

Pregnancy Outcomes of Southeast Asian Immigrant Pregnant Women Compared with Thai Pregnant Women in Rajavithi Hospital

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Objective: To determine the pregnancy outcomes of Southeast Asian immigrant women compared to native Thai women in Rajavithi Hospital.

Material and Method: A retrospective cohort study was conducted on singleton Southeast Asian immigrant pregnant women in Thailand between January 2007 and December 2008.

Results: One thousand two hundred sixty immigrant pregnant women and 5,040 controls were included. After adjusting the odds ratio, the cesarean section rate, postpartum hemorrhage, preterm birth, and neonatal intensive care unit admission of immigrant women are not different from native-born women. The incidence of low Apgar score at 5 minutes and perinatal death were significantly lower in the study group with an odds ratio of 0.506 (95% CI 0.29-0.89) and 0.295 (95% CI 0.10-0.83), respectively. Low birth weight was higher in the study group with an odds ratio of 1.707 (95% CI 1.45-2.01).

Conclusion: In Thailand, the cesarean section rate, postpartum hemorrhage, preterm birth, and neonatal intensive care unit admission of immigrant women are not different from native-born women. Foreign-born status confers a protective effect for low Apgar score at 5 minutes and perinatal death. However, the incidence of low birth weight in foreign-born women is higher than native-born women.

Keywords: Pregnancy, Outcomes, Immigrants, Thai, Southeast Asian

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Today, transportation between countries is more convenient than in the past. The comfortable and quick traveling makes it easier for migration. For the last 30-40 years, there have been many foreign workers for both legitimate and illegitimate means migrating to Thailand in search of work.

Approximately one million international migrants were present in Thailand at midyear 2010, and 48.4% of them were female⁽¹⁾. Many foreign workers were pregnant and gave birth in Thailand. The information from the Ministry of Health in 2001 indicated that 14,216 babies were born and alive from female foreigners⁽²⁾. From the data collected by Rajavithi Hospital between January and December 2008, the rate of female foreigners' childbirth was 4.64% of total

childbirth. Most pregnant foreigners in Thailand usually have an economic, communication, and medical service access issues. These factors may affect the results of pregnancy of these women. After reviewing the data from literatures, the authors found that there has been controversy over the effect of immigrant pregnant women on pregnancy outcomes⁽³⁻¹⁵⁾. The present cohort study aimed to assess the pregnancy outcomes of immigrant pregnant women compared with those of native Thai Pregnant women control.

Material and Method

Data regarding pregnancy were collected retrospectively between January 2007 and December 2008 by the Labor unit of Rajavithi Hospital, a tertiary care teaching hospital affiliated with Rangsit University of Thailand. The inclusion criteria for the study group or immigrant pregnant women (case) consisted of (1) maternal nativity (as indicated by the mother's place of birth in Southeast Asia countries except Thailand) (2) singleton pregnancy (3) delivery at Rajavithi

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Hospital. A 1:4 case control was performed, matching by computer randomization. Analysis was conducted on the following, mode of delivery, postpartum hemorrhage (PPH) (estimated blood loss from vaginal delivery ≥ 500 ml or cesarean delivery $\geq 1,000$ ml) and fetal outcomes. The fetal outcome subject for assessment were defined as follows, (1) stillbirth; intrauterine fetal death after 20 weeks of gestation, (2) preterm birth; birth before 37 weeks of gestation, (3) low birth weight (LBW); birth weight of $< 2,500$ gm, (4) Neonatal care unit admission (NICU), and (5) low apgar scores; Apgar scores of < 7 at 5 min. The present study was conducted with the approval of the Research Ethics Committee, Rajavithi Hospital.

Statistical analysis

Descriptive data were presented as mean with standard deviation (SD) and percentage. The comparison of outcomes between the study and control group was analyzed using χ^2 test, Student's t-test, and relative risk with 95% confidence interval (CI) as appropriate. Statistical significance was set at $p < 0.05$.

