ์ของการมีผลตรวจคัดกรองก่อนคลอดเชื้อซิฟิลิสครั้งที่สองเป็นบวกมีค่าค่อนข้างต่ำ หากตรวจครั้งแรก

Background and Objective: To determine the incidence of positive result (reactive VDRL) in the second antenatal screening for syphilis in pregnant women who delivered at Srinagarind Hospital.

Methods: A retrospective descriptive study was conducted at Srinagarind Hospital, Khon Kaen University. All of the mothers had two antenatal Venereal Disease Research Laboratory (VDRL) screening tests and delivered babies during January 1, 2003 - December 31, 2007 were included in this study. Result of VDRL test, maternal and neonatal outcomes were analyzed.

Results: In the total number of 13,527 pregnant women delivered at Srinagarind Hospital during the study period, 627 cases had no data of VDRL screening. Only 12,900 medical records were analyzed and 12,652 pregnant women had two VDRL screening tests. Forty-five cases were positive for VDRL screening either in first or second screening. Thirty-two in 45 cases were positive for the first VDRL screening and, therefore, were excluded from this study. The 12,620 pregnant women who had negative VDRL screening in the first time were recruited. The incidence of positive results in the second antenatal syphilis infection screening was 0.1 % (13 in 12,620 cases). In addition, 0.02 % (2 in12, 620 cases) had positive confirmatory Treponema pallidum Hemagglutination Antibody (TPHA) test.

Conclusion: Incidence of positive results in the second antenatal screening for syphilis who had negative results

ให้ผลลบ
คำสำคัญ: การตรวจกรองก่อนคลอด, ซิฟิลิสในการตั้งครรภ์

in the first antenatal screening was very low.
Key words: VDRL, syphilis in pregnancy, TPHA test

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Introduction

Syphilis is a sexually transmitted disease caused by *Treponema pallidum*. The bacteria could be transmitted from pregnant woman to her fetus. In untreated cases, it is a risk for miscarriage, preterm labor, fetal death in utero and congenital syphilis[1]. Most of syphilis in pregnancy does not show any signs or symptoms[2]. Serological test is a mainstay technique to detect syphilis during pregnancy. VDRL (Venereal Disease Research Laboratory) or RPR (Rapid Plasma Reagin) are used but they are non-specific test. FTA-ABS (Fluorescent Treponemal Antibody Absorption), TPHA (Treponemal pallidum Hemagglutination Antibody) or TP-PA (Treponema pallidum Particle Agglutination) are used to confirm in case of positive screening test[3]. In our routine antepartum screening, blood for VRDL is drawn in two occasions during pregnancy, first time at antenatal care clinic visit and the second time at the third trimester of pregnancy. There was inconsistent evidence regarding benefit of the second syphilis screening in case of negative result (non- reactive VDRL) in the first screening[4-6].

Objective

To determine the incidence of positive results (reactive VDRL) in the second antenatal screening for syphilis in pregnant women who delivered at Srinagarind Hospital.

Methods

We retrospectively reviewed and analysed 13,527 medical records of pregnant women who delivered at Srinagarind Hospital, Khon Kaen University between January 1, 2003- December 31, 2007. Inclusion criteria were all pregnant women who had antenatal VDRL screening in 2 occasions. The exclusion criteria were pregnant women who had reactive VDRL in first antenatal screening or had only one occasion of VDRL testing. We recorded the data pertaining to demographic data of the included parturient, results of VDRL, mean age, gestational age, birth weight, complication of pregnancy and APGAR score. Sample size calculation was based on the assumption that the prevalence of reactive VDRL during pregnancy was 0.9%[5], then we needed at least 10,575 pregnant women for this study. The data was analyzed by using SPSS for window version 11.5. Descriptive statistics were used to determine incidence of positive results in the second antenatal syphilis screening, mean age of parturient, mean gestation age of parturient and mean birth weight of neonates. This study was approved by the Ethics Committee of Faculty of Medicine, Khon Kaen University (HE 510716).

Results

There were 13,527 pregnant women delivered at Srinagarind Hospital during study period. Antenatal VDRL profile was missed during antenatal care in 4.6 % (627 cases). The total number of 12,652 from 12,900 women have had two occasions VDRL screening. There were 45 cases showed reactive VDRL (32 cases had positive VDRL in the first antenatal screening test, and 13 had reactive VDRL in the second antenatal screening test). The incidence of positive results either in the first or the second antenatal screening was 0.39 % (45 in 12,900). For the remaining 12,620 pregnant women, 13 cases had positive VDRL in the second antenatal screening test. Therefore the incidence of positive results in the second VDRL screening out of the non-reactive VDRL in the first screening was 0.1% (13 in 12,620 cases). Mean age, mean gestational age and mean birth weight of the parturients in non-reactive VDRL group and reactive in the second VDRL screening group were not statistical significant different (Table 1).

