International Journal of Medical Arts 2020; 2 [3]:639-644.

Available online at Journal Website
https://ijma.journals.ekb.eg/
Main subject [Medicine [Obstetrics] *

Original article

Study of Sexual Dysfunction among Females with Combined Oral Contraception [COC] versus Intrauterine Hormonal Device

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Received at: January 01, 2020; Revised at: May 29, 2020; Accepted at: May 31, 2020; Available online at: May 31, 2020

DOI: 10.21608/ijma.2020.22039.1077

ABSTRACT

Background: Sexuality in females is a multidimensional issue of psychological, physiological and cultural components. Evaluation of sexual partner, intimate relationships, and past abusive relationships or sexual trauma is crucial in female sexual dysfunction (FSD).

Aim of the work: The present study was designed to evaluate the sexual dysfunction among female using combined oral contraception and a hormone releasing intra-uterine device [IUD] as a method of contraception.

Patients and Methods: This was observational study which was conducted on 80 women to show the effect of contraception on sexual dysfunctions from February 2019 to last of August 2019. This study includes two groups; Group I: 40 women on combined oral contraceptives [COC] and group II: 40 women on hormonal intrauterine device. All females had been assessed for different domains of sexual function by Female Sexual Function Index [FSFI] questionnaire.

Results: Age, parity and body mass index were comparable between both groups; group I [COC] and group II [IDU]. On the other side, females on COC had lower sexual function index (49.4±4.15) than women with hormonal IUD (67.27±6.88). These results confirmed on nearly all domains of FSFI. Thus, sexual dysfunction is significantly higher among COC group.

Conclusion: Intrauterine hormonal device contraception is better than combined oral contraception (COC) which has little side effect and has better results on sexual desire, arousal, lubrication and satisfaction in addition to little effect on sexual pain than combined oral contraception.

Keywords: Contraception; Intra-uterine Device; Hormonal; Sexual function; Combined.

Please cite this article as: Gabr ATA, Ayad WA, Oun AM. Study of Sexual Dysfunction among Females with Combined Oral Contraception [COC] versus Intrauterine Hormonal device. IJMA 2020; 2[3]: 639-644.

* Main subject and any subcategories have been classified according to the research topic.

INTRODUCTION

Sexuality is one of the most private areas of life. The world health organization (WHO) defines sexual health as a harmony and integration between mind, body and feelings which leads to personality improvement and satisfaction about relationship and love[1]. Female sexual dysfunction (FSD) can be divided into subtypes and are characterized by a decreased sexual feeling of fantasies, thoughts and interest or affection of one or more sexual domains as loss of desire, difficulties in becoming aroused, lubricated, or having an orgasm after adequate stimulation, or with feelings of pain before or during penetration. Sexual habits are proven as one of the fundamental components of health and quality of life, unfortunately 43% of women suffer from at least one sexual problem[2].

The oral contraceptive pills (OCPs) was developed more than forty years ago. It is one of the most commonly used contraceptive methods because of its high degree of efficacy and excellent safety profile and because it is a reversible method of birth control which is available world wide[3].

About 62% of women of reproductive age use some methods of contraception to prevent unwanted pregnancy [4]. Despite high rates of contraceptive use, six-month discontinuation rates are high, varying from 18% to 57% for oral contraceptives pills (OCPs). Unwanted pregnancy mostly follows contraceptive discontinuation, because of not using other effective method after discontinuation[5]. One in five OCPs users suffering from sexual side effects, and about half discontinue their method due to these side effects, which include sexual desire and satisfaction about relation. There are 3.5% of women using OCPs reported a decrease in sexual desire, 12.0% from increase, and 84.6% reported no change[6].

Intrauterine hormonal device is a T-shaped device, made of plastic with two fine nylon strings attached. The IUD located in the uterus while strings appear through the cervix and sit against the upper vaginal wall. The hormone releasing IUD has many other uses than contraceptive method. It is also used as alternative to hysterectomy for the treatment of dysfunctional uterine bleeding, menorrhagia and leiomyomas. However, it cannot be used for emergency contraception [2].

AIM OF THE WORK

The aim of our study was to evaluate the sexual dysfunction among females using combined oral contraception and a hormone releasing IUD as a method of contraception.