Results

During the study period, 6,300 live births were studied, including 1,260 from foreign-born mothers and 5,040 from native-born mothers. A 1:4 case control was performed. Immigrant pregnant women included 802 Burmese (63.7%), 354 Laotian (28.1%), Cambodian (7.5%), and nine women from other countries (0.7%).

Baseline data of the patients in the present study was summarized in Table 1. The mean ($\pm$ SD) maternal age of 1,260 cases of singleton foreign-born mothers was 26.42 ± 4.78 years significantly lower than the control group (27.25 ± 6.37 , p -value < 0.0001). The proportion of nulliparous in foreign-born mothers' group was significantly higher than the control group

(55.6% vs. 44.4%, p -value < 0.0001). The mean birth weight ($\pm$ SD) of the foreign-born mothers' group was significantly lower than that of the control group ($2,842 \pm 563.7$ gm vs. $2,998.21 \pm 534.9$ gm, p -value < 0.001). Likewise, private service of the foreign-born mothers' group was significantly lower than that of the control group (1.7% vs. 19.2%, p -value < 0.0001). The baseline data between both groups were not significantly different in an aspect of gestational weeks and the number of antenatal care visits.

The main pregnancy outcomes between the two groups are summarized in Table 2. After adjusting the odds ratio for maternal age, parity, and private service, cesarean section rate, PPH, preterm birth, and NICU admission did not differ between the two groups. The incidence of low Apgar score at 5 minutes and perinatal death were significantly lower in the study group with an odds ratio of 0.506 (95% CI 0.29-0.89) and 0.295 (95% CI 0.10-0.83), respectively. LBW was slightly higher but statistically significant in the present study group with an odds ratio of 1.707 (95% CI 1.45-2.01). No maternal mortality was noted in either group.

Discussion

To date, although immigration is prevalent in the Thai population, not much is known about immigrant pregnancy performance in patients and only a few studies have been published in Thailand. Many studies have shown that immigrant pregnant women may have better⁽³⁻⁸⁾, poor⁽⁹⁻¹⁴⁾ or similar⁽¹⁵⁾ pregnancy outcomes compared with native-born pregnant women. Based on those studies, the pregnancy outcomes among immigrant pregnancy are inconclusive.

The present study results show that after adjusting maternal age, parity, and private service, infants born to foreign-born mothers have lower rates of low Apgar score at 5 minutes and perinatal death compared to infants of native Thai-born mothers. As

Table 1. Baseline characteristics data in both groups

Baseline characteristics	Cases (n = 1,260)	Control (n = 5,040)	p-value
Maternal age (year) (mean $\pm$ SD)	26.42 $\pm$ 4.78	27.25 $\pm$ 6.37	<0.0001
Parity (n) nulliparous/parous	700/1,260 (55.6%)	2,237/5,040 (44.4%)	<0.0001
Gestational weeks (mean $\pm$ SD)	38.29 $\pm$ 2.3	38.16 $\pm$ 2.29	0.076
Birth weight, gm (mean $\pm$ SD)	2,842 $\pm$ 563.7	2,998.21 $\pm$ 534.9	<0.0001
Number of visits (mean $\pm$ SD)	7.18 $\pm$ 3.82	7.27 $\pm$ 3.89	0.453
Private service	20 (1.7)	935 (19.2)	<0.0001

Table 2. Pregnancy outcomes for patients in both groups

Pregnancies outcomes	Case (n = 1,260)	Control (n = 5,040)	Adjusted odd ratio (95% CI)
Cesarean section	333 (26.4%)	1,837 (36.4%)	0.892 (0.77-1.03)
Postpartum hemorrhage	61 (4.8%)	253 (5%)	1.061 (0.79-1.43)
Preterm birth	173 (14%)	708 (14.2%)	0.830 (0.69-1.00)
Low birth weight	277 (22%)	641 (12.7%)	1.707 (1.45-2.01)
Low Apgar scores at 5 min (< 7)	17 (1.3%)	104 (2.1%)	0.506 (0.29-0.89)
NICU admission	21 (1.7%)	92 (1.8%)	0.880 (0.54-1.43)
Perinatal death	9 (0.7%)	58 (1.2%)	0.295 (0.10-0.83)

