A Clinical Study of Transdermal Contraceptive Patch in Thai Adolescence Women

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Objective: *To study cycle control, compliance and safety of a transdermal contraceptive patch in adolescent Thai women.*

Material and Method: *Fifty-eight healthy women were assigned to receive 3 cycles of contraceptive patch (ethinyl estradiol 20 µg and norelgestromin 150 µg /day). All participants aged 16-20 years were invited to participate from the family planning clinic at King Chulalongkorn Memorial Hospital. Data were collected on adverse effects, perceived advantages and disadvantages, body weight, blood pressure, patch detachments and compliance. Data were analyzed using mean, percentage and student's t-test.*

Results: *The participants' average age was 19.4 years, height 158.8 cm, weight 51.8 kg, BMI 20.8 Kg/m^2. The most location of patch application was the abdomen and the most adverse event was breast tenderness (31.0%) followed by application site reaction, nausea vomiting and headache respectively. The breast symptom was mild in severity. The participants reported decrease in dysmenorrhea and shorter duration of bleeding. There were no significant changes in body weight and blood pressure. The improvement of their facial acne was reported. There were no pregnancies during use and the adhesion of the contraceptive patch is excellent. Partial patch detachment was reported in only 6.9%. No completed patch detachment was found.*

Conclusion: *The present study found an overall positive impression of a new transdermal contraceptive patch. The good compliance and few side effects were demonstrated. The adhesive patch contraceptive was excellent.*

Keywords: *Contraceptive patch, Cycle control, Side effect*

J Med Assoc Thai 2008; 91 (2): 137-41
Full text. e-Journal: *http://www.medassocthai.org/journal*

In recognition of the difficulties associated with consistent and successful oral contraceptive (OC) use. The emphasis has moved toward the development of new technologies that afford users comparable contraceptive efficacy and safety, but do not require daily compliance with a pill-taking regimen. One such technology is the transdermal contraceptive system[1,2]. The contraceptive patch delivers Norelgestromin and Ethinyl estradiol (EE) to the systemic circulation[3]. Norelgestromin is the primary active metabolite of norgestimate, which is used in several combination oral contraceptives[3].

The contraceptive patch is applied weekly on the same day for three consecutive weeks (21 days) followed by one patch-free week per cycle. Application sites include lower abdomen, upper outer arm, buttock, or upper torso (excluding the breast)[1,2]. Women using this method may maintain their usual activities, including exercise, bathing, swimming, and use of a whirlpool or sauna[4-7].

Studies in adult women showed that the transdermal contraceptive patch provided effective contraception and cycle control and was well-tolerated[1,2]. The incidence of side effects was similar to the incidence of oral contraceptive pills except the application site reactions, higher incidence of breast discomfort and breakthrough bleeding or spotting during the first two cycles of use. Compliance of the patch in adult women was better than the oral pill[8].

To date, there is a paucity of data regarding contraceptive patch Ortho Evra, use in the adolescence

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age group in Thailand.The objectives of the present study evaluated side effects, cycle control, patch adhesion and safety in Thai women.

Material and Method

The participants were recruited from The Family Planning Clinic at King Chulalongkorn Memorial Hospital. The protocol was approved by the ethics of the institution.

After giving their written informed consent, the participants had to meet the following inclusion criteria: healthy women aged 16-20, who were sexually active and at risk of pregnancy, had regular menstrual cycles and at least one normal menstrual cycle, body weight less than 90 kg and no use of any other steroid hormonal therapy at least 3 months before beginning the present study. Exclusion criteria included pregnancy and lactation, any acute or chronic liver disease, history of significant cardiovascular, hepatic, renal or thromboembolic disease, hypertension > 140/90 mmHg, metabolic disturbance or any malignant tumor, history or presence of dermal hypersensitivity, undiagnosed abnormal uterine bleeding, active cigarette smoking, and alcohol or drug abuse.

Before the start of the contraceptive patch, each woman underwent a through general medical and gynecological examination including a cytological smear. The participant assigned to receive 3 cycles of contraceptive patch and follow-up every cycle or every month. Participants had a diary card on which to record bleeding per vagina application site reaction, adverse event, body weight and blood pressure. Participants were asked about their menstrual pattern and about any side effects or any concerns with this contraceptive patch. They were also asked specific questions related to patch application such as experience of detachment, peeling and adherence to patch application schedule. Data were analyzed using mean, standard deviation, percentage and student's t-test. A p-value of less than 0.05 was considered significance change.

