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Sexual Function in Women Using DMPA Injection and Copper Intrauterine Device

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ABSTRACT

Objectives: To study the sexual function and the prevalence of sexual dysfunction in women using depot medroxyprogesterone acetate (DMPA) and copper intrauterine device (copper IUD) contraceptives.

Materials and Methods: A cross-sectional study was conducted from May 2014 to April 2015 between 88 DMPA users and 88 copper IUD users, aged 25-40 years, who attended the Family planning clinic, Ramathibodi Hospital. Data were collected using a self-administered questionnaire. Information about sexual function over the previous 4 weeks was assessed using the Thai version Female Sexual Function Index Questionnaire (FSFI).

Results: The mean age of DMPA and copper IUD users was 30.51 ± 4.67 and 31.66 ± 3.59 years old, respectively ($p > 0.05$). All demographic and basis clinical characteristics between two groups were similar. Regarding sexual function, overall and 5 individual domain scores (desire, arousal, lubrication, orgasm and satisfaction) of the FSFI were not different. The only statistically significant difference in FSFI scores was pain domain, which was 4.66 ± 0.94 and 5.11 ± 0.82 in DMPA and copper IUD users, respectively ($p < 0.05$). The prevalence of sexual dysfunction in DMPA and copper IUD users was 77.3% and 80.7%, respectively.

Conclusion: The prevalence of female sexual dysfunction in DMPA and copper IUD users were rather high. Although the overall sexual function between DMPA and copper IUD users were not different, but sexual pain was found in DMPA users more than copper IUD users.

Keywords: DMPA, copper IUD, sexual function, FSFI questionnaire

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ภาวะทางเพศของสตรีที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินกับการใส่ห่วงคุมกำเนิดชนิดทองแดง

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บทคัดย่อ

วัตถุประสงค์: *เพื่อศึกษาภาวะทางเพศและความชุกของภาวะบกพร่องทางเพศในสตรีที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินกับการใส่ห่วงคุมกำเนิดชนิดทองแดง*

วัสดุและวิธีการ: *เป็นการศึกษาเชิงพรรณนาชนิดตัดขวาง ตั้งแต่เดือนพฤษภาคม 2557 ถึง เมษายน 2558 ในสตรีอายุ 25-40 ปี ที่ใช้วิธีฉีดโปรเจสติน 88 ราย และใส่ห่วงคุมกำเนิดชนิดทองแดง 88 ราย ที่มารับบริการที่หน่วยวางแผนครอบครัว โรงพยาบาลรามาธิบดี เก็บข้อมูลโดยใช้แบบสอบถามที่ผู้เข้าร่วมวิจัยตอบด้วยตนเอง ข้อมูลเกี่ยวกับภาวะทางเพศในช่วงเวลา 4 สัปดาห์ที่ผ่านมา ใช้แบบสอบถาม Female Sexual Function Index (FSFI) ฉบับภาษาไทย*

ผลการศึกษา: *อายุเฉลี่ยของผู้ที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินกับการใส่ห่วงคุมกำเนิดชนิดทองแดง เท่ากับ 30.51 ± 4.67 ปี และ 31.66 ± 3.59 ปี ที่ ตามลำดับ ($p > 0.05$) ข้อมูลทั่วไประหว่าง 2 กลุ่ม ไม่มีความแตกต่างกัน ในเรื่องภาวะทางเพศ คะแนนรวมและคะแนนของ FSFI ทั้ง 5 ด้าน ได้แก่ ความต้องการทางเพศ ความตื่นตัวทางเพศ ความหล่อลื่น การถึงจุดสุดยอดทางเพศ และความพึงพอใจทางเพศ ของทั้งสองกลุ่มไม่มีความแตกต่างกัน มีเพียงคะแนนความเจ็บปวดขณะมีเพศสัมพันธ์ที่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ซึ่งเท่ากับ 4.66 ± 0.94 ในผู้ที่ใช้วิธีฉีดโปรเจสติน และ 5.11 ± 0.82 ในผู้ที่ใส่ห่วงคุมกำเนิดชนิดทองแดง ($p > 0.05$) พบความชุกของภาวะบกพร่องทางเพศในผู้ที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินร้อยละ 77.3 และการใส่ห่วงคุมกำเนิดชนิดทองแดง ร้อยละ 80.7*

