



Original Article/นิพนธ์ต้นฉบับ

Factors Associated With the Use of Subdermal Etonogestrel Implants Among Postpartum Primipara Adolescents

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Abstract

Background: In Thailand, there has been a high incidence of adolescent pregnancy which leads to major public health and socioeconomic problems such as unplanned pregnancy, induced abortion and negative impacts on the health of the mothers and newborns. Contraception among adolescents is so important that it can prevent those problem, especially subdermal etonogestrel implant which are recommended to be effective and suitable for adolescents.

Objective: To study the rate of use and factors associated with the use of subdermal etonogestrel implants among postpartum primipara adolescents in Saraburi province.

Methods: This study is an observational descriptive research. The population were 106 primipara adolescents at 4 - 6 weeks postpartum period at three hospitals in Saraburi province (ie, Saraburi Hospital, Pra-putabat Hospital, and Banmoh Hospital). Data was collected by interviewing postpartum primipara adolescents from March 21, 2016, to June 30, 2016. Data was analyzed by descriptive statistics which included frequency, percentage, mean and stranded deviation. Test of hypothesis was done by chi-square test, Fisher's exact test and multiple logistic regression analysis with the significant level at $P < 0.05$.

Results: Among 106 postpartum primipara adolescents, 93.4% used contraceptives (31.1% used subdermal etonogestrel implant; 62.3% used other reversible contraceptions [eg, depot medroxyprogesterone acetate injection, oral contraceptions and condoms]), and 6.6% used no contraception. By univariate analysis, factors significantly associated with the use of implant among primipara adolescents included age of primipara adolescents, age of husband, expense, convenience of use, side effects, application pain, duration of contraception and medical personnel's recommendation. When multiple logistic regression analysis was applied, only four factors were significantly associated with the use of implant. The most significant factor was medical personnel's recommendation. The other significant factors were expense, age of husband and duration of contraception.

Conclusions: Most of primipara adolescents at 4 - 6 weeks postpartum period in Saraburi province used contraceptives. Subdermal etonogestrel implants was the second most common contraceptive used. The most important factor for the use of implant was medical personnel's advice which emphasized on the use of implants in order to prevent unplanned pregnancy among adolescents.

Keywords: Contraception, Long-acting reversible contraceptions, Implant, Postpartum, Primipara adolescents

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Introduction

The current environment, economy, society and technology is rapidly changing. Media, including films, television, electronic media, and social network are factors that stimulate and provoke young generation to have premature sex. Adolescent premature sex without protection is increasing which can cause sexually transmitted infection such as HIV infection and pregnancies.¹

Adolescent pregnancy is still an important problem, leading to unsafe abortion and unplanned births that create many adverse outcomes, such as health problems of the mothers and children. Problems of adolescent pregnancy arise from poverty, loss of educational and development opportunities as well as social circumstances. The problems of unsafe abortion put the teenagers at risk of mortality and morbidity. In addition, loss of the country's economy in the treatment of complications from unsafe abortions are enormous.¹

World Health Organization (WHO) suggested that long-acting reversible contraceptions (LARCs) are suitable for preventing pregnancy in adolescents because of high effectiveness and 3 - 10 years duration of contraception without any major side effect. LARCs include intrauterine systems (IUS) or devices (IUDs), and implants.² However, in the past, only 0.3% of sexually active Thai teenagers used IUDs or implants for birth control.¹ Recently, LARCs is promoted to include in the universal health coverage by the Ministry of Public Health of Thailand.

This study aimed to explore the rate of use of subdermal etonogestrel implant among primipara adolescents at postpartum period and significant associated factors compared to non-user primipara adolescents.

Methods

This study was an observational descriptive research. It was approved for ethical clearance by Committee on Human Right Related to Research Involving Human Subject of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University on March 21, 2016 and by

