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Postpartum Use of Long-Acting Reversible Contraception in Primiparous Women: Ramathibodi Hospital's Experiences

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ABSTRACT

Objective: To determine desire and initiation of long-acting reversible contraception (LARC) of primiparous women in the postpartum period.

Material and Method: A prospective cohort study was conducted at Faculty of Medicine Ramathibodi Hospital, Bangkok, from July 2012 to December 2012. Postpartum women, who were primiparous, aged greater than or equal to 20 years and willing to participate were recruited into this study. Prior to discharge, a structured interview questionnaire was used to determine initial postpartum contraception desires. After discharge, data was collected at 8–12 weeks postpartum using telephone calls to determine postpartum contraception utilization and reasons.

Results: Five hundred and two out of 547 women had a documented postpartum visit at 8-12 weeks, giving an overall response rate of 91.8%. Amongst the 197 women (36.0%), who desired LARC prior to discharge, 161 (32.1%) utilized LARC within 8-12 weeks postpartum and the most common reason was no effect on breast-feeding. Injectable was the most common method of LARC used (55.9%). Simultaneous factor associated with desire for LARC prior to discharge and LARC utilization at 8-12 weeks postpartum was occupation. Compared to government officers, employees and housewives, business owners were more likely to desire and utilize LARC.

Conclusions: LARC is highly desired and utilized at 8-12 weeks postpartum in primiparous women. Occupation was a predictor of LARC desire and utilization. The most common reason of LARC utilization at 8-12 weeks was no effect on breast-feeding.

Keywords: long-acting reversible contraception, primiparous, postpartum

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Introduction

Short inter-pregnancy intervals are associated with adverse perinatal outcomes, including preterm delivery and low birth weight or unwanted

pregnancy[1]. An adequate inter-gestational period (a mean of two years) reduces neonatal, infant, and maternal morbidity and mortality[2-4]. Given that the first postpartum ovulation can occur during the fourth postpartum week in non-breastfeeding women, many women need to start effective contraception during the 4-week postpartum period to prevent short inter-pregnancy intervals[5].

These data provide important motivation for physicians and health care providers to ensure that women are given appropriate resources to avoid an unwanted or a sooner-than-wanted pregnancy. More effective use of contraception in the postpartum period could reduce unwanted pregnancies and improve obstetric outcomes. To be effective in preventing pregnancy, contraception must be used correctly and reliably.

Long-acting reversible contraception (LARC) refers to the levonogestrel intrauterine device (LNG-IUD), copper intrauterine device (Cu-IUD), the progestin-only implant (Implant) and the progestin-only injection (Injection)(6). LARCs offer the most effective form of reversible contraception, with failure rates over the first year of 0.001%, 0.14%, 0.22% and 0.7%, for the etonogestrel contraceptive implant, levonorgestrel intrauterine system (IUS), the progestin-only injection and copper IUD, respectively[7]. Unfortunately, women who choose LARC methods for postpartum contraception often face barriers to initiation, including inadequate or incorrect counseling, financial hurdles, and difficulty getting to postpartum clinic visits for placement of the LARC device. Because of these and other unforeseen barriers, studies estimate that as many as 40–75% of women who are planning to have a postpartum IUD will not have their IUD placed[8-10].

The objective of our study was to determine our institution's LARC desire and initiation in the postpartum period. Our primary outcome was the difference between LARC desire prior to hospital discharge and the rate at which LARC was actually utilized at 8-12 weeks postpartum in primiparous women. Secondary outcome measures included an analysis of characteristics of women that utilized LARC, reasons of LARC utilization and other contraceptive method utility rates in women who initiated any contraception at 8-12 weeks postpartum.

Material and Method

A prospective cohort study was conducted at Faculty of Medicine Ramathibodi Hospital, Bangkok, Thailand, from July 2012 to December 2012. This study was approved by the Ethics Committee of Faculty of Medicine Ramathibodi Hospital, Mahidol University.

We consecutively enrolled 547 postpartum women who were primiparous women, aged greater than or equal to 20 years and consented to participate in the study. Women were excluded if they did not meet the inclusion criteria or could not be contacted at 8 – 12 weeks postpartum period.