Patch description and use

The Ortho Evra™ patch is designed to deliver 20 µg of ethinyl estradiol (EE) and 150 µg of Norelgestromin daily. Participants were instructed to apply the patch to the buttock, upper outer arm, lower abdomen, back and upper torso (exclusion breast). A new patch could be applied near,but not on old sites. Participants were instructed to maintain their usual activities during patch use, including bathing and swimming. Participants were advised to apply the patch on the same day of each week (one patch per week) for three consecutive weeks followed by a patch-free week. Each course was repeated monthly for the duration of the 3-month study period. In the event of patch detachment, a new patch was to be applied immediately and worn for the remainder of the week.

Results

Sixty-two participants were enrolled in the present study and four of them were excluded due to not meeting the recruitment criteria. Fifty-eight participants who received the contraceptive patch had an average age of 19.4 years. The mean height was 158.8 cms and mean weight was 51.8 kgs. The mean body mass index was 20.8 Kg/m^2. The mean of menstrual interval was 28.5 days and mean of duration was 4.5 days (Table 1). Thirty nine percent of the subjects had menstrual cramps every cycle or every other cycle. Eighty seven percent of the participants were the first hormonal contraceptive users.

No pregnancy was reported during the use of Ortho Evra in 3 cycles. The majority reported that they remembered to apply the patch on the time. The preferred application site was the lower abdomen (48.3%), followed by upper outer arm (20.7%), the buttock (20.7%) and back (10.3%). About 6.9% experienced at least one episode of partial patch detachment. There was no report of complete patch detachment.

Most of the participants reported regular menstrual periods while using Ortho Evra. No woman experienced breakthrough bleeding. A decrease in dysmenorrhea symptoms was reported by 13.8% of participants. There was no significant change in body weight and blood pressure during use of Evra (Table 2). Forty-four percent of the participants reported improvement of their facial acne.

About one-third of the participants reported breast tenderness or discomfort, followed by mild

Table 1. Characteristics of the subjects

Variable	Patch users (n = 58) mean $\pm$ SD
Age (year)	19.4 $\pm$ 1.0
Height (cm)	158.8 $\pm$ 5.4
Weight (kg)	51.8 $\pm$ 6.8
BMI (kg/m^2)	20.8 $\pm$ 3.0
Menstrual interval (days)	28.5 $\pm$ 1.3
Menstrual duration (days)	4.5 $\pm$ 1.0

Table 2. Comparison of body weight and blood pressure before and after use of EVRA

Variable	Before	After	p-value
Body weight (kg)	52.60 $\pm$ 6.60	52.30 $\pm$ 6.80	0.06 [NS ($p > 0.05$)]
Systolic BP (mmHg)	113.10 $\pm$ 11.14	110.16 $\pm$ 11.16	0.13 [NS ($p > 0.05$)]
Diastolic BP (mmHg)	70.86 $\pm$ 5.70	69.83 $\pm$ 6.07	0.31 [NS ($p > 0.05$)]

NS = No significance

Table 3. Adverse event of patch users

Adverse event	Patch user (n = 58)	%
Nausea/vomiting	12	20.7
Breast tenderness	18	31.0
Site reaction	12	20.7
No symptoms	24	41.4

application site reactions. Other adverse events are shown in Table 3. About seventy-six percent of participants were very satisfied with the patch due to more convenience than previous contraceptive methods. Sixty-three percent of the participants desired to continue with this method.

Discussion

The present study was to evaluate the side effects, cycle control, patch adhesion and safety in Thai women using the transdermal contraceptive patch (Ortho Evra) among adolescents over 3 cycles. In the present study, the participants reported that they remembered to apply the patches on time, and no pregnancy was reported during use of the patch. These findings indicate a good compliance and demonstrate its efficacy in this group. From the present study, Ortho Evra demonstrated an excellent cycle control with all participants reporting regular menstrual periods. Furthermore, the use of contraceptive patch leads to regular periods starting from the first cycle. No incidence of breakthrough bleeding or spotting was reported in the present study.

Considering the side effects, the most common adverse event was breast symptoms including breast discomfort, breast tenderness, breast engorgement, and breast pain and followed by application site reactions but did not disturb the acceptors and none discontinued for these reasons. The other adverse event was nausea/vomiting.

Similar reports present in a study of adults using the contraceptive patches the authors found a high prevalence of breast tenderness during the 3-month study period. The data from adults[8] suggests that such symptoms resolve after the first 3 months of use. However, owing to the short follow-up period, the authors were unable to exam side effects that occurred or resolved after the 3 months of the present study. Therefore, it is possible that the reported breast tenderness found among the presented study participants will have resolved during the weeks after the 3-month period of treatment.

