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## OBSTETRICS

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# Comparison of LATCH Scores at the Second Day Postpartum between Mothers with Cesarean Sections and Those with Normal Deliveries

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## ABSTRACT

**Objective:** The route of delivery effects on breastfeeding. The LATCH score for assessment of breastfeeding practices have been widely used here in Thailand. LATCH scores greater than 8 correlated with exclusive breastfeeding at six weeks postpartum.

**Materials and Methods:** The subjects were 1,316 normal postpartum primiparous women who delivered without complications and their newborns at the HRH Princess Maha Chakri Sririndhorn Medical Center in the Nakhon Nayok province during the period from January 2010 to April 2013. The mothers were categorized in two groups; those who delivered by cesarean section and those with normal deliveries. At the first day postpartum, both groups of mother were encouraged to breastfeed their infant. The mothers were assessed LATCH scores at the second day postpartum prior to discharge. Telephone follow-ups at the sixth week postpartum period were collected and used for exclusive breastfeeding data collection. Demographic data and exclusive breastfeeding rates were analyzed by the t-test, Chi-square test, Odds ratios with 95% confidence intervals and Logistic regression analysis.

**Results:** The data shows that mean of LATCH scores at the second day postpartum were  $7.9 \pm 1.7$  points in cesarean section group and  $8.1 \pm 1.3$  points in normal delivery group. There were statistical differences between the mean in the two groups. the crude odds ratio and adjusted odds ratio of LATCH scores more than 8 between the cesarean section group as compared with the normal delivery group was 0.67 (95% CI 0.42-0.94) and 0.82 (95% CI 0.69-0.97). By telephone follow up at the sixth week postpartum the number of exclusive breastfeeding mothers were 369 (56.1%) in cesarean section group and 388 (59.0%) in normal delivery group. The most common of breastfeeding cessation at sixth week postpartum was insufficient breast milk.

**Conclusion:** The mothers with cesarean section deliveries had significantly lower LATCH scores than the mothers with normal deliveries. The adjusted odds ratios of LATCH scores greater than 8 between the mothers with cesarean sections and normal deliveries was 0.8.

**Keywords:** LATCH score, exclusive breastfeeding, cesarean section, normal delivery

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## Introduction

Breastfeeding is the gold standard for infant feeding. Assessment of breastfeeding in postpartum mothers at the hospital prior to discharge is important in the follow-up plan to encourage mothers for successful breastfeeding. There are many tools which could be used to evaluating of breastfeeding for example systematic assessment of the infant at breast (SAIB), the mother–baby assessment (MBA), lactation Assessment Tool (LAT). The LATCH score for assessment of breastfeeding practices have been widely used here in Thailand. Current trends in Thailand have shown that the rates of cesarean section deliveries are higher, especially in private hospitals (67.31 percent) and this has an effect on exclusive breastfeeding rates<sup>(1,2)</sup>. LATCH score assessment was used to correlate breastfeeding and the criteria of LATCH scores greater than 8 demonstrated better breastfeeding success at six weeks postpartum. LATCH score are assessed by latching on, audible swallowing, type of nipples, comfort and assistance requirement parameters. Therefore, we were interested in comparing the LATCH scores at the second day postpartum between the mothers with cesarean sections and those with normal deliveries in this study.

## Materials and Methods

### Design

This study was a retrospective cohort study. The subjects were categorized in two groups; those who delivered by cesarean section and those with normal deliveries. At the first day postpartum, all the mothers were encouraged to breastfeed their infant 8-12 times per day. The pain scores were collected by visual analog scale<sup>(3)</sup>. The mothers were assessed latch scores at the second day postpartum prior to discharge. Telephone follow-ups at the sixth week postpartum period were collected and used for exclusive breastfeeding data collection.

### Setting

The study was performed in Nakhon Nayok province, rural area at the central part of Thailand. The data was collected during the period of January 2010

to April, 2013 at the HRH Princess Maha Chakri Siririndhorn Medical Center which had baby friendly hospital policy. The routine practice of postpartum ward was breastfeeding teaching. The one-hour learning course of breastfeeding including latching and infant feeding positions was taught on the first day postpartum. One nurse taught the group of 3-5 mothers. The mothers were encouraged to stimulate their newborns for breastfeeding every 2-3 hours. The mothers were assessed for LATCH scores at the second day postpartum.

