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Factors affecting Discontinuation of the Once-a-month Injectable Contraceptive (Cyclofem) in Neyshabur, Iran

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ABSTRACT

Background & aim: The developing countries have the contraceptive prevalence rate of 43%. Contraceptive discontinuation accounts for a large number of unintended pregnancies in these countries. The present study aimed to investigate the factors associated with Cyclofem discontinuation.

Methods: This historical cohort study was conducted on 198 females, selected through cluster and Poisson sampling techniques. The first dose of Cyclofem was administered one month prior to the research. The data were collected using a questionnaire filled out through interviewing.

Results: During the study period, only 3.94% of the health centers clients selected Cyclofem as a contraceptive method. The mean duration of Cyclofem use was 7.1±8.01 months. The likelihood of contraceptive continuation declined with increased consumption duration. Menstrual complications caused by this contraceptive method included irregular menstruation (35.4%) and neurological problems (14.6%). Furthermore, there were some personal reasons (8.1%) accounting for the discontinuation of this method. The frequency of Cyclofem use decreased with increased rate of menstrual irregularities (P=0.045) and spotting (P=0.020). Based on the participants' reports, the most frequent complications were the medical ones. However, there was no significant difference between the females who continued Cyclofem use and those who discontinued (P=0.08). The majority of the participants reported no particular non-medical problems. The results revealed that the participants who used Cyclofem for a longer time stopped using this birth control method less commonly than those used it for a shorter time (P<0.001).

Conclusion: As the findings indicated, the most common reason for the discontinuation of Cyclofem was its associated side effects, especially menstrual irregularities. Therefore, the healthcare providers should emphasize on the adverse effects of Cyclofem prior to recommending this contraceptive method.

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Introduction

Population growth is the major problem of the developing countries (1). It is estimated that nearly 80 million out of 210 million pregnancies are unwanted worldwide. These unintended pregnancies can be a serious threat to both maternal and neonatal health, since they are mostly terminated using risky methods resulting in either maternal mortality or morbidity (2). According to the previous studies performed in Iran, a third of pregnancies are unintended (2). Therefore, one of the strategies to achieve a healthy family and society is to control the population and provide more effective contraceptive methods.

Currently, 81% and 43% of the couples in the developed and developing countries are employing an effective method of contraception (3). However, more than half of the unwanted

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pregnancies are due to the contraceptive failure or lack of its continuity (4). Hormonal methods, such as Cyclofem, are the most efficient contraceptive methods. Cyclofem is a monthly injectable contraceptive containing 25 mg Depo-medroxy progesterone acetate (DMPA) and 5 mg estradiol cypionate (5).

Cyclofem has the efficacy rate of 99.8% (6), which is similar to that of sterilization in women (2). The specific advantages of the monthly injectable formulation include rapid reversibility, high efficacy rate, and infrequent dosing (i.e., no need to be use daily or during sexual relationship) (5). The first injection is given in the first five days of the menstrual period, and it is reapplied every 28-30 days (6).

The abundance of unintended pregnancies is due to the unemployment of effective contraceptives and inconsistent or incorrect use of efficient birth control methods (8). The results of a study conducted on 15 countries revealed that in 14 countries, more than 50% of the unwanted pregnancies were due to failure or discontinuity in using the contraceptive method (4).

According to the World Health Organization (WHO), the main causes of contraceptive discontinuation included method failure, method-related reasons (dissatisfaction with the method due to side effects or health concerns), pregnancy intention, and no further need to a birth control method (8). Among these reasons method-related dissatisfaction, especially contraceptive side effect, is the most common cause of discontinuation (8).

Accordingly, Beekle and McCabe stated that the fear of side effects is one of the major causes of contraceptive method dissatisfaction and withdrawal (1). Regarding the users, the most important reasons of contraceptive discontinuation have been reported to be unpleasant menstrual changes (9-14), medical disorders (1, 4, 8, 10, 15-18), and nonmedical problems (1, 19). With this background in mind, the present study was conducted to investigate the incidence, side effects, and factors leading to the discontinuation of Cyclofem.

Materials and Methods

This historic cohort study was conducted on 197 females referring to eight health centres of Neyshabur, Razavi Khorasan, Iran, during four months (June-October) in 2012. After obtaining permission from Neyshabur University of Medical Sciences, Neyshabur, Iran, the researchers referred to the selected health centres to fill out the questionnaires. The inclusion criteria were lack of genital problems (based on the health records) and injection of the first dose of Cyclofem at least one month prior to the study. The study population was selected through cluster and Poisson sampling methods.

After reviewing the health records, the questionnaires were completed by interviewing. The weight and height of each subject were measured, and the body mass index (BMI) was determined. Blood pressure was taken by spring pressure, and breast examination was performed by the researcher.

The data were collected using a questionnaire and participants' health records. The questionnaire consisted of three sections. The first section included the personal, social, and demographic characteristics, as well as the obstetric history of the respondents (i.e., age, education level, family income, gravidity, parity, number of living children, method of previous delivery, type of contraception before taking Cyclofem, and reasons of quitting the previous method).