Relief of dysmenorrhea symptoms is one of the benefits of the contraceptive patch. Nausea vomiting reported only mild symptoms and did not disturb daily activities. The other benefit was improvement of facial acne[12]. Weight gain is of particular concern to women deciding to use a hormonal contraceptive and is a significant predictor of early discontinuation. In the present study, the contraceptive patch did not have an effect on body weight and there was no significant change in blood pressure, which was the same in adult women.

The rate of patch detachment was 6.9% that is lower than has previously been reported among adults[8] and only partial patch detachment was reported. The participants can try to reapply it to the same place. The adhesive reliability of the contraceptive patch is excellent[7]. Patch adhesion is not affected by warm, humid climates, various activities or exercise[7]. To compare with other contraceptive methods, the transdermal contraceptive patch is easy to use[8]. The adverse events were not different from other hormonal contraceptives[8].

The brief evaluation period was the pitfall of the present study; further studies are needed to identify the long-term side effects.

In conclusion, from the present study, it was found that the contraceptive patch was well tolerated, with low potential for irritation and side effects in Thai adolescents. Most participants were satisfied with this contraceptive method. The contraceptive patch should be an appropriate contraceptive method among adolescents.

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การศึกษาวิจัยเกี่ยวกับอาการข้างเคียงที่พบของการใช้ยาคุมกำเนิดชนิดแผ่นแปะผิวหนังในหญิงวัยรุ่นไทย

รัชฎพล ปิยะศิริศิลป์, สุรศักดิ์ ฐานีพานิชสกุล

วัตถุประสงค์: *เพื่อศึกษาความต่อเนื่องของการใช้ยา ความปลอดภัย และอาการข้างเคียง ของการใช้ยาคุมกำเนิดชนิดแผ่นแปะผิวหนังในสตรีวัยรุ่นไทย*

วัสดุและวิธีการ: *ศึกษาผู้มารับบริการที่หน่วยวางแผนครอบครัว โรงพยาบาลจุฬาลงกรณ์ จำนวน 62 คน อายุระหว่าง16-20 ปี ได้รับยาคุมกำเนิดชนิดแผ่นแปะผิวหนัง(ประกอบด้วย ethinyl estradiol 20 ไมโครกรัม และ norelgestromin 150 ไมโครกรัม ต่อวัน) ติดต่อกัน 3 รอบระดู ติดตามการใช้ยาทุกรอบของการใช้ และบันทึกอาการข้างเคียง ข้อดี ข้อเสีย น้ำหนักตัว การลอกหลุดของแผ่นยา ความพึงพอใจ และความต่อเนื่องของการใช้ยา ข้อมูลทั้งหมด วิเคราะห์ออกมาเป็นค่าเฉลี่ย ร้อยละ และ t-test*

ผลการศึกษา: *ผู้เข้ารับการวิจัย อายุเฉลี่ย 19.4 ปี สูงเฉลี่ย 158.8 เซนติเมตร น้ำหนักเฉลี่ย 51.8 กิโลกรัม ดัชนีมวลกาย เฉลี่ย 20.8 ตำแหน่งที่ใช้แปะแผ่นยามากที่สุด คือ หน้าท้อง อาการข้างเคียงที่พบมากที่สุด คือ เจ็บคัดตึงเต้านม (ร้อยละ 31) ตามด้วย ระคายเคืองผิวหนังบริเวณที่แปะยา คลื่นไส้อาเจียน ตามลำดับ และอาการเจ็บคัดตึงเต้านมพบว่ามีความรุนแรงในระดับน้อย และพบว่าหลังใช้ยาสามารถลดอาการปวดประจำเดือน และมีระยะเวลาของการเป็นประจำเดือนสั้นลง การเปลี่ยนแปลงของน้ำหนักตัว และความดันโลหิตหลังการใช้ยา ไม่พบว่ามีนัยสำคัญทางสถิติ และพบว่าการใช้ยาคุมกำเนิดแบบแผ่นแปะผิวหนังช่วยลดการเป็นสิวบริเวณใบหน้า ไม่พบมีรายงานการตั้งครรภ์ระหว่างทำการศึกษา การติดของแผ่นยา ติดได้ดี มีการหลุดลอกของแผ่นยาบางส่วน เพียงร้อยละ 6.9 ไม่พบว่ามีการหลุดลอกทั้งหมดของแผ่นยาขณะใช้*

สรุป: *จากการศึกษา พบว่าผู้เข้ารับการวิจัยมีความพึงพอใจต่อยาคุมกำเนิดชนิดแผ่นแปะผิวหนัง เพราะใช้ง่าย อาการข้างเคียงพบน้อย รวมทั้งสภาวะอากาศ และมีประสิทธิภาพการยึดติดกับผิวหนังดีเยี่ยม*