Adjusted odds ratio for maternal age. Parity, private service
NICA = neonatal care unit admission

an explanation for these findings, attention has been given to the “healthy migrant” theory^(3,7,16,17) that the average health status of foreign-born women is better than that of native women. People with poor health may be less likely to move because they are less capable of moving or managing the difficulties and stress associated with migration. These premises are that healthier people generally have better birth outcomes (lower rates of preterm, LBW, and infant mortality) observed among foreign-born women compared to native-born women, stem in part from a selection bias for healthier people. Studies of Latin women of Mexican^(4,18) have revealed relatively favorable birth outcomes for a US Latino population with low socioeconomic status than for a US native population in what have become known as the “Epidemiological Paradox”. The last explanation is the effect of prenatal care. The present study indicates that immigrant pregnant women are early seeking prenatal care early similar to native-born women. Reed et al⁽¹⁹⁾ suggested that, better monitoring of both fetus and mother during pregnancy might reduce the risk of many adverse outcomes. The lack of prenatal care results in missed opportunities to monitor and prepare for labor and delivery, and prepare for potential complications. Vintzileos et al⁽²⁰⁾ reported that prenatal care associated with significantly lower rates of preterm births, as well as neonatal death associated with several high-risk conditions.

However, the incidence of LBW in the present study is different from healthy migrant theory and Epidemiological Paradox. It has been found that after adjusting maternal age, parity, and private service, infants born to foreign-born mothers have the higher rates of low birth weight compared to infants of native-born mothers. Two explanations are presented.

Firstly, a vast majority of foreign-born mothers in the present study are Burmese in which the incidence of low birth weight in Myanmar is estimated to be 24%⁽²¹⁾. Secondly, although several studies found that foreign-born status confers a protective effect against LBW^(3,8,13,22,23). A result varies across racial/ethnic and national-origin groups. Based on US-national data collected between 1985 and 1987, it was found that there were significant differences between US-born and foreign-born women in low birth weight and these differences varied across major US racial/ethnic groups⁽²⁴⁾. Dolores et al⁽⁴⁾ used Nationality Data in 1998 to examine differences in LBW by nativity across racial/ethnic groups and by education level. They found that foreign-born status does not protect against low birth weight for white women and it increases the risk for Asian women. However, it reduces the risk for black women and Hispanic women.

Maternal outcome from the present study after adjusting maternal age, parity, and private service shows that the cesarean section rate and PPH for foreign-born women are not different from native-born women. It is possible that “healthy migrant” theory and immigrant women have adequacy of prenatal care similar to native women. This means that they can access Thailand’s health care services because legitimate immigrants in Thailand have national insurance supporting them.

The present study has a number of limitations. Firstly, the authors could not identify education, income, maternal nutrition, and socioeconomic status for observed patients, which is possible to have an effect on pregnancy outcomes. Secondly, the exact duration, in which foreign-born women for the present study have been in Thailand, is not known from the database.

The strength of the present study was that it had controls resulting in more reliable conclusion and it was one of the large cohort series in Thailand consisting of a large sample size to gain enough power to distinguish the rates of pregnancy outcomes.

In summary, the results of the present study indicate that the cesarean section rate, PPH, preterm birth, and NICU admission of immigrant women in Thailand are not different from native-born women. Foreign-born status confers a protective effect against lower Apgar score at 5 minutes and perinatal death. However, the incidence of LBW for foreign-born women is higher than that for native-born women. Accordingly, it can be concluded that the risk of poor pregnancy outcomes are not increased for immigrant pregnant women compared to native-born women except for the low birth weight. There is a need to carry out an additional research to explore unidentified factors that influence the fetal growth and birth weight.