### Inclusion criteria

The primiparous women who delivered without complications; i.e. multiple pregnancies, preeclampsia, antepartum hemorrhage and preterm labor and intending to breastfeed at least six months were recruited. Cesarean section included low midline and Pfannenstiel incision. Episiotomy was selected used in normal delivery. Their newborns had birth weights of more than 2500 grams and no complications.

### Exclusion criteria

The women had postpartum hemorrhages or had had any contraindications to breastfeeding including the mother who was HIV positive and the baby who had galactosemia.

### Sample size

The sample size was based on effect size = 0.2, 0.05 of  $\alpha$  error and 0.95 of power. The calculated sample size was 651 in each group. The sample size was added up 10 percent for data lost. So the samples that we collected were 1316 cases.

## LATCH score<sup>(4)</sup>

L = Latch	2	Grasps breast, Tongue down and forward Lips flanged and has rhythmic suckling
	1	Repeated attempts Hold nipple in mouth Stimulate to suck
	0	Too sleepy or reluctant No latch obtained
A=Audible swallowing	2	Spontaneous or frequent audible swallowing
	1	A few audible swallowing with stimulation
	0	None
T=Type of nipple	2	Everted(after stimulation)
	1	Flat
	0	Inverted
C=Comfort	2	Soft Nontender Intact nipple
	1	Filling Small blisters or bruises of breasts Mild to moderate discomfort of nipples or breasts
	0	Engorged Cracked, bleeding, large blisters or bruises Severe discomfort
H=Hold(assistance requirement)	2	No assistance requirement for staff Mother can position or hold the baby
	1	Minimal assistance Teach one side and the mother does other Staff helps and mother takes over feeding
	0	Full assist(staff holds infant at breast)

### **Procedure and collection of material**

On the first day postpartum, the mothers had received instructions of pain score assessment by visual analog scale. The pain score data was collected. After that, the mothers were encouraged to stimulate their newborns for breastfeeding every 2-3 hours. The well trained nurses assessed LATCH scores at the second day postpartum prior to their discharge. The assessment team has five nurses who must pass the 12 hours course; two hours for the knowledge teaching and the detail of agreement; ten hours for practice and assessment. Telephone follow-ups by three nurses of breastfeeding clinic at the sixth week postpartum

periods were used for exclusive breastfeeding data. The question on telephone was 'Did the mother feed her infant only breast milk after discharge'. If the mother answered 'Yes', exclusive breastfeeding data was collected. If the mother answered 'No', the second question 'what was the cause of exclusive breastfeeding cessation' would be asked and the data was collected.

### **Ethical considerations**

This study was approved by The Ethical Committee of the Faculty of Medicine, Srinakharinwirot University, Thailand.

### **Statistical analysis**

Demographic data was reported as mean and

percentage. We used t-test to compare the means of maternal age, gestational age, body mass index, nipple length, birth weight, pain scores and LATCH scores between cesarean section and normal delivery groups. We used Chi-square test to compare the data of occupation; LATCH scores more than 8 and exclusive breastfeeding rates between cesarean section and normal delivery groups. Odds ratio with a 95% confidence interval was used for comparison LATCH scores more than 8 of cesarean section group with normal delivery group. Adjusted Odd ratio was calculated by logistic regression analysis. The cause of breastfeeding cessation was reported as percentages and p-value. A p-value less than 0.05 was considered statistically significant. Statistical analysis was performed using SPSS IBM Singapore Pte Ltd (Registration No.1975-01566-C).

## Results

The number of postpartum women that had enrolled in our research project totaled 1316. We categorized mothers into two groups: cesarean section and normal delivery.

The demographic data of 658 cases of the

cesarean section group have shown that the mean age of the postpartum women was at  $28.2 \pm 7.3$  years of age. The mean gestational age of the women was  $38.6 \pm 1.4$  weeks. The mother's occupation was stated as self-employed or as housewives for 45.9% of the subjects. The mean body mass index measured at  $26.8 \pm 4.9 \text{ kg/m}^2$ . The mean nipple length of the mothers' was  $0.7 \pm 0.3$  centimeters. The mean newborn birth weight was at  $3085.4 \pm 473.3$  grams. The mean pain scores were  $4.3 \pm 1.0$  points. All cesarean section case used spinal anesthesia with morphine.