PATIENTS AND METHODS

This was observational study which had been conducted on 80 women. Forty women using combined oral contraception (COC) as a method of contraception and 40 women using intrauterine hormonal IUD as a method of contraception to show the effect of these contraception on sexual dysfunctions from February 2019 to last of August 2019. The women on this study were selected from Obstetric and Gynecology department of Al-Azhar University hospital (New Damietta). This study participated after oral informed consent had been obtained with the following criteria: Patients within reproductive age, patients on COC and patients on Intrauterine Hormonal device.

All of the following criteria were excluded; patients out of reproductive age, patient on another contraceptive method and patient with previous history of any medical disorder as diabetes mellitus, HTN, liver disorder and psychological disorders.

Ethical considerations: The study protocol was approved by the local Ethics and Scientific Research Committee of Al-Azhar University- Faculty of Medicine, [New-Damietta] [IRB number: 00012367 (19-02-001)

Patients eligible for the study underwent the following: full history taking, complete examination [general, abdominal and pelvic examination].

Drugs: Newer OCs as Yasmin (Bayer Healthcare Pharmaceuticals, Inc, Berkeley, CA, USA) that containing drospirenone 3 mg plus ethinylestradiol (EE) 30 mcg was used. Mirena (Bayer Healthcare Pharmaceuticals, Inc, Berkeley, CA, USA) contains 52 mg of levonorgestrel (LNG). After three months from Mirena insertion or taking combined oral contraception, the women in this study filled the Female Sexual Function Index (FSFI). The study protocol had been explained. Then, each female completed the questionnaire in a separate room with sufficient privacy. Female Sexual Function Index had been performed according to **Reed et al.**[7].

Statistical analysis: The collected data were

tabulated, organized and statistically analyzed by using a statistical package for social sciences (SPSS) version 24 (SPSS Inc, Chicago, USA), running on IBM compatible computer. The mean ± standard deviation (SD) were measured if the quantitative data were used. Qualitative data were presented as relative frequency and percent distribution. For comparison between two groups, the independent samples (t) test was measured. For comparison between categorical groups, the Chi square or Fisher exact tests were used when appropriate. For all tests, P values < 0.05 was considered significant.

RESULTS

In the present study, age, parity and body mass index (BMI) were comparable between both groups; group I [COC] and group II [IDU]. On the other side, females on COC had lower sexual function index (49.4±4.15) than women with hormonal IUD (67.27±6.88) **(Table 1).**

Regarding sexual desire, patients in group I [COC] had significantly lower desire and interest when compared to group II. In addition, pain was statistically significantly higher among patients in group I when compared to group II during vaginal penetration, after vaginal penetration or overall pain [Table 2].

In the present study, sexual arousal is significantly better in women with intrauterine hormonal device than women on COC **(Table 3).** In In addition, sexual lubrication is better in women with hormonal IUD than women on COC with statistically significant difference **(Table 4).** Furthermore, sexual orgasm is better in women with intrauterine hormonal device than women on COC with statistically significant difference. In the present study, sexual satisfaction is better in women with intrauterine hormonal device than women on COC with statistically significant difference **(Table 5).**

Table [1]: Demographic data of the studied groups

Parameter	Group I [COC]	Group II [IUD]	T test	P value
Age (Years)	28.8±8.01	26.4±9.31	1.08	0.29
Parity (Number)	2.4±0.98	2.33±0.82	0.21	0.07
BMI (Kg/m^2)	28.2±1.09	27.9±1.18	0.69	0.49
Sexual Function Score	49.4±4.15	67.27±6.88	***8.61***	***<0.001****

***** indicate significant changes.

Table (2): Desire and pain according to FSFI.

	Group I [n=40]	Group II [n=40]	Test	P value
Over the past 4 weeks, how many times did you feel sexual desire?				
A lot of/most duration/sometimes/ a few/ Never	0 /0/ 24/ 16/ 0	0 /8/ 32/ 0 / 0	25.14	<0.001*
Over the last 4 weeks, what is the rate your degree of sexual desire or interest?				
Very high/High/Moderate/Low/Very low	0/0/19/21/0	0/8/32/0/0	32.31	<0.001*
Over the last 4 weeks, how often did you experience discomfort or pain during vaginal penetration?				
Did not attempt intercourse/ a lot of/ most duration/ sometimes/ a few duration/ almost never	0/5/24/11/0/0	0/0/16/19/5/0	13.73	0.003*
Over the last 4 weeks, how often did you experience discomfort or pain following vaginal penetration?				
Did not attempt intercourse/ a lot of/ most duration/ sometimes/ a few duration/ almost never	0/8/19/11/2/0	0/0/11/19/8/2	17.86	0.001*
Over the last 4 weeks, how would you rate your level (degree) of discomfort or pain during or following vaginal penetration?				
Did not attempt intercourse/very high/ high/ moderate/ low/ very low	0/0/0/19/21/0	0/0/8/24/8/0	14.40	0.001*

Table (3): Arousal according to FSFI.