Saraburi Hospital's ethical committee on May 24, 2016. Data was collected by a method of self-administered questionnaires. The study included 106 primipara adolescents aged 13 - 19 years old at 4 - 6 weeks postpartum at 3 hospitals in Saraburi province (ie, Saraburi Hospital, Pra-putabat Hospital and Banmoh Hospital) from March 21, 2016, to June 31, 2016. Other inclusion criteria were adolescents' pregnancy of 37 weeks or more gestational age at delivery with no complication during labor and delivery and their newborns' weighed $\geq 2,500$ grams without any abnormality. Interviews of adolescents were done when they came for visits at 4 - 6 weeks postpartum. Those who did not showed up were interviewed by phone. Their uses of contraception were asked and recorded. Application of LARCs was approved by their parents. Data analysis was done by using SPSS statistical program version 18.0 (SPSS Statistics for Windows, Version 18.0. Chicago: SPSS Inc; 2009). Descriptive statistics included frequency, percentage (%), mean (\bar{X}) and standard deviation (SD). Test of hypothesis was done by chi-square (χ^2) test and Fisher's exact test with significant level at $P < 0.05$. Multiple logistic regression was also applied. The significant level of each variable was set at $P < 0.05$.³

Results

Among 106 postpartum primipara adolescents, 99 (93.4%) used contraceptives. Among them 33 (31.1%) used subdermal etonogestrel implant. About 62.3% used other reversible contraceptions (eg, depot medroxyprogesterone acetate [DMPA] injection [43.4%], oral contraceptive pills [17.0%], and condoms [1.9%]). Only 6.6% reported that they used no contraception (Table 1).

By univariate analysis, factors significantly associated with the use of implant among primipara adolescents included age of primipara adolescents, age of husband, expense, convenient of use, side effects, application pain, duration of contraception and medical personnel's recommendation (Table 2).



When multiple logistic regression analysis was applied, only four factors were significantly associated with the use of implant. They were medical personnel's recommendation, expense, age of husband and duration of contraception. The most significant factor was medical personnel's recommendation (Table 3). The area under the receiver operating characteristics curve of logistic regression model was 0.934. This means the model could predict the use of implant among adolescents with 93.4% accuracy.

Table 1 Contraceptive Methods Among Postpartum Primipara Adolescents

Contraceptive Methods	No. (%)
No contraception	7 (6.6)
SARCs	66 (62.3)
DMPA injection	46 (43.4)
Oral contraceptives	18 (17.0)
Condoms	2 (1.9)
Implant	33 (31.1)
Total	106 (100)

Abbreviation: DMPA, depot medroxyprogesterone acetate; SARCs, short-acting reversible contraceptives.

Table 2 Characteristics of the Primipara Adolescents and Contraceptive Methods

Characteristic	No. (%)			X^2	df	P Value
	Non Contraception or Others SARCs	Subdermal Etonogestrel Implant	Total			
Age, y						
≤ 17	20 (46.5)	23 (53.3)	43 (40.6)	16.86	1	< 0.001
18 - 19	53 (84.1)	10 (15.9)	63 (59.4)			
Mean = 17.58; SD = 1.32; Min - Max = 13 - 19						
Education						
Primary school or less	3 (42.9)	4 (57.1)	7 (6.6)	2.36	1	0.12
High school or over	70 (70.7)	29 (29.3)	99 (93.4)			
Occupation						
Student	29 (65.9)	15 (34.1)	44 (41.5)	0.30	1	0.57
Work	44 (71.0)	18 (29.0)	62 (58.5)			
Marital status						
Married	67 (70.5)	28 (29.5)	95 (89.6)	1.17	1	0.28
Separated	6 (54.5)	5 (45.5)	11 (10.4)			
Sources of income						
Parents or family	49 (65.3)	26 (34.7)	75 (70.8)	1.49	1	0.25
Income from operations	24 (77.4)	7 (22.6)	31 (29.2)			
Monthly allowance (Bahts/month)						
< 10 000	38 (62.3)	23 (37.7)	61 (57.5)	2.89	1	0.09
≥ 10 000	35 (77.8)	10 (22.2)	45 (42.5)			
Mean = 10 331.13; SD = 7155.61; Min - Max = 1500 - 50 000						
Need more children						
No	38 (67.9)	18 (32.1)	56 (52.8)	0.05	1	0.81
Yes	35 (70.0)	15 (30.0)	50 (47.2)			

Abbreviation: SARCs, short-acting reversible contraceptives; SD, standard deviation; X^2 , chi-square test; df, degree of freedom.

^a Fisher's exact test.