The demographic data of the 658 cases of group with normal delivery have shown that the mean age of the postpartum women was at  $26.3 \pm 6.4$  years of age. The mean gestational age of the women was  $38.8 \pm 1.7$  weeks. The mother's occupation was stated as self-employed or as housewives for 49.2% of the subjects. The mean body mass index measured at  $24.1 \pm 2.8 \text{ kg/m}^2$ . The mean nipple length of the mothers' was  $0.7 \pm 0.3$  centimeters. The mean newborn birth weight was at  $3050.6 \pm 483.6$  grams. The mean pain scores were  $3.0 \pm 0.9$  points. The details of demographic data of both groups are shown in Table 1.

**Table 1.** Demographic data of normal delivery and cesarean section groups and P-value.

Mother and newborn's data	Cesarean section group (n=658)	Normal delivery group (n=658)	p
Mother's age (years)	$28.2 \pm 7.3$	$26.3 \pm 6.4$	< 0.001*
Gestational age (week)	$38.6 \pm 1.4$	$38.8 \pm 1.7$	0.981
Housewife or self-employed (%)	302 (45.9)	324 (49.2)	0.118
Employee (%)	356 (54.1)	334 (50.8)	
Body mass index (kg/m <sup>2</sup> )	$26.8 \pm 4.9$	$24.1 \pm 2.8$	0.863
Nipple length (cm.)	$0.7 \pm 0.3$	$0.7 \pm 0.3$	0.198
Birth weight (gram)	$3085.4 \pm 473.3$	$3050.6 \pm 483.6$	0.570
Pain scores (point)	$4.3 \pm 1.0$	$3.0 \pm 0.9$	< 0.001*

The mean of LATCH scores at the second day postpartum were  $7.9 \pm 1.7$  points in cesarean section group and  $8.1 \pm 1.3$  points in normal delivery group. There were statistical differences between the mean in the two groups. The total of 658 cases for each group, all of them could be followed up by telephone at the

sixth week postpartum but only some amount were exclusive breastfeeding which were 369 (56.1%) cases in cesarean section group and 388 (59%) cases in normal delivery group. The details of means of latch scores and the exclusive breastfeeding rates in cesarean section group and normal delivery group are

shown in Table 2.

LATCH scores greater than 8 demonstrated better breastfeeding success at six weeks postpartum. The number of mothers who had LATCH score more than 8 in normal labor group were 669 of 1833 cases and 412 of 1162 cases in cesarean section group. When the groups were analyzed by LATCH scores of greater than 8 and LATCH scores 8 or less, the crude odds ratios of LATCH scores totaling more than 8 between the cesarean section group as compared with the

normal delivery group was 0.67 (95% CI 0.42-0.94) at the second day postpartum. But the variables including maternal age and pain scores were analyzed by logistic regression. The adjusted odds ratios of LATCH scores greater than 8 between the cesarean section group as compared to the normal delivery group was at 0.82 (95% CI 0.69-0.97). The details of the crude odds ratios and adjusted odds ratios of LATCH scores greater than 8 between the cesarean section group as compared to the normal delivery group are shown in Table 3.

**Table 2.** Comparison of means of LATCH scores and the exclusive breastfeeding rates in normal delivery and cesarean section group.

<b>LATCH score and exclusive breastfeeding rate</b>	<b>Cesarean section group (n=658)</b>	<b>Normal delivery group (n=658)</b>	<b>p</b>
LATCH score at the second day postpartum (points)	7.9 ± 1.7	8.1 ± 1.3	< 0.001*
Exclusive breastfeeding rate at 6 weeks postpartum (%)	369 (56.1)	388 (59.0)	0.048*

**Table 3.** Odds ratio of LATCH score more than 8 between cesarean section group compared with normal delivery group.

<b>LATCH score&gt;8</b>	<b>Crude Odds ratio</b>	<b>95%CI</b>	<b>Adjusted Odds ratio</b>	<b>95%CI</b>
cesarean section:	0.67	0.42-0.94	0.82	0.69-0.97
normal delivery group				

Of all 658 mothers who went through cesarean section, 289 had a cessation of breastfeeding, leaving 369 mothers with exclusive breastfeeding. Among 658 mothers that went through normal delivery, 270 mothers had breastfeeding cessation due to various causes as mentioned in Table 4, leaving only 388 mothers with absolute breastfeeding. The causes of breastfeeding

cessation were insufficient milk, mother's return to work, mother's or infant's illness, mother exhaustion and infant crying concern. The details of causes of breastfeeding cessation are shown in Table 4. There was no statistically significant difference between each cause. (p = 0.064)