Prior to discharge, all women were interviewed using a structured interview questionnaire regarding basic demography, occupation, underlying disease, route of delivery, gestational age at delivery, postpartum complications and initial postpartum contraception desires. The interview was conducted by Obstetrics and Gynecology residents using a standardized interviewing technique.

The principle investigator (WC) made a follow-up phone call to the women between 8-12 week postpartum after discharge, to determine postpartum contraception use and reasons. If we could not contact a woman by that time, she was deemed lost to follow-up.

Sample size estimation was calculated using the formula (Estimating a single proportion) $N = Z^2_{\alpha/2} \times P(1-P)/\Delta^2$, where N was the required sample size, P was the expected proportion (0.3) and Δ^2 was width of confidence interval $(0.05)^2$, then $N = 1.96^2 \times 0.5(1-0.5)/ 0.05^2 = 385$ and plus 25% loss = 97, total sample size required was 482 postpartum women.

Categorical data was analyzed by chi square and Fisher's exact tests. Influence of maternal characteristics on utilization of LARC at 8-12 weeks postpartum was investigated using logistic regression analysis, and their effects were summarized using Relative Risk (RR) and their 95% confidence interval (CI). Relative risks were calculated from the estimated RRs using the formula $RR= OR/(1- P0 + P0 \bullet OR)$, where P0 was the probability of outcome in the reference group[11]. All hypotheses were considered two-sided, and $p<0.05$ was considered statistically significant. SPSS statistical software version

18 was used for data analysis.

Results

Among the 565 eligible women approached during the enrollment period, 18 refused to participate. Data from 547 consecutive primiparous women were obtained prior to discharge from the hospital. Five hundred and two out of 547 completed the telephone interview at 8-12 weeks postpartum period, giving an overall response rate of 91.8%. Forty-five women were excluded due to lost to follow-up.

Maternal characteristics of our study population are summarized in Table 1. The mean age of women was 29.06 ± 4.86 years. The route of delivery was vaginal in 255 (46.6%) women. One hundred and ninety-seven primiparous women (36.0%) desired LARC prior to discharge, 161 (32.1%) utilized LARC at 8-12 weeks postpartum. As a result, the difference between LARC desire prior to hospital discharge and the rate at which LARC was actually utilized at 8-12 weeks postpartum was 5.8%.

A single factor in the immediate postpartum period associated with desire for LARC was occupation (Table 2 and Table 4). Compared to government officer, business owner, employee and housewife, the business owner were more likely to desire LARC prior to discharge.

Table 1. Maternal Characteristics

Primiparous Women in Ramathibodi Hospital	N = 547 (%)
Median age, years (interquartile range)	29 (29-41)
Age, years	
≤ 25	155 (28.3)
26-34	337 (61.6)
≥ 35	55 (10.1)
Education	
< Bachelor's Degree	118 (21.6)
≥ Bachelor's Degree	429 (78.4)
Occupation	
Government officer	209 (38.2)
Business owner	179 (32.7)
Employee	109 (19.9)
Housewife	50 (9.1)
Underlying Disease	
None	457 (83.5)
GDM/DM/HT	90 (16.5)
Route of delivery	
Vaginal	255 (46.6)
Cesarean section	292 (53.4)
Gestational age at delivery, weeks	
< 37	72 (13.2)
≥ 37	475 (86.3)
Postpartum Complication	
None	532 (97.3)
Postpartum hemorrhage	15 (2.7)

Table 2. Factors associated with long–acting reversible contraception desire prior to hospital discharge