สรุป: *ผู้ที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินกับการใส่ห่วงคุมกำเนิดชนิดทองแดง มีความชุกของภาวะบกพร่องทางเพศค่อนข้างสูง ถึงแม้ว่า ภาวะทางเพศโดยรวมระหว่างผู้ที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสตินกับการใส่ห่วงคุมกำเนิดชนิดทองแดงไม่มีความแตกต่างกัน แต่พบความเจ็บปวดขณะมีเพศสัมพันธ์ได้มากกว่าในผู้ที่คุมกำเนิดโดยใช้วิธีฉีดโปรเจสติน*

Introduction

Long acting reversible contraception (LARC), including intrauterine device, progestin-only implant and progestin-only injection are highly effective contraceptive methods. Failure rates during the first year of use are 0.05%, 0.2% and 0.6% in etonogestrel contraceptive implant, progestin-only injection and copper bearing intrauterine device (IUD), respectively[1]. LARCs have more advantages than other contraceptive methods due to their easily use and longer efficacy.

Although LARCs has long been used, their contraceptive use rate is still low. From the Reproductive health survey of Ministry of public health, Thailand in 2014, progestin injectable contraceptive (Depot medroxyprogesterone acetate-DMPA) and copper IUD are the two most common contraceptive methods used in reproductive age women with contraceptive prevalence of 11.39% and 0.37%, respectively[2]. Ignorance, misconception, pricing and contraceptive side effects are considering the barrier of LARCs use. Awareness of contraceptive methods on their sexual function is also an important factor for contraceptive use in the couple.

Sexual dysfunction is one of the problems in family life. It can have devastating impact on mental health, self-esteem, social denial, interpersonal relationships and marriage problem. There are various factors found to affect sexual function such as age, hormones, physical and mental health, stress, sexual experiences, couple relationship, believes and attitudes toward sexuality.

Reported negative effect of DMPA on sexual function was shown in several studies[3-5]. The mechanism of DMPA action is suppression of gonadotropin secretion. The decrease in luteinizing hormone results in ovulation inhibition whereas the decrease in follicle stimulating hormone results in systemic hypoestrogenic state[6] In long-term DMPA use, atrophic change of endometrium and vagina mucosa are demonstrated in several studies[7-9]. The atrophic vaginal mucosa and vaginal dryness may cause sexual pain or dyspareunia. Copper IUD is the reliable non-hormonal LARC in Thailand. Its main mechanism is prevention of fertilization between oocyte and sperm. Because this contraceptive method is no hormonal effects, it should have less effect on sexual function and this proposed effect was supported by several studies[10-12].

Although there are many studies about contraceptive use and sexual function, there are only a few studies in Thai women. The objectives of this study were to compare sexual function especially sexual pain and the prevalence of sexual dysfunction in women using DMPA and copper IUD contraception.

Materials and Methods

This was a cross-sectional study, conducted in women attending the family planning clinic, Department of Obstetrics and Gynaecology, Ramathibodi Hospital, Bangkok, Thailand. Data were collected from May 2014 to April 2015. This study was approved by the Ethics Committee of the Faculty of Medicine Ramathibodi Hospital, Mahidol University.

The inclusion criteria were sexually active women of 25-40 years old who had used DMPA and copper IUD at least 6 months, Thai literacy, no history of sexual dysfunction, no history of current or recent sexual transmitted infection within 3 months, no pelvic organ diseases or abnormalities. Exclusion criteria included postpartum, post abortion and lactation women within 6 months, women who used antidepressants or any medication which may effect on sexual function. All women who met the study criteria were informed about the research study and signed informed consent.

