Discontinuation Rates among Women Using either the Combined Oral Contraceptive Pills or an Intrauterine Contraceptive Device for Contraception: A Comparative Study

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ABSTRACT

Objective: To study the contraceptive practice of women using combined oral contraceptive pills and intrauterine contraceptive devices in 4 Jordanian military hospitals; (Prince Hashem Bin Al Hussein, Prince Ali Bin Al Hussein, Princess Haya Bent Al Hussein, and Queen Alia Hospitals) and to study the reasons for discontinuation of these methods among women less than 44 years of age.

Methods: A retrospective analysis of the family planning medical files of 5800 clients who were current or past user of the contraceptive pills or intrauterine devices for contraception during the period between January 2007 and December 2009 was done. Fifty-eight percent (3367/ 5800) were current or past contraceptive pills users and 41% (2433/5800) were current or past intrauterine device users. Women included in the study were those who had discontinued using the pills or the devices for more than 6 months (n = 3200), which in turn were divided into two groups: Group A, oral contraceptive pills users (n=2050) and Group B, intrauterine devices users (n = 1150). We then analyzed according to age, parity, obstetric history, medical history, duration of contraception and reasons for discontinuation of these methods; the data were compared between the two groups.

Results: The use of contraceptive methods varies across age, but combined oral contraceptive pills was found to be the most commonly used method among the study population. Only 29% of group A discontinued the pills because of their desire to conceive compared to 23.6 % of group B. Fifty-two percent of group A stopped the pills because of undesired side effects, compared to 65 % among group B. Four-point-four percent of group A stopped the method due to medical indication compared to 3.2% in group B. Fourteen-point-six percent of group A stopped the pills for personal reasons or lack of availability of the drugs and 8.2% of group B had the device removed because it reached the expired date (being in uterus for 10 years). However, this is not considered a reason for discontinuation. The main side effects of combined oral contraceptives were breast discomfort, mood changes, weight gain, headache, nausea and vomiting, whereas the commonest side effects related to intrauterine contraceptive device were menstrual bleeding disorders, recurrent vaginal infection, and pelvic pain.

Conclusion: In spite of the safety and high efficacy of combined oral contraceptive pills and intrauterine devices as contraceptive methods more than half discontinued their use because of undesired side effects. This may be improved by careful patient selection and appropriate counseling.

Key words: Contraception, Copper T380A, Discontinuation.

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Introduction

Combined Oral Contraceptives (COC) and Intrauterine Contraceptive Device (IUD) are safe and effective methods of contraception. They are the most commonly used forms of reversible contraceptive methods worldwide.[1,2] However, they still cause some side effects, such as menstrual bleeding disorders, headache, breast discomfort, and weight gain, which in turn may lead to discontinuation of their use.[3]

COC pills are used by more than 10 million women in the United States[4] and 100 million women worldwide.[1]

COC pills provide high degree contraceptive efficacy when used properly, about 5 per 100 women with typical use and less than 1 per 100 women with perfect use become pregnant per year.[1] One third of the unintended pregnancies that occur in the United States are because of pills misuse, failure or discontinuation.[5]

COC pills have some short-term and long-term non-contraceptive health benefits: they are considered preventive of ovarian cancer, endometrial cancer, ectopic pregnancy, pelvic inflammatory disease, and menstrual disorders.[6-10]

Since the early 1960s, when IUDs were made of inert materials, the devices have undergone many improvements - first by inclusion of copper and subsequently a progesterone releasing system like Mirena device, which were used recently in Jordan and the Middle East. The Copper T380A family and the levonorgestrel 20 (LNG) IUDs represent the most effective reversible contraceptive methods yet studied in long-term randomized trials.[11,12] The most widely used copper-bearing IUD, and the one for which there is greatest information on safety and effectiveness, is the TCu380A. Intra-uterine devices achieve their contraceptive effect by several mechanisms. Intra-uterine devices prevent sperm from reaching the uterine cavity and the fallopian tubes, where fertilization occurs. A foreign-body reaction in the uterine cavity to an IUD causes cellular and biochemical changes that may also be toxic to sperm.[13] With copper bearing devices the duration of effectiveness depends on the surface area of copper. The Copper T 380A is safe and highly effective for at least 12 years (approved for 10 years of use in the United States) with an annual pregnancy rate of 0.4 per 100 women.[14]

Adverse effects of COC pills and IUD are mainly responsible for discontinuation of use.[15,16] This study identifies some of the factors that are thought to be associated with discontinuation of COC pills and IUD and also considers the contraceptive behavior of women after cessation.