	LARC (N, %)	Non-LARC (N, %)	p (Chi-square)
Age, years			0.626
≤ 25	59 (29.9)	53 (26.1)	
26-34	118 (59.9)	131 (64.5)	
≥ 35	20 (10.2)	19 (9.4)	
Education			0.689
< Bachelor's Degree	44 (22.3)	42 (20.7)	
≥ Bachelor's Degree	153 (77.7)	161 (79.3)	
Occupation			0.028*
Government officer	60 (30.5)	88 (43.3)	
Business owner	81 (41.1)	58 (28.6)	
Employee	38 (19.3)	40 (19.7)	
Housewife	18 (9.1)	17 (8.4)	
Underlying Disease			0.353
None	167 (84.8)	165 (81.3)	
GDM/DM/HT	30 (15.2)	38 (18.7	
Route of delivery			0.775
Vaginal	95 (48.2)	95 (46.8)	
Cesarean section	102 (51.8)	108 (53.2)	
Gestational age at delivery, weeks			0.482
< 37	29 (14.7)	25 (12.3)	
≥ 37	168 (85.3)	178 (87.7)	
Postpartum Complication			0.958
None	191 (97)	197 (97)	
Postpartum hemorrhage	6 (3)	6 (3)	

* $p < 0.05$

Table 3. Factors associated with long–acting reversible contraception use at 8-12 weeks postpartum

	LARC (N, %)	Non-LARC (N, %)	p (Chi-square)
Age, years			0.142
≤ 25	50 (31.1)	87 (26.7)	
26-34	91 (56.5)	212 (65.0)	
≥ 35	20 (12.4)	27 (8.3)	
Education			0.120
< Bachelor's Degree	41 (25.5)	63 (19.3)	
≥ Bachelor's Degree	120 (74.5)	263 (80.7)	
Occupation			0.045*
Government officer	51 (31.7)	138 (42.3)	
Business owner	66 (41.0)	96 (29.4)	
Employee	32 (19.9)	61 (18.7)	
Housewife	12 (7.5)	31 (9.5)	
Underlying Disease			0.525
None	137 (85.1)	270 (82.8)	
GDM/DM/HT	24 (14.9)	56 (17.2)	
Route of delivery			0.179
Vaginal	83 (51.6)	147 (45.1)	
Cesarean section	78 (48.4)	179 (54.9)	
Gestational age at delivery, weeks			0.605
< 37	24 (14.9)	43 (13.2)	
≥ 37	137 (85.1)	283 (86.8)	
Postpartum Complication			0.859
None	157 (97.5)	317 (97.2)	
Postpartum hemorrhage	4 (2.5)	9 (2.8)	

* $p < 0.05$

At the time of the telephone interview follow-up, the only predictive factor of LARC utilized at 8-12 weeks postpartum was also occupation. Compared to government officer, business owner, employee and housewife, the business owner was more likely to utilize LARC at 8-12 weeks postpartum (Table 3 and Table 4). No effects of age, educational level, underlying diseases, route of delivery, gestational age at delivery or postpartum complication were evident with respect to LARC desire immediately postpartum or utilization at 8-12 weeks postpartum (Table 2 and Table 3).

Table 5 and Fig.1. summarize postpartum contraceptive utilization and reasons for LARC utilization of our study population. Amongst the 197 women (36.0%) who desired LARC prior to discharge, 161 utilized LARC within 12 weeks postpartum and the most common reason was no effect on breast-feeding. Among 161 women utilized LARC, the most prevalent method utilized was injectable (55.9%). Then implants and IUD were utilized in 24.8% and 19.3%, respectively.

Table 4. Relative Risks of occupation associated with long-acting reversible contraception desire and utilization

	Prior to discharge		At 8-12 weeks postpartum	
	% LARC	RR (95% CI)	% LARC	RR (95% CI)
Occupation				
Government officer	60 (30.5)	Referent	51 (31.7)	Referent
Business owner	81 (41.1)	1.43 (1.13-1.82)	66 (41.0)	1.5 (1.11-2.03)
Employee	38 (19.3)	1.2 (0.89-1.6)	32 (19.9)	1.27 (0.88-1.83)
Housewife	18 (9.1)	1.2 (0.87-1.84)	12 (7.5)	1.03 (0.60-1.76)

Table 5. Reasons for LARC Utilization at 8-12 weeks postpartum

Reasons	N (%)
no effect on breast feeding	46 (28.6)
Convenience	44 (27.3)
long duration of contraception	35 (21.7)
poor compliance for oral pills	13 (8.1)
previous user	13 (8.1)
suggested by friend/relatives	5 (3.1)
Others	5 (3.1)
Total	161 (100)

