

The Prevalence of *Group B Streptococcus* in First and Third Trimester Pregnancy

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Abstract

Objective: To determine and compare the prevalence of *group B streptococcus* in first and third trimester pregnancy in Thai woman attending antenatal clinic, HRH princess Maha Chakri Sririnhorn Medical Center, Nakorn-nayok province.

Materials and Method: This study was carried out from October 2002 through May 2005 at antenatal clinic, HRH princess Maha Chakri Sririnhorn Medical Center, Nakorn-nayok province. 286 pregnant women were enrolled. Vaginal discharge was collected in first and third trimester and cultured. The prevalence of *group B streptococcus* was determined.

Results: The prevalence of *group B streptococcus* in first trimester pregnancy was 4.5 % (13 cases) third trimester was 1.7 % (5 cases). In all women who *group B streptococcus* was detected at first trimester only have 2 cases maintained at third trimester.

Conclusion: The prevalence of *group B streptococcus* in Thai women at Nakorn-nayok was low. There was difference between the prevalence of *group B streptococcus* in first and third trimester.

Keywords: *group B streptococcus*, pregnancy, prevalence

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ความชุกของเชื้อ *Group B streptococcus* ในระหว่างการตั้งครรภ์ ในช่วงไตรมาสแรกและไตรมาสที่สาม

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บทคัดย่อ

วัตถุประสงค์ เพื่อศึกษาและเปรียบเทียบความชุกของเชื้อ *group B streptococcus* ในระหว่างการตั้งครรภ์ในช่วงไตรมาสแรกและไตรมาสที่สามของสตรีที่ฝากครรภ์ที่ศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี อำเภอองครักษ์ จังหวัดนครนายก

วิธีการศึกษา ศึกษาในสตรีที่ฝากครรภ์ที่ศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี อำเภอองครักษ์ จังหวัดนครนายก ในช่วงในช่วงเวลาตั้งแต่ 1 ตุลาคม 2545 ถึง 31 พฤษภาคม 2548 จำนวน 286 ราย โดยทำการเพาะเชื้อในช่วงไตรมาสแรกและไตรมาสที่สาม จากนั้นรวบรวมข้อมูลมาเพื่อวิเคราะห์ผล

ผลการศึกษา ในไตรมาสแรกพบสตรีตั้งครรภ์ที่มีเชื้อ *group B streptococcus* จำนวน 13 ราย คิดเป็นร้อยละ 4.5 ในไตรมาสที่สาม พบสตรีตั้งครรภ์ที่มีเชื้อ *group B streptococcus* จำนวน 5 ราย คิดเป็นร้อยละ 1.7 โดยในสตรีตั้งครรภ์ที่มีการติดเชื้อ *group B streptococcus* ในช่วงไตรมาสแรกทั้งหมด 13 รายมีเพียง 2 รายเท่านั้นที่ยังเพาะเชื้อพบ *group B streptococcus* ซ้ำ

สรุป ความชุกของเชื้อ *group B streptococcus* ในสตรีตั้งครรภ์ต่ำ โดยความชุกในช่วงไตรมาสแรกและไตรมาสที่สามมีความแตกต่างกัน และมีความสัมพันธ์กันน้อย

Introduction

Group B streptococcus infection in newborn is one of the most important and serious infection. From intestinal tract *group B streptococcus* is usually detected. However, from genital tract is rare in childhood. The prevalence of *group B streptococcus* gradually increases in teenage and reproductive age. In pregnant women the prevalence is 10-40%.^{1,2} The opportunity of infection in newborn that *group B streptococcus* detected in maternal vagina is 40-73%^{2,3} The mortality rate is 15%.⁴⁻⁶

However, studies on prevalence of *group B streptococcus* in Thailand are still limited. On another reason, pelvic examination in first trimester is suggested in standard care. This study was aimed to determine and compare the prevalence of *group B streptococcus* in first and third trimester pregnancy in Thai woman attending antenatal clinic, HRH Princess Maha Chakri Sririndhorn Medical Center, Nakorn-nayok province. We hope the if the prevalence in first and third trimester is correlated, this benefit is adjusted for guideline to detected in high-risk mother for *group B streptococcus* screening.