The second section entailed the factors related to Cyclofem use (i.e., reason for choosing Cyclofem, side effects, and withdrawal reasons, including adverse changes in menstruation, as well as medical and nonmedical problems). The third section included the results of the physical examination (i.e., height, weight, and blood pressure) and breast exam. Informed consent was obtained from all the participants. The subjects were divided to two groups. In this regard, the women who continued the monthly use of Cyclofem were assigned into the continued group, while those quit it freely were allocated into the discontinued group and their withdrawal reasons were recorded in the questionnaire.

The validity of the questionnaire was approved by determining the content validity through using the views of a panel of expert faculty members (Delphi method). Furthermore, the reliability of this instrument was estimated, rendering a Cronbach's alpha coefficient of 0.84. Data analysis was performed in SPSS software (version16) using one-sample Kolmogorov-Smirnov test, Levene's test, Mann-Whitney U test, Pearson correlation coefficient, and survival analysis. P-value less than 0.05 was considered statistically significant.

Results

The demographic characteristics of the participants and different birth control methods used by the subjects are presented in Table 1. The study results showed that most of the subjects aged 20-30 years (64.3%), had 9-12 years of education (42.9%), and were housewives (90.5%). Based on the results of the Pearson correlation and ANOVA test, the duration of Cyclofem use had no significant relationship with age (P=0.129), level of education (P=0.344), occupation (P=0.347), spousal occupation (P=0.497), and family income (P=0.353).

Many reasons were expressed for the discontinuation of the previous contraceptive methods. The most frequent reasons included willingness to get pregnant (32.8%) and lack of trust in the contraceptive method (27%). The reasons for choosing Cyclofem included health care providers' recommendation (76.8%), long interval between the required visits for getting the contraceptive method (25.3%), monthly injection, low risk of being forgotten, and willingness to use a new method.

Table 1. Demographic characteristics and obstetric history of the participants

Age (years)		**Education**	
<20	2 (1%)	Illiterate	2 (1%)
20-30	127 (64.1%)	Elementary school	46 (23.2%)
30-40	53 (26.8%)	Primary education	43 (21.7%)
40-50	12 (6.1%)	Secondary education	89 (44.9%)
>50	2 (1%)	Higher	18 (9.1%)
Mean± SD	29.5±6.4		
Occupation		**Spousal occupation**	
Housewife	174 (87.9%)	Employed	29 (14.6%)
Employed	24 (12.1%)	Business	167 (84.3%)
		Unemployed	2 (1%)
Number of pregnancies		**Type of delivery**	
1-2	157 (79.3%)	Vaginal delivery	121 (61.6%)
3-4	32 (16.1%)	Cesarean section	70 (35.4%)
≥ 5	6 (3%)		
		Previous contraceptive method	
Body mass index classification		Oral contraceptive pill	24 (12.9%)
Thin	22 (11.1%)	Intrauterine device	27 (14.5%)
Normal	107 (54.0%)	Condom	35 (18,8%)
Overweight	68 (34.3%)	Depo-medroxy progesterone acetate	5 (2.7%)
Mean±SD	24.63±4.19	Natural	91 (48.9%)
		Nothing	4 (2%)

The overall mean duration of Cyclofem use was about 7.1±8.01 months. Many subjects refused to continue Cyclofem due to its complications. Eventually, only 43 users (21.2%) continued to use this contraceptive method with the mean duration of 13.1±10.41 months. According to the results, the possibility of contraceptive continuation reduced with increased duration of use. Despite the low number of the subjects continuing the use of Cyclofem, this group had longer duration of use than other users (Table 2).

Table 2. Frequency of Cyclofem consumption duration

User groups	Consumption duration				
	1-3 months Number (%)	3-6 months Number (%)	6-9 months Number (%)	9-12 months Number (%)	>12 months Number (%)
All users	92 (46.7%)	39 (19.8)	16 (8.1%)	18 (9.1%)	32 (16.2%)
Continued groups	5 (11.6%)	7 (16.3%)	8 (18.6%)	5 (11.6%)	18 (41.9%)
Discontinued groups	87 (56.4%)	32 (20.78%)	8 (5.19%)	13 (8.44%)	14 (9.09%)

The survival rate of Cyclofem (Figure 1) also showed that the likelihood of survival and endurances reduced with enhanced duration of use. The under- and overweight individuals had a shorter survival rate than those with normal BMI. According to the log-rank test, the survival difference between the groups was statistically significant (P=0.045).