After explaining and clarifying all items in the questionnaire, the self-administered anonymous questionnaire was given to all participants. The questionnaire consisted of two parts; demographic data (age, age of partner, age of first sexual intercourse, and duration of marriage, frequency of sexual intercourse, body mass index, education, occupation, and family income) and sexual function data.

To evaluate the sexual function, the Thai

version of the Female Sexual Function Index (FSFI) questionnaire[13], which had already been tested for reliability (reliability coefficient 0.9), was used in this study. The FSFI questionnaire is a multidimensional self-report instrument widely used for assessment of female sexual function in many literatures. It composed of 19 items concerning six domains of sexual function (desire, arousal, lubrication, orgasm, satisfaction and pain) during a past four weeks. All questions were given a score ranging from 0 or 1 to 5. The score of the individual domain were summed and then transformed to a 0 to 6 scale. The total score ranged from 2 to 36. Higher scores are represented a better sexual function. Those who had an overall FSFI score of less than or equal to 26.5 were classified as female sexual dysfunction[14,15]. For each individual domains, Safarinejad MR[16] used the cut-off scores < 65% of maximum achievable score or < 3.9 to define sexual dysfunction in that domain.

Sample size calculation

The sample size was calculated from the formula for comparing mean where $Z\alpha$ was set as 1.96 with a type I error of 5%, $Z\beta$ was set as 0.84 with a power of 80%. The difference in mean of sexual pain score between DMPA and IUD users and standard deviation of the outcome variable in a previous study were 0.7 and 1.5, respectively[17]. Adding 20% of the calculated number of subjects who might be excluded due to incomplete data, 88 subjects needed to be enrolled in each group.

Statistical analysis

Statistical analyses were performed using SPSS for Windows (version 18.0). The baseline characteristic data and the scores of FSFI were coded and tested for normal distribution using Kolmogorov-Smirnov test. Continuous data were reported as the mean and standard deviation. Categorical data were shown as the number and percentage. The statistical analysis was carried out using Independent t-tests for continuous data and Pearson Chi-square test for categorical data. All reported probability values are two-tailed; $p < 0.05$ was considered to be statistically significant.

Results

One hundred and seventy six women, 88 DMPA users and 88 copper IUD users were recruited in the study. The demographic characteristics of subjects are presented in Table 1. There was no statistical difference in age of subject, age of partner, age of first sexual intercourse, frequency of sexual intercourse, BMI, level of education level, occupation and family income. However, the duration of marriage in copper IUD group was significantly longer than that in DMPA group ($p < 0.05$).

Table 1. Demographic data.

Variables	DMPA users n = 88	Copper IUD users n = 88	p value
Age of subject (mean ± SD)	30.51 ± 4.67	31.66 ± 3.59	0.070[a]
Age of partner (mean ± SD)	33.61 ± 7.34	34.56 ± 5.53	0.337[a]
Age of 1st sexual intercourse (mean ± SD)	21.45 ± 3.22	20.76 ± 1.82	0.081[a]
Duration of marriage (mean ± SD)	5.99 ± 4.30	7.17 ± 3.49	0.047[a]
Frequency of sexual intercourse, n (%)			0.704[b]
≥2 times/week	44 (50)	39 (44.3)	
<1 time/week	44 (50)	49 (55.7)	
BMI (mean ± SD)	23.39 ± 4.50	23.89 ± 4.30	0.458[a]

Table 1. Demographic data. (Cont.)