Material and Method

This prospective study was carried out from October 2002 through May 2005 at antenatal clinic, HRH Princess Maha Chakri Sririndhorn Medical Center, Ongkharuk district, Nakorn-nayok province. 286 pregnant women were enrolled. The inclusion criterion was the pregnant women who come to antenatal clinic before 14 gestational weeks. The participants were excluded from the study if they have abortion, lost follow-up or want to delivery at another hospital. Vaginal discharge was collected in first trimester at the first time or before 14 gestational weeks. Pelvic examination was performed in each participant. An unlubricated speculum was inserted into vagina. Sample of vaginal discharge was obtained with dry cotton-tipped swab from vaginal fornix and pushed into culture transfer media. In third trimester (between 32 to 36 gestational weeks), the vaginal discharge was collected again in the same way. If the culture report identified *group B streptococcus* in third trimester, the participant had antibiotic prophylaxis (ampicillin) during delivery. Then, the data of *group B streptococcus* infection in their baby was followed. Ethical committee of Faculty of Medicine, Srinakharinwirot University approved this study.

Results

286 pregnant women were recruited. The characteristics of population were shown in age, occupation, education and parity. The mean age was 28.3 years, range 16-39 years. The occupation is 27.3% housewife, 40.1% employee, 19.9% own business, and 12.7% Government. Women who graduated lower than Bachelor degree were 68.7% and the higher were 32.3%. The nulliparas were 42.4 % and multiparas were 58.6%.

The culture results were 4.5 % (13 cases) positive for *group B streptococcus* in first trimester and 1.7% (5 cases) in third trimester. In all women who *group B streptococcus* was detected at first trimester only have 2 cases maintained at third trimester. Antibiotic prophylaxis (ampicillin) during delivery were used in all case that positive result in third trimester. None of women had *group B streptococcus* infection in their baby. The other abnormal culture results in first and third trimester were 22.0%(63 cases) and 18.2%(52 cases) fungal infection, respectively. *Gardnerella vaginalis* detection were 21.7 % (62 cases) in first trimester and 20.3%(58 cases) in third trimester.

Discussion

The prevalence of *group B streptococcus* in first trimester pregnancy was 4.5 % third trimester was 1.7 %. This rate is different from those observed by other (40-73%)^{2,3} We think it may be associated to over-use antibiotic and over the counter antibiotic drug self-buying during common cold infection. However, the our study could not to address this question.

The association between positive *group B streptococcus* in first and third trimester is weak. Because the women who *group B streptococcus* was detected at first trimester only have 2 cases from 13 cases maintained at third trimester. We think the benefit from one routine first trimester pelvic examination screening in high-risk mother for *group B streptococcus* is less.

Interesting, our study showed that the fungal infection was highly detected about one fifth of those in both trimester. In the same way, we found that *Gardnerella vaginalis* detection associated with bacterial vaginosis were high but the fact that *Gardnerella vaginalis* may be normal flora in vagina and we did not have data that prepare for bacterial vaginosis diagnosis. The further study should be conducted to examine this issue in more detail.

In summary, the prevalence of *group B streptococcus* in Thai women at Nakorn-nayok was low. There was difference between the prevalence of *group B streptococcus* in first and third trimester.

References

1. Regan JA, Klenbanoff MA, Nugent RP. The epidemiology of group B streptococcal colonization in pregnancy. *Obstet Gynecol* 1991;77:604-10.
2. Hafner E, Sterniste W, Rosen A, Schuchter K, Plattner M, Asboth F, et al. Group B streptococci during pregnancy: a comparison of two screening and treatment protocols. *Am J Obstet Gynecol* [online], 1998;179:1-8.
3. Boyer KM, Gotoff SP. Prevention of early onset neonatal group B streptococcal disease with selective intrapartum chemoprophylaxis. *N Engl J Med* 1986;314:1665-9.
4. Baker CJ, Edward MS. Group B streptococcal infections. In : Remington JS, Klein JO, eds. *Infectious disease of the fetus and newborn infant*. 4th ed. Philadelphia: WB Saunders; 1995:980-1054.
5. American College of Obstetricians and Gynecologists. Group B streptococcal infections in pregnancy. Washington: ACOG; 1992. ACOG Technical Bulletin No:170.
6. Morales WS, Dickey SS, Bornick P, Lim DV. Change in antibiotic resistance of *group B streptococcus*: impact on intrapartum management. *Am J Obstet Gynecol* [online] 1999;181:1-8.