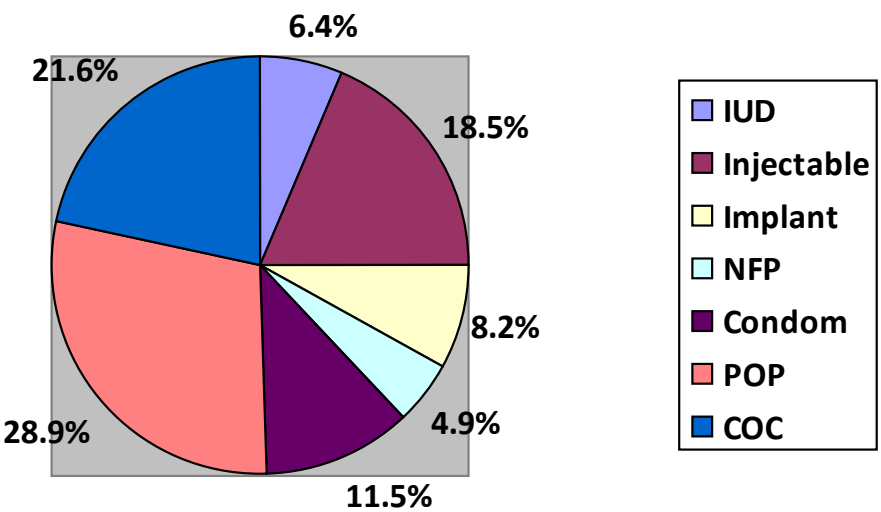

Fig. 1. Types of contraceptives utilized at 8-12 weeks postpartum.

Discussion

Initiating contraception in the postpartum period offers the advantage of high patient motivation and has a profound effect on contraceptive desires and utilization[12]. Contraception for primiparous women should be long-acting, effective method and less effect on breast feeding to avoid a subsequent pregnancy in the near future. The most effective reversible contraceptives are long-acting reversible contraceptives (LARC). Prior to discharge from a hospital, women have more access to their health-care provider, which allows an assessment of contraceptive needs, taking into account personal choice, sexual activity, breastfeeding patterns, menstruation, and medical and social factors[13]. This period can be an opportunity in which contraceptive counseling is given.

In this study, 36.0% of primiparous women desired LARC prior to discharge, 32.1% actually utilized LARC. Our findings are similar to the study in a U.S. military treatment facility[14] which also found that 33% of primiparous women desired LARC prior to discharge and 31% utilized LARC within 12 weeks postpartum. These rates are lower than a previous study in adolescents in University of Colorado, USA. The authors found that 65% of postpartum teens desired LARC within third trimester and more than 50% utilized LARC within 3 months postpartum[15].

Occupation significantly associated with intent to use LARC among postpartum women in the present study. Business Owner was more likely to utilize LARC, this may be because pregnancy could affect their business plan. From a previous study, maternal age and ethnicity but not occupation were significantly associated with intent to use LARC among postpartum women[14].

Injectable was the most common method of LARC utilized within 12 weeks postpartum, it may be explained by low cost, convenience and no effect on breast-feeding. This result was consistent to the statistics form Department of Public Health, Thailand which found that injectable was the most common method of LARC used in Thai women[16].

Strengths of our study include large population size (547 women with 92% compliance rate) and this is the first study in Thailand that determine the LARC desire and initiation in the postpartum period. Limitations of our study were firstly, we did not include adolescents and secondly, information regarding breast-feeding pattern was not collected. These factors may be associated with LARC desire and utilization.

The results from our study provide the initial data that can be applied for postpartum contraception counseling and for future studies such as side effect of LARC, association between LARC and breast feeding, LARC in adolescent.

In conclusions, in Ramathibodi Hospital, LARC is highly desired and utilized at 8-12 weeks postpartum in primiparous women. Occupation was a predictor of LARC desire and utilization. The most common reason of LARC utilization at 8-12 weeks was no effect on breast-feeding.

