

## Comparison of Perinatal Complications between Thai and Foreign Pregnant Women at Chiang Khong Crown Prince Hospital, Chiang Rai Province

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### Abstract:

**Background:** The number of foreign pregnant women living at the border of Thailand is increasing. Maternal and neonatal problems of this group may differ from those of Thai pregnant women. Therefore, a study of their perinatal problems may lead to better understanding and improve maternal and child health of foreign women in Thailand.

**Objective:** The study aimed to compare the rate of perinatal problems between foreign and Thai pregnant women at Chiang Khong Crown Prince Hospital, Chiang Rai Province.

**Study design:** Cross-sectional study

**Methods:** We retrospectively reviewed medical records of foreign and Thai pregnant women attending Chiang Khong Crown Prince Hospital between October 1, 2018 and September 30, 2019. The review included maternal factors, perinatal and natal complications, infants' gestational age and birth weight.

**Results:** In all, 501 pregnant women were enrolled of which 328 (65.45%) and 173 (34.53%) were Thai and foreign, respectively. Maternal age more than 35 years among Thai pregnant women (10.67%) was more frequent than those in the foreign group (4.62%). The rates of anemia, hepatitis B carrier and history of abortion more than 2 times among foreign pregnant women (19.65, 6.36 and 5.20%, respectively) were significantly higher than those of Thai pregnant women (11.59, 2.74 and 1.83%, respectively). The rate of low birth weight (less than 2,500 gm) of infants born to foreign pregnant women (12.14%) was significantly higher than that of Thai pregnant women (6.71%).

**Conclusion:** The rates of perinatal problems and low birth weight infants among foreign women were higher than those of Thai pregnant women. Good antenatal care should be encouraged to improve maternal and child health among this group of women.

**Keywords:** pregnant women, ethnic minority, complication

## Background

Maternal and infant mortality are one of the most important indicators of population health<sup>1-6</sup>. In Thailand, policies and programs have been continuously implemented with a goal to decrease the maternal and infant mortality rate including safe childbirth, safe mother program and good antenatal care. Statistics report of maternal and infant mortality in Thailand (2011-2015) have varied from region to region and ranged from 28.38 to 34.42 per 100,000 live birth and 10.36 to 12.21 per 1,000 live birth, respectively<sup>7</sup>. A previous study at Rajavithi Hospital reported no difference of pregnancy outcomes between immigrant and Thai pregnant women. However, the incidence of low birth weight was higher among immigrant pregnant women<sup>8</sup>.

Chiang Khong District of Chiang Rai Province is located on the bank of the Mekong River opposite the Lao People's Democratic Republic. Therefore, many patients attending Chiang Khong Crown Prince Hospital are Laos, ethnic minorities and Burmese. Health information of foreign and ethnic minority group of pregnant women and infants living along the Thai border remains limited. The study aimed to compare the rate of perinatal problems between foreign and Thai pregnant women at Chiang Khong Crown Prince Hospital of Chiang Rai Province.

## Methods

We conducted a cross-sectional study by retrospectively reviewing medical records of pregnant women attending Chiang Khong Crown Prince Hospital between October 1, 2018 and September 30, 2019. Pregnant women were divided into two groups based on races, i.e. Thai and foreign people. Independent variables were compared between the two groups including maternal characteristics, mode of delivery, pregnancy complications, infants' gestational age and birth weight.

## Statistical analysis

Comparison between the groups was analyzed by using independent t-test for continuous data and Chi-square or Fisher's exact for categorical data as appropriate. Statistically significant difference between groups was assigned at p value less than 0.05.

## Results

In all, 501 pregnant women were enrolled in the study. Three hundred and twenty-eight (65.45%) and 173 (34.53%) were Thai and foreigner, respectively. The ethnicities of Laos, hill tribe and Burmese were 180 (35.92%), 136 (27.15%) and 2 (0.40%), respectively. Maternal age more than 35 years among Thai pregnant women (10.67%) was more frequent than that of the foreigner group (4.62%). No difference was found in height, body mass index and underlying diseases between groups. The rates of anemia, hepatitis B carrier and history of abortion more than 2 times among foreign pregnant women (19.65, 6.36 and 5.20%) were significantly higher than those of Thai pregnant women (11.59, 2.74 and 1.83%), respectively (Table 1). Mode of delivery and complications did not differ between groups (Table 2). Rate of low birth weight (less than 2,500 gm) of infants born to foreign pregnant women (12.14%) was significantly higher than that of Thai pregnant women (6.71%) (Table 3).

## Discussion

This study showed a higher rate of pregnant women aged more than 35 years in a Thai population. In contrast to foreign women<sup>9</sup>, Thai women tended to have higher education levels resulting in getting married late and having children at older age.

The higher rate of anemia among foreign pregnant women corresponded to related studies<sup>10-12</sup>. The common cause of anemia was iron deficiency which was probably due to poor antenatal care and compliance with iron treatment. Therefore, an educational program for pregnant women with anemia should be implemented using teaching materials in both Thai and foreign languages with an emphasis on having proper nutrition and iron supplement.