Table 2 Characteristics of the Primipara Adolescents and Contraceptive Methods (Continued)

Characteristic	No. (%)		Total	χ^2	df	P Value
	Non Contraception or Others SARC's	Subdermal Etonogestrel Implant				
Age of husband, y						
< 20	23 (54.8)	19 (45.2)	42 (39.6)	6.45	1	0.01
≥ 20	50 (78.1)	14 (21.9)	64 (60.4)			
Mean = 21.28; SD = 4.21; Min - Max = 13 - 38						
Education of husband						
Primary school or less	8 (61.5)	5 (38.5)	13 (12.3)			0.53 ^a
High school or over	65 (69.9)	28 (30.1)	93 (87.7)			
Husband's occupation						
Student	12 (75.0)	4 (25.0)	16 (15.1)			0.77 ^a
Work	61 (67.8)	29 (32.2)	90 (84.9)			
Husband's income (Bahts/month)						
< 10,000	38 (62.3)	23 (37.7)	61 (57.5)	2.89	1	0.09
≥ 10,000	35 (77.8)	10 (22.2)	45 (42.5)			
Mean = 9,758.49; SD = 6,490.93; Min - Max = 2,000 - 50,000						
Approved by family members						
No	15 (88.2)	2 (11.8)	17 (16.0)	3.54	1	0.06
Yes	58 (65.2)	31 (34.8)	89 (84.0)			
Contraceptive experiences						
No	34 (69.4)	15 (30.6)	49 (46.2)	0.01	1	0.91
Yes	39 (68.4)	18 (31.6)	57 (53.8)			
Characteristics of contraceptive methods for choice Expense						
No	55 (82.1)	12 (17.9)	67 (63.2)	14.84	1	< 0.01
Yes	18 (46.2)	21 (53.8)	39 (36.8)			
Convenience						
No	7 (33.3)	14 (66.7)	21 (19.8)	15.42	1	< 0.01
Yes	66 (77.6)	19 (22.4)	85 (80.2)			
Side effects						
No	63 (65.6)	33 (34.4)	96 (90.6)			0.03 ^a
Yes	10 (100)	0	10 (9.4)			
Application pain						
No	49 (59.8)	33 (34.4)	82 (77.4)	14.02	1	< 0.01
Yes	24 (100)	0	24 (22.6)			

Abbreviation: SARC's, short-acting reversible contraceptives; SD, standard deviation; χ^2 , chi-square test; df, degree of freedom.

^a Fisher's exact test.

**Table 2** Characteristics of the Primipara Adolescents and Contraceptive Methods (Continued)

Characteristic	No. (%)		Total	X^2	df	P Value
	Non Contraception or Others SARCs	Subdermal Etonogestrel Implant				
Duration of contraception						
No	33 (94.3)	2 (5.7)	35 (33.0)	15.74	1	< 0.01
Yes	40 (56.3)	31 (43.7)	71 (67.0)			
Accessibility						
No	2 (100)	0	2 (1.9)			1.0 ^a
Yes	71 (68.3)	33 (31.7)	104 (98.1)			
Satisfaction of services						
No	5 (71.4)	2 (28.6)	7 (6.6)			1.00 ^a
Yes	68 (68.7)	31 (31.3)	99 (93.4)			
Medical personnel's recommendation						
No	50 (96.2)	2 (3.8)	52 (49.1)	35.44	1	< 0.01
Yes	23 (42.6)	31 (57.4)	54 (50.9)			

Abbreviation: SARCs, short-acting reversible contraceptives; SD, standard deviation; X^2 , chi-square test; *df*, degree of freedom.

^a Fisher's exact test.

Table 3 Significant Factors Associated With the Use of Implant by Multiple Logistic Regression Analysis

Significant Factor	B	SE	P Value	OR	95% CI
Age of husband	-3.24	1.38	0.02	0.04	0.00 - 0.59
Expense	3.09	1.16	0.01	21.98	2.27 - 212.55
Duration of contraception	2.45	1.22	0.04	11.65	1.06 - 128.29
Medical personnel's recommendation	5.38	1.71	0.00	216.18	7.53 - 6208.06
Constant	1.08	2.26	0.63	2.95	ND

Abbreviation: B, the coefficient for the constant; CI, confidence interval; ND, not determined; SE, standard error; OR, odd ratio.