	Group I	Group II	Test	P value
Over the last 4 weeks, how many did you feel sexually aroused during sexual intercourse?				
No sexual intercourse/ A lot of/ Most duration/ Sometimes/ Less duration/ Never	0/0/0/29/11/0	0/3/26/11/0/0	3.16	0.20
Over the last 4 weeks, how would you rate your level of sexual arousal (turn on) during sexual activity or intercourse?				
No sexual intercourse/ Very high/ High/ Moderate/ Low/ Very low	0/0/0/21/19/0	0 /0/19/ 21/0/0	38.0	<0.001*
Over the last 4 weeks, how confident were you about becoming sexually aroused during sexual intercourse?				
No sexual intercourse/ Very high confidence/ High / Moderate / Low / Very low or no confidence	0/0/0/14/26/0	0/0/19/21/0/0	46.40	<0.001*
Over the last 4 weeks, how often have you been satisfied with your arousal (excitement) during sexual intercourse?				
No sexual intercourse/ A lot of/ Most duration/ Sometimes/ Less duration/ Never	0/0/0/19/21/0	0/0/29/11/0/0	52.13	<0.001*

Table (4): Lubrication according to FSFI.

	Group I	Group II	Test	P value
Over the past 4 weeks, how often did you become lubricated (wet) during sexual intercourse?				
No sexual intercourse/ A lot of/ Most duration/ Sometimes/ Less duration/ never	0/0/0/29/11	0/0/14/26/0/0	25.16	<0.001*
Over the past 4 weeks, how difficult was it to become lubricated (wet) during sexual activity or intercourse?				
No sexual intercourse/ Extremely difficult or impossible/ Very difficult/ Difficult/ Slightly difficult/ Not difficult	0/0/2/5/33/0	0/5/19/16/0/0	57.52	<0.001*
Over the past 4 weeks, how often did you maintain your lubrication (wetness) until completion of sexual activity or intercourse?				
No sexual intercourse/ A lot of/ Most duration/ Sometimes/ Less duration/ Never	0/0/0/16/24/0	0/0/14/21/5/0	27.12	<0.001*
Over the past 4 weeks, how difficult was it to maintain your lubrication (wetness) until completion of sexual activity or intercourse?				
No sexual intercourse/ Extremely difficult or impossible/ Very difficult/ Difficult/ Slightly difficult/ Not difficult	0/0/0/14/26/0	0/5/19/16/0/0	50.13	<0.001*

Table (5): Orgasm and Satisfaction according to FSFI.

	Group I	Group II	Test	P value
Over the past 4 weeks, when you had sexual stimulation or intercourse, how often did you reach orgasm (climax)?				
No sexual intercourse/ A lot of/ Most duration/ Sometimes/ Less duration/ never	0/0/0/25/15/0	0/0/19/21/0/0	34.34	<0.001*
Over the past 4 weeks, when you had sexual stimulation or intercourse, how difficult was it for you to reach orgasm (climax)?				
No sexual intercourse/ Extremely difficult or impossible/ Very difficult/ Difficult/ Slightly difficult/ Not difficult	0/0/2/19/19/0	0/5/35/0/0/0	72.43	<0.001*
Over the past 4 weeks, how satisfied were you with your ability to reach orgasm (climax) during sexual intercourse?				
No sexual intercourse/ Very satisfied/ Moderately satisfied/ About equally satisfied and dissatisfied/ Moderately dissatisfied/ Very dissatisfied	0/0/0/0/27/13	0/5/29/6/0/0	80.00	<0.001*
Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?				
No sexual intercourse/ Very satisfied/ Moderately satisfied/ About equally satisfied and dissatisfied/ Moderately dissatisfied/ Very dissatisfied	0/0/27/5/8/0	0/20/20/0/0/0	34.04	<0.001*
Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner?				
No sexual intercourse/ Very satisfied/ Moderately satisfied/ About equally satisfied and dissatisfied/ Moderately dissatisfied/ Very dissatisfied	0/0/2/0/30/8	0/8/30/0/2/0	65.00	<0.001*
Over the past 4 weeks, how satisfied have you been with your overall sexual life?				
No sexual intercourse/ Very satisfied/ Moderately satisfied/ About equally satisfied and dissatisfied/ Moderately dissatisfied/ Very dissatisfied	0/0/0/2/30/8	0/8/30/0/2/0	72.50	<0.001*