Methods

This is a retrospective study which was conducted in four military hospitals; (Prince Hashem Bin Al – Hussein in Zarka, Prince Ali Bin Al Hussein in Karak, Princess Haya Bent Al Hussein in Aqaba, and Queen Alia Hospitals in Amman), in which we reviewed the family planning medical files for a total of 5800 married women who were either current or past users of COC pills or IUD (TCu380A type) for contraception during the period from January 2008 to December 2009. Past users were defined as those who were using COC or IUD before being included in the study but not currently using them, whereas current users of COC or IUD those who were using them for more than 6 months before being included in the study. A standard proforma for data collection across all hospitals was used.

Three-thousand two hundred women were divided into two groups: pill users group (n= 2050) and IUD users group (n= 1150). Information about age, parity, obstetric history, gynecology history, contraceptive history regarding method of contraception, side effects, duration of use and reasons behind discontinuation were taken from the family planning files and records. In the present study we concentrated on category of side effects, reasons given for discontinuation of COC or IUD, and contraceptive behaviour after discontinuation. The data collected were compared between the two groups.

Statistical analysis

Percentages were examined using a Chi-square test. A p-value of <0.05 was considered statistically significant. Data were analyzed using the statistical package for social science (SPSS), software version 17. The Chi-squared test (X^2) is a significance test applied to the comparison of proportions. When there are only two categories of data (only one degree of freedom) the X^2 test should strictly not be used. There have been various attempts to correct this deficiency and the simplest is to apply the Yates correction to the data. We are sure that this convention has been observed.

Results

All women included in the study were still married and aged less than 44 years with an average 33.8 years, with an average of 3.7 living children. Three thousand two hundred women (55.2 %) discontinue using either COC or IUD during the study period. Table I illustrates the age distribution of clients included in the study and percentage of women who discontinued the COC or IUD use. Women using the IUD were older than women using COC for contraception. Furthermore women use the COC more commonly than IUD for contraception although the percentage of discontinuation is more among COC users. However, it is still considered statistically non significant for those older than 35 years of age at the time of stopping the method.

As shown in Table II only 29 % (595/2050) of pill users group stopped the COC due to a desire for pregnancy compared to 23.6% (271/1150) of IUD users group. One thousand and sixty-six clients of pills users group (52%) discontinue COC because of undesired side effects compared to 65% (747 / 1150) of IUD users group. Four point four percent stopped the COC due to medical indication (pregnancy, development of hypertension, breast lumps, diabetes) compared to 3.2% of IUD users group stopped due to medical indication (pregnancy over the loop, malignancy, perforation and missed loop), however, it is considered statistically non significant for medical indications. Fourteen point six percent of group A stopped the pills for personal reasons whereas 8.2% removed the IUD because it reached the expired date (being in situ for 10 years or more).

In studying the reasons of COC discontinuation, about half of clients (n= 1066) quitted using COC because of undesired side effects. These occured mainly (61%) in the first 6 months of COC use as shown in Table III. Most of the clients used to report one or more side effects and then we tabled these side effects and their percentage against the total number of patients who quitted the pills due to side effects (n=1066 cases). Breast discomfort was the most common side effect reported 62.6% (667/1066 cases). Less frequent side-effects included nausea and vomiting, dizziness, and irregular bleeding. Table IV shows the percentage of side effects as reported by study population.

Studying the reasons of IUD discontinuation we noticed that about two thirds of women discontinued its use because of its side effects. Most women mentioned a combination of side effects as shown in Table V. The main side effects were menstrual bleeding disorders, pelvic and /or low back pain, and genital infections. Most of these side effects (50.1%) occurred within the first 6 months of insertion. (Table VI).

Tables V and VI also demonstrate the relationship between age and the reasons behind discontinuation of COC and IUD. More than half of women younger than 25 years of age discontinued COC and IUD (55% and 60.6 % respectively) due to their desire to conceive (Table VII). Discontinuation of COC or IUD for medical reasons was mainly among women older than 35 years of age (44% and 62.2% respectively). Half of the women (49.8%) who stopped COC because of their side effects were younger than 25 years of age whereas women who discontinued IUD because of its side effects were the older (46.2% among women older than 35 years).