Potential conflicts of interest

None.

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การศึกษาผลลัพธ์การตั้งครรภ์ของหญิงตั้งครรภ์ในประเทศภูมิภาคเอเชียตะวันออกเฉียงใต้ที่อพยพมาอยู่ประเทศไทยเปรียบเทียบกับหญิงตั้งครรภ์ชาวไทยในโรงพยาบาลราชวิถี

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วัตถุประสงค์: เพื่อศึกษาผลลัพธ์การตั้งครรภ์ของสตรีที่อพยพมาอยู่ประเทศไทยเมื่อเปรียบเทียบกับสตรีชาวไทยที่โรงพยาบาลราชวิถี

วัสดุและวิธีการ: ทำการศึกษาหญิงตั้งครรภ์เดี่ยว ชาวเอเชียตะวันออกเฉียงใต้ที่อพยพมาอยู่ในประเทศไทย และได้คลอดบุตรที่โรงพยาบาลราชวิถีในช่วงระหว่างเดือน มกราคม พ.ศ. 2550 ถึง ธันวาคม พ.ศ. 2551 เปรียบเทียบกับหญิงตั้งครรภ์ชาวไทย

ผลการศึกษา: ได้ทำการเก็บข้อมูลหญิงตั้งครรภ์ชาวเอเชียตะวันออกเฉียงใต้ที่อพยพมาอยู่ในประเทศไทยจำนวน 1,260 คน เปรียบเทียบกับหญิงตั้งครรภ์ชาวไทยจำนวน 5,040 คน พบว่าหลังจากมีการควบคุมตัวแปรอัตราการผ่าตัดคลอดบุตร การตกเลือดหลังคลอด การคลอดก่อนกำหนด และการนอนห้องไอซียูของทารกแรกเกิด ในกลุ่มหญิงตั้งครรภ์ชาวเอเชียตะวันออกเฉียงใต้ที่อพยพมาอยู่ในประเทศไทยไม่แตกต่างกับหญิงตั้งครรภ์ชาวไทย แต่กลับพบว่าในหญิงตั้งครรภ์ชาวเอเชียตะวันออกเฉียงใต้ที่อพยพมาอยู่ในประเทศไทยมีผลลัพธ์การตั้งครรภ์ คือ คะแนน Apgar ที่ 5 นานที่น้อยกว่า 7 คะแนน และอัตราการตายปริกำเนิดน้อยกว่าหญิงตั้งครรภ์ชาวไทย โดยคิดเป็น odds ratio คือ 0.506 (95% CI: 0.29-0.89) และ 0.295 (95% CI: 0.10-0.83) ตามลำดับ ยกเว้นการคลอดทารกแรกคลอดน้ำหนักน้อยกว่า 2,500 กรัม พบมากกว่าหญิงตั้งครรภ์ชาวไทยโดยคิดเป็น odds ratio คือ 1.707 (95% CI: 1.45-2.01)

สรุป: ในประเทศไทยนั้นการผ่าตัดคลอดบุตร การตกเลือดหลังคลอด การคลอดก่อนกำหนด และการนอนห้องไอซียูของทารกแรกเกิด ในกลุ่มหญิงตั้งครรภ์ชาวเอเชียตะวันออกเฉียงใต้ไม่แตกต่างกับหญิงตั้งครรภ์ชาวไทย และพบว่าอัตราคะแนน Apgar ที่ 5 นานที่น้อยกว่า 7 คะแนน และอัตราการตายปริกำเนิดน้อยกว่าหญิงตั้งครรภ์ชาวไทย ยกเว้นการคลอดทารกแรกคลอดน้ำหนักน้อยกว่า 2,500 กรัม ที่มากกว่าหญิงตั้งครรภ์ชาวไทย