Variables	DMPA users n = 88	Copper IUD users n = 88	p value
Education, n (%)			0.681[b]
Primary school	2 (2.3)	4 (4.5)	
High school	33 (37.5)	34 (38.6)	
College or university	53 (60.2)	50 (56.8)	
Occupation, n (%)			0.849[b]
Government official	21 (23.8)	22 (24.9)	
Employee	20 (22.7)	17 (19.3)	
Own business or trader	30 (34.1)	36 (40.9)	
Housewife	17 (19.3)	13 (14.8)	
Family income (mean ± SD)	33,806 ± 15,032	35,750 ± 32,162	0.195[a]

[a] Independent Student T-test

[b] Chi square test

The total FSFI scores and each individual domain scores of both DMPA and copper IUD groups were shown in Table 2. The lowest domain score in both groups was noted in desire domain. The total FSFI and all domain scores, except pain domain, were not significantly different. The pain domain score in DMPA users was lower than copper IUD users ($p < 0.01$). This indicates that DMPA users had greater impairment in sexual pain than copper IUD users.

Table 2. Female sexual function index scores in DMPA and copper IUD users.

Domain (mean ± SD)	DMPA users n = 88	Copper IUD users n = 88	p value
Desire	2.89 ± 0.93	2.97 ± 0.48	0.502
Arousal	3.59 ± 0.91	3.58 ± 0.71	0.912
Lubricant	4.17 ± 0.79	4.11 ± 0.58	0.538
Orgasm	3.96 ± 1.19	3.98 ± 0.60	0.924
Satisfaction	4.41 ± 0.96	4.35 ± 0.56	0.625
Pain	4.66 ± 0.94	5.11 ± 0.82	0.001
Total score	23.55 ± 4.32	24.03 ± 2.59	0.373

[a] Independent Student T-test

Regarding the prevalence of sexual dysfunction, using the cut-off score < 26.5, there was no statistically significant difference in the prevalence of sexual dysfunction between DMPA and copper IUD groups (77.3 vs 80.7; $p > 0.05$). Using the cut-off score for sexual dysfunction in each individual domains, the highest prevalence of sexual dysfunction in both DMPA and copper IUD groups was desire domain. Copper IUD users had significantly higher prevalence of sexual desire dysfunction than DMPA users. But more prevalence of sexual dysfunction in satisfaction and pain domains was found in DMPA group. (Fig. 1.)

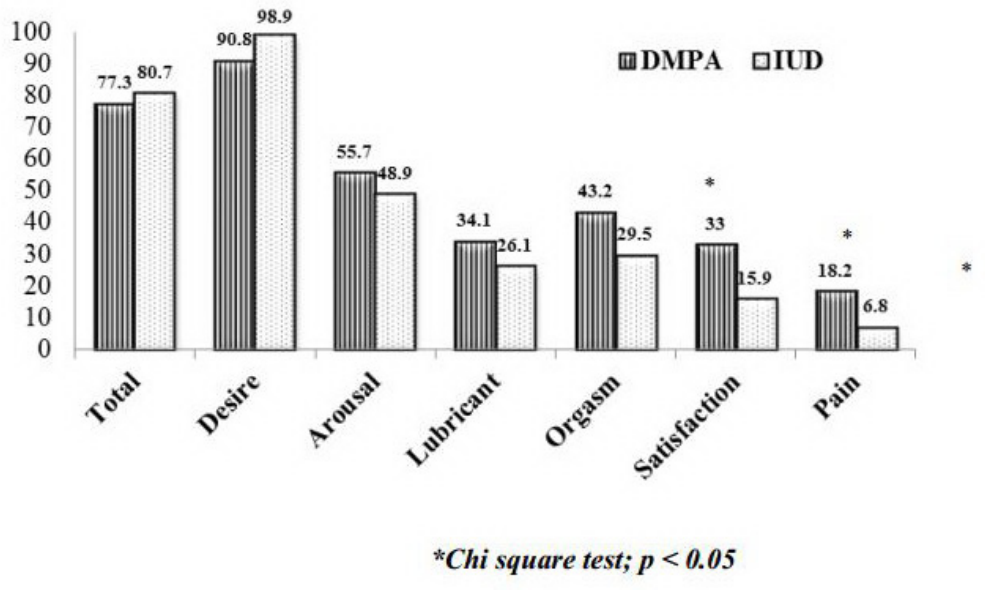

Fig. 1. Prevalence of sexual dysfunction in DMPA and copper IUD users (Total score and each individual domains)

Discussion

Sexual functioning is one of the important components in family life. It is a complex of physical and emotional responses, coordinated by neurologic, vascular and hormonal systems. There are several factors that can affect sexual function including aging, health status, personal experience, stress, cultural condition, religious beliefs, and couple's relationship. Therefore, problems in one or more of the above factors may lead to sexual dysfunction. In family planning service, the possible effects of contraceptive methods on their sexual function and sexual life should be considered.