Table 1 Comparison between non-reactive VDRL in two occasions and reactive VDRL in the second screening parturients

	Non-reactive VDRL in 2 occasions group (n=12,607)		Reactive VDRL in the second screening group (n= 13)		Total (n=12,620)
	Range	Mean	Range	Mean	*p value*
Age (yrs)	14-46	28.04	16-36	26.63	NS
GA (wks) at delivery	32-45	38.46	34-41	38.53	NS
Birth weight (g)	785-5,940	3,100.43	2,210-3,880	3,063.80	NS

GA= gestational age

NS= non-statistical significance

Table 2 Characteristics of pregnant women who reactive second VDRL screening

Case No.	Age (yrs)	Gravida	No. of ANC	GA at first screening (wks)	GA at second screening (wks)	Titer	TPHA	Rx	Hb	GA at delivery (wks)	Mode	Sex	BW (g)	APGAR score at 1 min	APGAR score at 5 min	Complications
1	20	2	7	12	34	1:1	Negative	No	11.8	38	NL	M	2,650	9	10	
2	30	3	11	18	33	1:2	Negative	No	11.7	40	NL	F	3,100	8	10	
3	31	1	10	10	33	1:1	Negative	No	12.7	37	C/S	M	2,960	9	10	Breech presentation
4	28	2	15	8	31	Weakly reactive	Negative	No	11.8	40	NL	F	2,800	9	10	SLE, Rh negative
5	25	3	12	7	32	Weakly reactive	Positive	Yes	12	40	NL	M	3,220	9	10	Uterine atony
6	26	2	10	15	32	Weakly reactive	Negative	No	11.4	38	NL	M	3,720	8	10	
7	34	3	14	7	33	1:1	Negative	No	13.5	41	NL	M	3,880	6	10	Oligo hydramnios
8	36	2	12	8	31	Weakly reactive	Positive	No	13.4	34	NL	F	2,210	9	10	Preterm, GDM2
9	20	1	8	25	32	1:2	Negative	No	9.3	38	NL	F	3,000	9	10	
10	28	1	15	5	32	1:1	Negative	No	10.8	40	NL	F	3,320	7	10	
11	33	3	6	9	32	Weakly reactive	Negative	No	12	39	NL	M	2,800	10	10	
12	19	2	9	15	32	1:1	Negative	No	11.6	38	NL	M	3,530	8	10	
13	16	1	11	13	32	1:1	Negative	No	10.3	38	NL	F	2,640	10	10	

ANC = antenatal care, GA = gestational age, Rx = treatment, Hb = hemoglobin, BW =body weight

Characteristics of the 13 parturients with reactive VDRL in the second screening were shown in table 2. In most cases they were multiparous and term pregnancy. Mean hemoglobin was 11.64 g/dl. Anti HIV, HbsAg were negative in all cases. Titer of reactive VDRL was quite low.

The confirmatory test was done in all 13 cases by using TPHA. 15.4 % of cases (2 in 13 cases) confirmed syphilis infection. Finally, the incidence of syphilis infection during pregnancy after the non-reactive VDRL at the first screening was 0.02% (2 in 12,620 cases). The false positive rate of reactive VDRL in this study was 84.6 %. One of the two infected cases was not treated and resulted in preterm labor. After extensive data investigation, we could not find any data. Postpartum hemorrhage due to uterine atony occurred in one infected cases that treated with benzathine penicillin.

Discussion

The incidence of positive results in the second antenatal syphilis infection in the group of non-reactive VDRL in first screening test was 0.1%. The incidence of true syphilis

infection during pregnancy after non-reactive test at the first screening was only 0.02%. Our study showed lower incidence of syphilis infection during pregnancy than that was reported in previous studies[1,5]. The reasons may be the success of the campaign by private and government sectors to protect sexually transmitted disease especially HIV infection. Sexuality also decreased during pregnancy period[7]. In this study we could not identify the risk factors of syphilis infection such as history of still birth, younger age as stated in previous studies[5]. This may attribute to the low incidence of the reactive test in the second VDRL screening.

One untreated case developed preterm labor. This might be the direct effect of syphilis infection as mention in previous study[1]. But the other case, although syphilis was treated, uterine atony still developed. The real cause of uterine atony was unknown. It might not be the effect of syphilis infection but an as over distention or placentomegaly because the fetal birth weight and placental weight were within normal range.

In this study the false positive rate of reactive VDRL was very high when compared with other studies[8,9]. Pregnancy itself can also cause false positive VDRL[10]. The reason in our circumstance may be a very low incidence of syphilis infection in our area. In addition, in cases of questionable VDRL titer, the results were all reported as reactive for further confirmatory test.

The incidence of syphilis infection in the second syphilis screening in case of non-reactive results in the first screening was very low in our study. We totally agree with the routine screening of the first VDRL test. But cost-benefit of routine screening of the second VDRL test in pregnant women who had non-reactive VDRL in the first screening should be reconsidered especially in context of very low incidence of syphilis infection. The VDRL test fee in our setting is 50 baht per case. However, syphilis is treatable disease and congenital syphilis can be prevented in the proper cared pregnant women[11]. Therefore the second VDRL screening test is still of advantage to some extent especially to the case of high risk of syphilis infection or requested by pregnant women after we provide them with adequate information.

The limitation of this study was a retrospective study. Incomplete data was the major problem. In addition, this was the tertiary hospital-based data that might not represent the real situation of syphilis infection in community. Further research in community, rather than tertiary hospital would provide a real incidence of the non- reactive VDRL test at the secondary screening. In addition, a cost-benefit study would provide valuable findings on this issue and then a strong recommendation on the second antenatal VDRL test could be made and generalized.

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