**Table 4.** Cause of breastfeeding cessation at sixth week postpartum in cesarean section and normal delivery groups.

Cause of breastfeeding cessation at sixth week postpartum	Cesarean section group (n=289)	Normal delivery group (n=270)
	N (%)	N (%)
Insufficient milk (%)	133 (46.0)	118 (43.7)
Return to work (%)	93 (32.2)	98 (36.3)
Mother's or infant's illness (%)	42 (14.5)	35 (13.0)
Mother exhaustion (%)	11 (3.8)	14 (5.2)
Infant crying concern (%)	10 (3.5)	5 (1.9)

## Discussion

In this study, the subjects were divided into two groups; those delivering by cesarean section and those with normal deliveries. The demographic data affecting breastfeeding; maternal age, gestational age, occupation, body mass index, nipple length and newborn birth weight was taken<sup>(5-11)</sup>. There were no significant differences between the cesarean section and normal delivery groups in relation to the demographic data with the exception of maternal ages and pain scores. Possibly, primigravida at an older maternal age was an indication for the increase in cesarean sections in current trends<sup>(2,12)</sup>. The average pain scores for cesarean sections were usually over the pain scores in normal deliveries<sup>(13)</sup>. When LATCH scores were compared between the cesarean section groups and the group with normal deliveries at the second day postpartum, LATCH scores in those with cesarean sections were significantly lower than the LATCH scores in the normal delivery group. Wound pain for the mothers who delivered by cesarean sections may be a reason for starting breastfeeding later or establishing a lower rate in the practice of latching<sup>(13,14)</sup>.

The criteria of LATCH scores greater than 8 was used to compare latching and breastfeeding rates between the cesarean section and normal delivery groups in this study as LATCH scores greater than 8 demonstrated better breastfeeding success at six weeks postpartum. After adjusting for maternal age and pain score parameters by using logistic regression, the adjusted odds ratios of LATCH scores greater than 8

between the group with cesarean sections when compared to the normal delivery group was 0.8. It indicates that the likelihood of mothers who delivered by cesarean sections have LATCH scores greater than 8 was about 20 percent less than the mothers with normal deliveries. From follow-up with the mothers regarding exclusive breastfeeding rates at the sixth week postpartum, exclusive breastfeeding rates in the cesarean section group was significantly lower than that in the normal delivery group. The LATCH scores predicting the success of breastfeeding at the sixth week postpartum is consistent with the study by Kumar et al<sup>(15)</sup>. There were differences of the timing of the LATCH score evaluations and breastfeeding patterns at the sixth week postpartum. LATCH score evaluation was done at 16-24 hours following delivery in the Kumar et al study vs. the second day postpartum in this study and parameters of breastfeeding in the Kumar et al study vs. exclusive breastfeeding rates in this study. The LATCH scores were evaluated at the second day in this study because the mothers were generally discharged home at the second day postpartum here in Thailand. Insufficient milk was the most common cause of breastfeeding cessation at sixth week postpartum. We found that the number of mothers with insufficient milk in cesarean section group was more than normal delivery group, but the difference was not statistically significant. However, the healthcare professional should closely observe and stimulate mothers who deliver by cesarean section to breastfeed her infant frequently to resolve this problem. In the

mothers with LATCH scores lower than 8, follow-up should be arranged for the first week postpartum for help and support for the mother to be successful in the practice of exclusive breastfeeding.

The limitation of this study was recall bias which might be found from the data of exclusive breastfeeding at sixth week telephone follow-up. However, we tried to explain exclusive breastfeeding definition and leaflet of exclusive breastfeeding definition was given to mother before discharge.

## Conclusion

The mothers with cesarean section deliveries had significantly lower LATCH scores than the mothers with normal deliveries. The adjusted odds ratios of LATCH scores greater than 8 between the mothers with cesarean sections and normal deliveries was 0.8 and the exclusive breastfeeding rates in mothers delivering by cesarean sections were lower than the same rates of mothers with normal deliveries as estimated at the sixth week postpartum.