In this study, there is significant difference in score of sexual pain domain between DMPA and copper IUD users, which is higher in copper IUD group. In previous reports, there are only few studies about the sexual function in contraceptive users, using FSFI questionnaires. The reported mean scores of pain domain in DMPA and copper IUD users varied from 1.7 to 5.3 and 2.4 to 4.5, respectively[17-19]. The result of our study is similar to Fataneh's study[17] which found mean score of pain domain in copper IUD group is higher than that in DMPA group. This could be due to the hypoestrogenic effect of DMPA that results in atrophic vaginal mucosa, vaginal dryness and dyspareunia[7, 8]. This study didn't measured estradiol level in both groups. However, Schaffir's study found no association between estradiol level and dyspareunia and lubrication score in studied women[18].

Although the difference in pain scores between two contraceptive groups was demonstrated, but the total score of sexual function and the other domains; desire, arousal, lubricant, orgasm and satisfaction were similar in both groups. This may be due to the complexity of sexual function and sexual response which is affected by many factors such as physical and psychological status, beliefs and values, expectations, sexual preference, interpersonal relationships and environmental conditions[20].

Regarding the prevalence of female sexual dysfunction, there was no previous study comparing the prevalence of these two contraceptives. This study showed no significant difference between DMPA and copper IUD users. Considering each individual domain of sexual dysfunction, the highest prevalence of sexual

dysfunction was noted in sexual desire domain, followed by arousal and orgasm domains. This figure was associated with three lowest mean scores of individual domains-desire, arousal and orgasm. The very high prevalence of sexual desire dysfunction may cause the high prevalence of female sexual dysfunction in our studied women. There are two items in FSFI questionnaire for the assessment of sexual desire. The questions are asked about frequency and degree of sexual desire over the past 4 weeks. In order to get the score of three, the women should feel sexual desire about half of time and have moderate degree of sexual desire. As there are many different factors especially cultures and lifestyle that affected sexual function between Western and Asian population, the possible lower scores in sexual desire domain is expected in Asian women.

There are several studies regarding sexual function in Thai women using FSFI questionnaire. All of them showed the average total score of sexual function range from 19.6 to 24.3, which is classified as sexual dysfunction[13, 19, 21, 22]. Moreover, the lowest domain score was stated in sexual desire domain in most studies. Despite lower sexual desire, women in this study had quite good global satisfaction in sexual function. Therefore using the clinical cut-off score < 26.5 to define women with sexual dysfunction may not be suitable for Thai women.

For clinical application, the results of our study may be used for contraceptive counseling in family planning clinic. There were some limitations in the present study. Firstly, this study was a cross-sectional study. It could not compare sexual function before and after use of these contraceptive methods. Secondly, spouses' sexual dysfunction and interpersonal relationship were not investigated. These factors could have an effect on female sexual function. A prospective study investigated the change in sexual function before and after contraceptive use over a period of time, the effect of different types of hormonal contraception on sexual function, and the appropriate cutoff score for sexual dysfunction in Thai women should be conducted in the future.

Conclusion

In this study, the prevalence of female sexual dysfunction in DMPA and copper IUD users is rather high. Women using DMPA has sexual pain or dyspareunia more than those using copper IUD. Overall sexual function and other aspects of sexual function including desire, arousal, lubricant, orgasm, and global satisfaction are not different in both contraceptive groups.

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Potential conflcts of interest

The authors declare no conflct of interest.

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