**Table 1** Characteristics of Thai and foreign pregnant women

Data	Thai n (%)	Foreign n (%)	P-value
<b>Total pregnant women</b>	328	173	
<b>Age, mean±SD</b>	26.06±6.56	25.51±5.40	0.342
≤ 16 years of age	15 (4.57)	3 (1.73)	0.132
> 35 years of age	35 (10.67)	8 (4.62)	0.028
<b>Parity ≥ 4</b>	18 (5.49)	7 (4.05)	0.523
<b>Abort ≥ 2 times</b>	6 (1.83)	9 (5.20)	0.035
<b>Height (cm.) mean±SD</b>	153.85±6.35	153.54±5.77	0.582
< 145 cm.	18 (5.47)	12 (6.94)	0.534
<b>BMI (kg/m<sup>2</sup>), mean±SD</b>	24.07±5.55	23.21±5.18	0.092
< 5 kg/m <sup>2</sup>	20 (6.10)	11 (6.36)	0.973
<b>Underlying diseases</b>			
Diabetic mellitus	9 (2.74)	2 (1.16)	0.342
Hypertension	2 (0.61)	0	0.544
Epilepsy	1 (0.30)	0	0.464
Thyrototoxicosis	1 (0.30)	0	0.464
<b>Poor antenatal care (&lt; 4 times)</b>	148 (45.12)	90 (52.02)	0.150
<b>Laboratory test</b>			
HIV positive	1 (0.30)	1(0.58)	1.000
VDRL positive	1 (0.30)	0	1.000
HBsAg positive	9 (2.74)	11 (6.36)	0.049*
DCIP positive	2 (0.61)	4(2.31)	0.096
Hct < 33%	38 (11.59)	34 (19.65)	0.016*
Abnormal Hemoglobin typing	15/20 (71.4)	32/45 (71.1)	0.719
Alpha trait	1/20 (4.80)	8/45 (17.80)	0.255

BMI = Body mass index, HIV = Human Immunodeficiency Virus, VDRL = Venereal disease research laboratory, HBsAg = Hepatitis B surface antigen, DCIP = Dichlorophenol Indophenol Precipitation test

\* Chi-square test

**Table 2** Delivery and complications of Thai and foreign pregnant women

Data	Thai n (%)	Foreign n (%)	P-value
<b>Total pregnant women</b>	328	173	
<b>Mode of delivery</b>			
Vaginal	260 (79.27)	142(82.08)	0.481
Cesarean	67 (20.43)	31(17.92)	0.554
Vacuum extraction	1 (0.30)	0	1.000
<b>Maternal complications</b>			
Cephalopelvic disproportion	24 (7.32)	9 (5.20)	0.450
Gestational diabetes mellitus	22 (6.71)	10 (5.88)	0.848
Pregnancy induced hypertension	5 (1.52)	1 (0.58)	0.669
Twin pregnancy	1 (0.30)	2 (1.16)	0.275
Preterm labour	21 (6.40)	17 (9.83)	0.213
Meconium-stained amniotic fluid	0	1 (0.58)	0.345
PROM > 12 hours	1 (0.30)	0	0.170
Breech presentation	9 (2.74)	7 (4.09)	0.433
Nuchal cord	8 (2.44)	5 (2.89)	0.773
Syphilis	3(0.91)	0	0.555
Condyloma acuminata	2 (0.61)	2 (1.16)	0.611
Birth before arrival	1 (0.30)	2 (1.16)	0.275
Postpartum hemorrhage	3 (0.91)	3 (1.73)	0.420
Fetal death	2 (0.30)	2 (1.16)	0.611

PROM: Premature rupture of membrane

**Table 3** Neonatal data of infants born to Thai and foreign women

Data	Thai n (%)	Foreign n (%)	P-value
<b>Total infants</b>	328	173	
<b>Gestational age, mean±SD</b>	38.61±1.53	38.58±1.78	0.838
< 37 weeks	21 (6.40)	17 (9.83)	0.213
> 42 weeks	4 (1.22)	2(1.16)	1.000
<b>Birth weight, mean±SD</b>	3,113.45±415.08	3,028.91±470.58	0.039*
< 2,500 grams	22 (6.71)	21 (12.14)	0.045**
> 4,000 grams	8 (2.44)	3 (1.73)	0.755

\* Unpaired t-test

\*\* Chi-square test

The higher rate of hepatitis B carrier among foreign pregnant women corresponded to a related study reporting a higher prevalence of positive hepatitis A, B and C infections among foreign workers in Thailand.<sup>13</sup> Hepatitis B vaccine should be provided to all foreign infants within 12 hours after birth as the same routine practice for Thai infants.

Birth weights of infants born to foreign and Thai pregnant women did not differ. However, foreign pregnant women delivered infants with low birth weight (less than 2,500 gm) more frequently. Although the rate of poor antenatal care did not differ between the two groups, the cause of low birth weight was probably from inadequate maternal nutrition<sup>14, 15</sup> and self-care due to low socioeconomic levels and language barrier. The limitation of this study was retrospective study in design; therefore, we were unable to review infant's complications after birth.

## Conclusion

Anemia, hepatitis B carrier and low birth weight were more common among foreign pregnant women compared with a Thai population. Good antenatal care should be encouraged to improve maternal and child health among this group of women.

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