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## การเปรียบเทียบคะแนนการประเมินการยอมหัวนมและการดูดนมของทารก (LATCH score) ในวันที่สองหลังคลอด ระหว่างมารดาที่ผ่าตัดคลอดกับคลอดปกติ

สุปรีญ์ บูรณวงศ์ตระกูล, ภาวน พัชรพงษ์

**วัตถุประสงค์:** ต้องการเปรียบเทียบคะแนนการประเมินการยอมหัวนมและการดูดนมของทารก (LATCH score) ระหว่างมารดาที่ผ่าตัดคลอดกับคลอดปกติ ที่มีผลต่อการเลี้ยงลูกด้วยนมแม่อย่างเดียว 6 สัปดาห์หลังคลอด

**วิธีการศึกษา:** โดยการเก็บข้อมูลจากสตีวีนหลังคลอดในครรภ์แรกที่ไม่มีภาวะแทรกซ้อน ที่คลอดบุตรปกติน้ำหนักตั้งแต่ 2,500 กรัม ขึ้นไป ที่ศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี ตั้งแต่ปี 2553 ถึง 2556 ที่หอผู้ป่วยหลังคลอดจำนวน 1,316 ราย โดยจะถูกแบ่งเป็นสองกลุ่ม กลุ่มละ 658 ราย คือ กลุ่มผ่าตัดคลอด และกลุ่มคลอดปกติ โดยการกระตุ้นให้มารดาเลี้ยงลูกด้วยนมแม่สำหรับในวันที่หนึ่ง แล้วสองหลังคลอด เมื่อครบ 48 ชั่วโมงหลังคลอด จะประเมินและเก็บข้อมูลคะแนนการประเมินการยอมหัวนม และการดูดนมของทารก หลังจากนั้นจะมีการเก็บข้อมูลการเลี้ยงลูกด้วยนมแม่อย่างเดียวที่หอกสัปดาห์ โดยการโทรศัพท์ติดตาม เก็บข้อมูลพื้นฐาน อายุ ลำดับครรภ์ อายุครรภ์ อาชีพ วิธีการคลอดบุตร การเสียเลือดหลังคลอด ดัชนีมวลกาย ความยาวหัวนม น้ำหนักทารก และคะแนนการประเมินการยอมหัวนมและการดูดนมของทารก โดยจะนำมาประมวลผลโดย *t-test*, *Chi-square test*, *Odds ratios* ด้วยช่วงความเชื่อมั่นร้อยละ 95 และ *Logistic regression analysis*

**ผลการศึกษา:** คะแนนการประเมินการยอมหัวนมและการดูดนมของทารก เฉลี่ยในวันที่สองหลังคลอดของมารดาที่ผ่าตัดคลอดเท่ากับ  $7.9 \pm 1.7$  คะแนน ต่างกับคะแนนการประเมินการยอมหัวนมและการดูดนมของทารกของมารดาที่คลอดปกติเท่ากับ  $8.1 \pm 1.3$  คะแนน ค่า *crude odds ratio* และ *adjusted odds ratio* ที่คะแนนการประเมินการยอมหัวนมและการดูดนมของทารกมากกว่า 8 ของผ่าตัดคลอด เทียบกับคลอดปกติเท่ากับ 0.67 (ช่วงความเชื่อมั่นร้อยละ 95 เท่ากับ 0.42-0.94) และ 0.82 (ช่วงความเชื่อมั่นร้อยละ 95 เท่ากับ 0.69-0.97) จำนวนการติดตามสตีวีนหลังคลอดที่หอกสัปดาห์ พบร่วมารดาที่ผ่าตัดคลอดให้การเลี้ยงลูกด้วยนมแม่อย่างเดียวเท่ากับ 369 รายหรือร้อยละ 56.1 ต่างกับมารดาที่คลอดปกติที่ให้การเลี้ยงลูกด้วยนมแม่อย่างเดียวที่ 388 ราย หรือร้อยละ 59 ซึ่งสาเหตุที่สำคัญที่สุดของการหยุดการเลี้ยงลูกด้วยนมแม่คือน้ำนมไม่เพียงพอ

**สรุป:** สตีวีที่ผ่าตัดคลอดมีคะแนนการประเมินการยอมหัวนมและการดูดนมของทารกต่ำกว่าสตีวีที่คลอดปกติอย่างมีนัยสำคัญทางสถิติ *adjusted Odds ratio* ที่คะแนนการประเมินการยอมหัวนมและการดูดนมของทารกมากกว่า 8 ของผ่าตัดคลอดเทียบกับคลอดปกติ เท่ากับ 0.8

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