Discussion

Although the practice of contraception varies among different populations, the COC pill and IUD are the most commonly used methods of contraception among women attending military hospitals. Both can be safely provided after a careful medical and gynaecological history.

The actual incidence of discontinuation of the use of COC or IUD varies between different studies,[15,16] Colli *et al*[18] reported that 42% and 44% discontinued using COC and IUD respectively within 24 months of starting. Despite the occurrence of considerable discontinuation of COC or IUD as a method of contraception, few studies have attempted to examine the factors that lie behind stopping these methods of contraception. The reasons reported for discontinuation COC and IUD were: desire for pregnancy, husband's disapproval, the cost, desire of more effective contraceptive method, unavailability or inconvenience and many other reasons. This study showed that about two thirds of COC users and half IUD users quitted using them within three years. The occurrence of side effects was cited as the main reason for quitting COC (52%) and IUD (65%), which is consistent with other studies. Khan reported that 53% of rural women in Banglaish quit COC due to side effects,[7] whereas it was reported to be 46% by Rosenberg *et al*.[5]

Table I. Age distribution of the COC and IUD users included in the study and percentage of women discontinued COC and IUD

Age (yrs)	Number of women discontinue COC	% of women discontinued COC	Number of women discontinue IUD	% of women discontinue IUD	P value
< 25	1033/1554	66.5	280/695	40.3	<0.0001
25 – 34	672/1166	57.6	392/836	46.9	<0.0001
>34	345/647	53.3	478/982	48.7	0.0740
Total	2050/3367	60.9	1150/2433	47.3	<0.0001

Table II. Reasons of discontinuation of COC and IUD

Reason of discontinuation of contraceptive method		COC users (2050)	IUD users (1150)	P value
Desire of pregnancy	N (%)	595 (29)	271 (23.6)	0.0009
Undesired side effects	N (%)	1066 (52)	747 (65)	<0.0001
Medical indications	N (%)	90 (4.4)	36 (3.2)	0.0960
Personal reasons	N (%)	299 (14.6)	0 (0)	<0.0001
Reached expiry date	N (%)	0	94 (8.2)	<0.001

Table III. Duration of COC use in relation to reasons for discontinuation

Cause	Duration	<6 months	6-12 months	1 to 2 years	>2 years
Desired pregnancy (N 595)		27	69	125	374
	%	4.5	11.6	21	62.9
Side effects (N 1066)		650	284	103	29
	%	61	26.6	9.7	2.7
Personal reasons (N 299)		55	68	81	95
	%	18.4	22.7	27.1	31.8

Table IV. Side effects leading to cessation of COC use (1066 cases)

Side effects of COC	NO. of clients	%
Breast discomfort	667/1066	62.6
Weight gain	600/1066	56.3
Mood changes	535/1066	50.2
Headache	518/1066	48.6
Nausea/Vomiting	437/1066	44.4
Dizziness	346/1066	32.5
Irregular bleeding	322/1066	30.2
Others	110/1066	10.3

Table V. Side effects leading to cessation of IUD use

Side effect of IUD	Number of clients (747)	%
Menstrual Bleeding disorder	406	54.4
Pelvic and low backache	360	48.2
Infections	269	36.0

Table VI. Duration of using IUD in relation to reason for discontinuation

Cause of discontinuation	<6 months	6 – 12 months	1 to 2 years	>2 years
Pregnancy desire (272) (%)	8 (2.9)	15 (5.5)	87 (32)	162 (59.6)
Side effects (747) (%)	374 (50.1)	310 (41.5)	54 (7.2)	9 (1.2)
Medical causes (37) (%)	14 (37.8)	8 (21.6)	7 (18.9)	8 (21.6)
Device expired date (94) (%)	0 (0)	0 (0)	0 (0)	94 (100)

Table VII. Relationship between age and reasons given for discontinuation of COC and IUD

	<25 years		25-35 years		>35 years	
	N	%	N	%	N	%
Desired pregnancy						
COC (595)	327	55	203	43.5	65	15.6
IUD (272)	165	60.6	73	26.8	34	12.5
P value	0.133		0.039		0.57	
Side effects						
COC (1066)	531	49.8	317	29.7	218	20.5
IUD (747)	112 <0.0001	15	290	38.8	345	46.2
P value			<0.0001		<0.0001	
Medical indication						
COC (91)	21	23	30	33	40	44
IUD (37)	3	8.1	11	29.7	23	62.2
P value	0.068		0.887			0.094
Personal reasons						
COC (299)	154	51.5	122	40.8	23	7.7
Reached expiry date						
IUD (94)	0	0	18	19.1	76	80.9