Discussion

WHO suggested that LARCs are very effective and suitable for adolescents. Thailand's Ministry of Public Health is having campaign for free LARCs contraception by including them into universal health coverage. LARCs including intrauterine systems (IUS) or intrauterine devices (IUD), and subdermal implants are suitable for preventing pregnancy among adolescents because they can last for 3 - 10 years with high effectiveness and high continuation rates. Safety of such devices was confirmed with no effects on long term fertility. LARCs are recommended as first line contraception for adolescents.⁴

Among postpartum primipara adolescents in Saraburi province, 93.4% of adolescents used contraceptives and 31.1% used subdermal implant which is one of LARCs. These findings were different from study of Finer et al⁵ which found only 4.5% of women aged 15 - 19 years and sexually experienced used LARCs. In 2016 when studies on LARCs were more available, the use of LARCs is increasing. Chacko et al⁶ in reported that 23% of pregnant adolescents in Texas intended to use LARCs.

There were several factors significantly associated with the use of LARCs. Expense was one of these factors. Recently LARCs has been covered in the Thailand universal health coverage. These findings were similar to the study of Eisenberget al⁷ which found that in the contraceptive choice project, universal health coverage for contraception without cost sharing could increase use of LARCs among adolescents. As a result, there were fewer unintended pregnancies, improved health outcomes, and considerable cost savings to the healthcare system. The study of Kumar et al⁸ found that barriers against use of LARCs among adolescents including institution costs for providing contraceptive care. In addition, recipients' consent and confidentiality, providers' attitudes, misconception and limited training, and patients' lack of awareness or misconceptions were all found to be barriers against use of LARCs among adolescents.

Age of husbands was reversely significantly associated with the use of subdermal etonogestrel implants. The older their husbands were more information and experience they had. As a result they can choose more suitable contraceptive methods. They may feel that they were more prepared to have complete family. Duration of contraception of LARCs is longer, thus they chose LARCs as postpartum contraction. Medical personnel's recommendation was the most significant factor associated with the use of implant. This finding were in concordance with the study of Pritt et al⁹. The study found that factors influencing decision making and provision of use of contraception among adolescents included healthcareprovider's knowledge, attitudes, and counseling. Knowledge deficit and misconceptions among adolescents and their health care providers are key barriers against use of LARCs among adolescent.

In Thailand, counseling for the use of subdermal etonogestrel implant is a standard practice. Usually counseling is done by nurses or doctors. They give advice and knowledge about implant to not only adolescents but also their parents. Their advice is essential to make adolescents and their parents agree to use implant. The strength of this study was the exploration of use of LARCs among their postpartum adolescents during the time of increasing adolescent's pregnancy problems. The weakness of this study was the nature of retrospective interviews which partly were done by phone. The exact situation may be different. Responsible authorities should emphasized on improving knowledge and attitude of medical personnels, and should establish guidelines for counseling the use of subdermal etonogestrel implant. Furthermore, continuation of use of this type of contraception among adolescents should be studied.



Conclusions

Most of primipara adolescents at 4 - 6 weeks postpartum period in Saraburi province used contraceptives. Subdermal etonogestrel implant was the second most common

contraceptive used. The most important factor for the use of LARCs was medical personnel's recommendation which emphasized on the use of implant in order to prevent unplanned pregnancy among adolescents.

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Original Article/นิพนธ์ต้นฉบับ

ปัจจัยที่มีความสัมพันธ์กับการเลือกใช้ยาฝังคุมกำเนิดได้ผิวหนังชนิดอีโทโนเจสเตรลในสตรีวัยรุ่นนหลังคลอดครั้งแรก

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บทคัดย่อ

บทนำ: ประเทศไทยมีอัตราการตั้งครรภ์ในวัยรุ่นอยู่ในระดับสูง ซึ่งก่อให้เกิดปัญหาสำคัญทั้งด้านสาธารณสุข สังคม และเศรษฐกิจ เช่น การตั้งครรภ์ไม่พร้อม การทำแท้งผิดกฎหมาย และผลกระทบต่อภาวะสุขภาพของมารดาวัยรุ่นและทารก เป็นต้น การวางแผนคุมกำเนิดในวัยรุ่นจึงมีความสำคัญในการป้องกันและลดปัญหาดังกล่าว โดยเฉพาะการใช้ยาฝังคุมกำเนิด ซึ่งเป็นวิธีที่เหมาะสมและแนะนำสำหรับวัยรุ่น