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การใช้วิธีคุมกำเนิดที่ออกฤทธิ์นานในระยะหลังคลอดในสตรีที่คลอดบุตรครั้งแรกจากประสบการณ์ในโรงพยาบาลรามาธิบดี

วิลาสินี ชาญสินธุ์, จิตติมา มโนนัย, รุจิรา วัฒนายิ่งเจริญชัย, คมกฤช เอี่ยมจิรกุล

วัตถุประสงค์ *: เพื่อศึกษาอัตราสตรีที่ตั้งใจจะใช้วิธีคุมกำเนิดชนิดที่ออกฤทธิ์นานในช่วงที่อยู่โรงพยาบาลหลังคลอดและอัตราการใช้วิธีคุมกำเนิดดังกล่าวภายในระยะเวลา 8-12 สัปดาห์หลังคลอดในสตรีหลังคลอดบุตรครั้งแรกที่คลอดบุตรในโรงพยาบาลรามาธิบดี*

วิธีการ *: การศึกษาแบบ prospective cohort study ศึกษาที่ภาควิชาสูติศาสตร์นรีเวชวิทยา คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี ตั้งแต่เดือนกรกฎาคม พ.ศ.2555 ถึง ธันวาคม พ.ศ.2555 ศึกษาในสตรีหลังคลอดที่คลอดบุตรครั้งแรก มีอายุตั้งแต่ 20 ปีขึ้นไป และยินยอมเข้าร่วมการวิจัย โดยทำการสัมภาษณ์ตามแบบสัมภาษณ์ ครั้งแรกในช่วงที่อยู่โรงพยาบาลหลังคลอดโดยสัมภาษณ์ถึงความตั้งใจที่จะคุมกำเนิดและวิธีที่จะใช้คุมกำเนิด และสัมภาษณ์อีกครั้งในระยะเวลา 8-12 สัปดาห์หลังคลอดถึงวิธีการคุมกำเนิดที่ได้ใช้จริงพร้อมเหตุผลที่เลือกใช้*

ผลการศึกษา *: มีผู้เข้าร่วมทั้งหมด 547 คน สามารถติดตาม 8 – 12 สัปดาห์หลังคลอด 502 คน (91.8%) พบว่า 197 คน (36.0%) มีความตั้งใจจะใช้วิธีคุมกำเนิดชนิดที่ออกฤทธิ์นานในช่วงที่อยู่โรงพยาบาลหลังคลอด และ 161 คน (32.1%) ได้ใช้วิธีคุมกำเนิดชนิดที่ออกฤทธิ์นานภายในระยะเวลา 8-12 สัปดาห์หลังคลอด โดยเหตุผลหลักที่เลือกใช้คือไม่มีผลต่อการให้นมบุตร ซึ่งวิธีที่เลือกใช้มากที่สุดคือยาฉีดคุมกำเนิดชนิดฮอร์โมนเดี่ยว 55.9% ปัจจัยที่มีผลต่อความตั้งใจที่จะใช้วิธีคุมกำเนิดชนิดที่ออกฤทธิ์นานในช่วงที่อยู่โรงพยาบาลหลังคลอดและการใช้วิธีคุมกำเนิดดังกล่าวภายในระยะเวลา 8-12 สัปดาห์หลังคลอดคืออาชีพ โดยอาชีพค้าขายหรือเจ้าของธุรกิจนิยมใช้มากที่สุด*

สรุป *: อัตราสตรีที่ตั้งใจจะใช้วิธีคุมกำเนิดชนิดที่ออกฤทธิ์นานในช่วงที่อยู่โรงพยาบาลหลังคลอดและอัตราการใช้วิธีคุมกำเนิดดังกล่าวภายในระยะเวลา 8-12 สัปดาห์หลังคลอดในสตรีหลังคลอดบุตรครั้งแรกที่คลอดบุตรในโรงพยาบาลรามาธิบดีมีอัตราสูง ซึ่งเหตุผลหลักที่เลือกใช้คือไม่มีผลต่อการให้นมบุตร*