Discontinuation of COC

This study showed that breast discomfort was the most common side effect reported by COC users 62.6%). Weight gain, mood changes, headache were reported in 56.3%, 50.2%, 48.6% respectively. Other side effects reported by COC users include irregular bleeding, nausea, vomiting, irritability, depression and vaginal dryness. The study showed that most of women who quit using COC due to side effects did so in the first 6 months of use (61%), and after this period the frequency of discontinuation decreased. A study in United States by Rosenberg MJ *et al* demonstrated that the discontinuation of COC was more likely to occur if side effects happened suddenly and especially if they were multiple because the probability of its occurrence increases disproportionately with each additional side effect experienced.[5]

It is well documented that most side-effects are expected during the first few months of starting COC use and most of them disappear after few cycles, this may be explained by the woman's body adjusting to the hormones present in COC. Good counselling, particularly that focused on low impact adverse effects, is an important instrument to reduce drop out rate.[17]

The findings of the present study demonstrates the importance of counselling the younger women (<25yrs) as they form the majority of cases who discontinued the pills due to poorly tolerated side effects or poor compliance in using the method especially during the first year of usage.

These findings are consistent with those of another study that showed 57% of COC users who decided to stop were below 25 years of age.[5] However, other studies have reported no significant association between the age of the COC users and their discontinuation of COC use, yet, the discontinuation rate was relatively higher for women aged 35 years or more compared to their younger counterparts.[7] Our study showed that 29% of COC users discontinued the method due to desired of pregnancy which is very low when compared to other Jordanian study that showed 74% discontinued the method due to pregnancy planning.[18]

The findings of our study also suggest that for those COC users who developed side effects, 61% and 87.6% discontinued the method within 6 months and 12 months of usage respectively. Khan reported that 59.5% of all the patients who discontinued the use of oral contraceptives did so before 12 months of usage. In addition, women with side effects experienced in the first 3 months of COC use were 1.4 times more likely to discontinue COC use than were women who did not have such an experience.[7] However, the 1995 national survey of family growth reported overall 3% of women discontinue use of COC for a method-related reason within six months of starting use, and 6.9% do so within 12 months.[19]

Discontinuation of IUD

This study showed that menstrual cycle bleeding disorders form the most common reason for IUD removal, which was reported by 16.7% (406/2433) clients of those using IUD for contraception, which is comparable to clinical trials which showed that 4-15% will remove the IUD because of menstrual bleeding disorder.[20,21] Other studies showed that excessive or irregular bleeding, mainly in the first three months after insertion, are the most frequent

side-effects in users of copper IUDs and are the main reasons for discontinuation of the method.[22]

Our results are similar to other Jordanian study, which showed that 39.6% discontinued IUD use because of a desire to conceive, 18.6% because of side effects.[23] Our study also showed that 14.8 % (360/2433) and 11 % (269/2433) of IUD users discontinue it as a method of contraception because of recurrent infection and pain related problems. This high percentage may be related to the concern of users about the risk of impaired infertility and the recovery of fertility after IUD use, particularly for low parity women. However, Grimes et al found no evidence of adverse effect of IUD use on tubal infertility.[24] This observation is further confirmed by Farley *et al*[25] who found that PID among IUD users is most strongly related to the insertion process and to background risk of sexually transmissible disease. Pelvic inflammatory disease (PID) is an infrequent event beyond the first 20 days after insertion. Because of this increased risk with insertion, IUDs should be left in place up to their maximum lifespan and should not routinely be replaced earlier, provided there are no contraindications to continue their use and the woman wishes to continue with the device.

Conclusion

The relatively high rate of discontinuation of contraceptive use suggests a potential for improving patient management. Firstly, counselling should include the consideration of potential side effects of their use, how long they last, and how to manage them. Secondly, counselling should consider alternative methods should primary choice prove unsuitable. Finally, we suggest that monthly follow up visits should be scheduled for the first 6 months of commencing COC or insertion of IUD.

Clinicians are encouraged to discuss with their patients the reasons of discontinuation of an effective contraceptive method like COC or IUD and assist them with their concerns or to switch to other effective methods to protect them from unintended pregnancy.

We recognize that this is a descriptive study and is limited in scope. Further studies are clearly indicated

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