วัตถุประสงค์: เพื่อศึกษาอัตราและปัจจัยที่มีความสัมพันธ์กับการเลือกใช้ยาฝังคุมกำเนิดได้ผิวหนังชนิด อีโทโนเจสเตรลในสตรีวัยรุ่นนหลังคลอดครั้งแรกในจังหวัดสระบุรี

วิธีการศึกษา: การวิจัยแบบสังเกตเชิงพรรณนา กลุ่มตัวอย่างจำนวน 106 คน เป็นสตรีไทยวัยรุ่นนหลังคลอดครั้งแรกอย่างน้อย 4-6 สัปดาห์ อายุ 13-19 ปี คลอดที่โรงพยาบาล 3 แห่ง ในจังหวัดสระบุรี ได้แก่ โรงพยาบาลศูนย์สระบุรี โรงพยาบาลพระพุทธบาท และโรงพยาบาลบ้านหม้อ ทำการเก็บข้อมูลโดยใช้แบบสอบถามสัมภาษณ์สตรีวัยรุ่นนหลังคลอดครั้งแรก ระหว่างวันที่ 21 มีนาคม ถึง 30 มิถุนายน พ.ศ. 2559 จากนั้นวิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา ได้แก่ จำนวน ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน การทดสอบสมมติฐานใช้สถิติ Chi-square test, Fisher's exact test และ Multiple logistic regression analysis โดยกำหนดค่านัยสำคัญทางสถิติที่ 0.05

ผลการศึกษา: กลุ่มตัวอย่างสตรีวัยรุ่นนหลังคลอดครั้งแรก จำนวน 106 คน ใช้วิธีคุมกำเนิดร้อยละ 93.4 โดยใช้ยาฝังคุมกำเนิดได้ผิวหนังชนิดอีโทโนเจสเตรลร้อยละ 31.1 ใช้วิธีคุมกำเนิดวิธีอื่น เช่น ยาฉีดคุมกำเนิด ยาเม็ดคุมกำเนิดและถุงยางอนามัยร้อยละ 62.3 ไม่คุมกำเนิดร้อยละ 6.6 เมื่อวิเคราะห์ความสัมพันธ์ของตัวแปรเดี่ยวพบว่า ปัจจัยที่มีความสัมพันธ์กับการเลือกใช้ยาฝังคุมกำเนิดในสตรีวัยรุ่นนหลังคลอดครั้งแรกอย่างมีนัยสำคัญทางสถิติ ได้แก่ อายุของสตรี อายุของสามี ค่าใช้จ่ายในการคุมกำเนิด ความสะดวกในการใช้ ผลข้างเคียง ความเจ็บปวด ระยะเวลาการออกฤทธิ์คุมกำเนิด แพทย์หรือพยาบาลแนะนำให้ใช้ และเมื่อวิเคราะห์ความสัมพันธ์โดยใช้การวิเคราะห์การถดถอยพหุโลจิสติกส์พบว่า มี 4 ปัจจัย ที่มีนัยสำคัญทางสถิติกับการฝังยาคุมกำเนิดในสตรีวัยรุ่นน ปัจจัยที่มีนัยสำคัญสูงสุด คือ แพทย์หรือพยาบาลแนะนำให้ใช้ ปัจจัยที่มีนัยสำคัญอื่น ได้แก่ ค่าใช้จ่ายในการคุมกำเนิด อายุสามี และระยะเวลาการออกฤทธิ์คุมกำเนิด

สรุป: สตรีวัยรุ่นนครั้งแรกหลังคลอด 4-6 สัปดาห์ ในจังหวัดสระบุรี ส่วนใหญ่ตัดสินใจคุมกำเนิดและเลือกใช้ยาฝังคุมกำเนิดได้ผิวหนังชนิดอีโทโนเจสเตรลมากที่สุดเป็นอันดับสอง ปัจจัยสำคัญที่สุดคือ คำแนะนำของแพทย์หรือพยาบาล ซึ่งแนะนำการใช้ยาฝังคุมกำเนิดเพื่อป้องกันการตั้งครรภ์ในวัยรุ่นต่อไป

คำสำคัญ: การคุมกำเนิด การคุมกำเนิดชั่วคราวแบบออกฤทธิ์นาน ยาฝังคุมกำเนิด หลังคลอด วัยรุ่นหลังคลอดครั้งแรก

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