DISUCSSION

This work aimed to evaluate the sexual dysfunction among females on combined oral contraception and a hormone releasing IUD as a method of contraception. In the current work, females on COC had lower female sexual function index than women on hormonal IUD. This result agree with **Oinonen and Mazmanian**[8] who showed that, hormonal balance is essential to maintain normal sexual function. Estradiol has major effect on vaginal epithelial cells and lubrication. In addition, adequate level of estradiol is essential to maintain vaginal lubrication and avoid pain penetrating disorders, which can decrease sexual desires and fantasies[6]. Also, **Wiebe et al.**[9] reported that, sexual function could be improved by estradiol. **Sakinci et al.** [2] found that higher depression measured by Beck Depression Inventory (BDI) in females with lower scores of Female Sexual Function Index (FSFI) domains of pain. They found that all dimensions of sexual function, except for desire, had an association with somatization, depression and anxiety as measured by the brief symptom inventory-18. All the associations were negative [i.e., the more symptoms of psychological distress, the more disturbance in sexual function]. **Skrzypulec et al.**[10] mentioned sexual functioning of women using contraceptive forms. However, their primary outcome measure was to assess the effect of levonorgestrel containing intrauterine hormonal devices. They found statistically significant sexual dysfunction in the domains of sexual arousal, desire, satisfaction, orgasm and pain penetrating disorders, which confirmed the improved sexual function in females using the intrauterine hormonal device.

On the other side, **Li et al.**[11] did not find no significant changes in quality of life or sexual functions in groups of women using progestogen injections, oral contraceptives, and intrauterine hormonal device, and no significant difference was mentioned in any of the three Derogates Sexual Functioning Inventory subscale scores in the intrauterine hormonal device group. However, this inventory only contains sexual satisfaction, drive, and body image subscales and does not give information related to pain penetrating disorders.

Mutlu et al.[12] compared uterine artery Doppler parameters to prognosticate intrauterine hormonal device related side effects. They observed no differences in pain scores after 6 months of intrauterine hormonal device insertion by using five-point Likert scales. These studies not agree with the current study, and may be due to the fact that, none of these studies investigated intrauterine hormonal device users with COC and none of them used FSFI questionnaire or may be due to different behavior and life style. The FSFI is regarded as a gold standard measure for female sexual function.

Results of the current work agree with **Warnock et al.**[13] who showed that sexual desire is decreased in women who use COCs. In addition, an online survey revealed that, females on COCs had lower desire than those on other forms of contraception[14]**. Kariman et al.**[14] reported that there was a significant difference in sexual arousal, lubrication, and pain penetrating disorders between the depot medroxyprogesterone acetate (DMPA) and COC groups.

On the other side, **Gomez-Sanchez and Gomez-Sanchez** [15] **and Higgins and Smith** [16] reported that sexual function and satisfaction did not change significantly with long-acting reversible contraception (LARC) use. Better results with hormonal IUD could be explained as the following: hormonal IUD has less psychological and sexual problems, and it is also a reversible method. Thus, it is more acceptable[17]**.** On the other hand, a study in Italy on sexual function in women taking contraceptive pills showed an increase in sexual performance in the areas of sexual satisfaction, pain penetrating disorders and orgasm and no change in sexual desire domain[18]**.**

To explain increased pain in the COC group, it had been reported that, OCs has been associated with increased incidence of genito-pelvic pain disorders such as vulvar vestibulitis (VV) and vulvodynia[3].

In short, the current study revealed the superiority of hormonal IUD over the combined oral contraceptive pills for preservation of female's sexual function.

Financial and Non-Financial Relationships and Activities of Interest

None

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