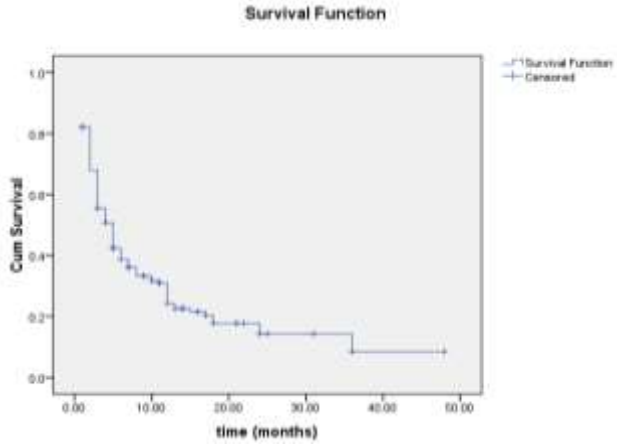

Figure 1. Cyclofem continuity based on time

It is said that the addition of an oestrogen part to DMPA injectable contraceptives regulates menstruation and reduces the side effects (2).

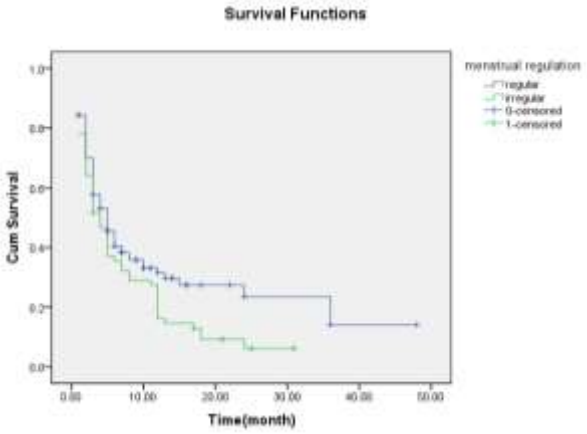

Figure 2. Cyclofem continuity and irregular menstruation

Nonetheless, the most common problems expressed by the subjects were menstrual changes, including irregular menstruation (35.4%), spotting (31.3%), increased menstrual bleeding (71.7%), reduced interval between menstrual bleeding (12.1%), amenorrhea (9.6%), and increased bleeding duration (7.1%). Based on the results of the Log-rank test, the contraceptive

continuity reduced by increased menstrual irregularity (P=0.045) and occurrence of spotting (P=0.20) (figures 2 and 3).

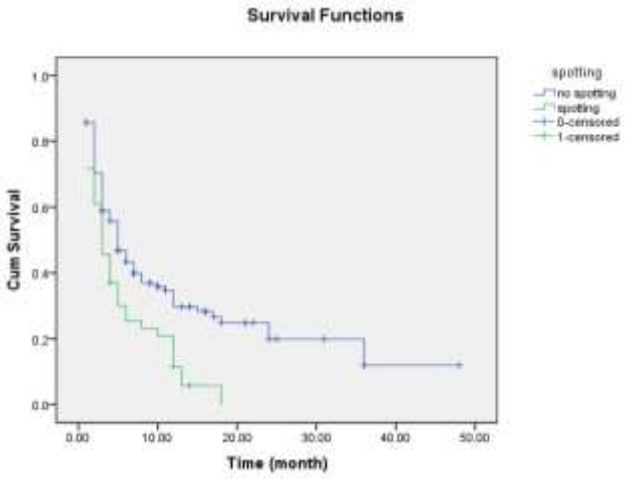

Figure 3. Cyclofem continuity and spotting

Medical complications, including nervousness (14.6%), abnormal headaches (severe or throbbing) (13.1%), and weight gain (12.1%), were the most common reported complications. Although nervousness was a more common disorder among these complications, there was no significant difference between the continued and discontinued groups in this regard (P=0.08) Despite the occurrence of medical complications, 21.7% of the consumers continued using Cyclofem.

Nonmedical problems had a low rate that included personal reasons (8.1%), family objection (4.5%), and willingness to become pregnant (4%). However, the majority of the participants (80.8%) did not have any particular problem for discontinuation. None of the subjects reported such problems as painful injection and moving to a new location. The comparison of the duration of Cyclofem use between the continued and discontinued groups revealed that those using Cyclofem for a longer period were less willing to quit the method (P<0.001).

Discussion

In this study, the mean overall duration of Cyclofem use was 7.1±8.01 months. The discontinued and continued groups had the Cyclofem use mean durations of 5.04±5.6 and 13.1±10.41 months, respectively. In a study conducted in Zahedan, Kerman, and Yazd Universities, the duration of Cyclofem use was reported to be at least six months (15). In another study conducted by Kariman, the Cyclofem continuation rate was 52.9% for a period of 90 days (20). In another study performed on 25 developing countries, the median length of use for injectable methods was very different, ranging from 3.6 (Bangladesh) to 42.4 months (Ukraine) (8).

In the present study, it was observed that Cyclofem consumption rates were 46.7%, 19.8%, 8.1% and 9.1% at the intervals of 3, 6, 9, and 12 months, respectively. The participants aged 20-30 years and those having high school education had the highest contraceptive continuity rate. On the other hand, the lowest rate was reported in the illiterate women and those with academic education.

In a study carried out by Homayunfar, the consumption rates were reported as 44.5%, 26.8%, 18.2%, and 2.3% at the intervals of 3, 6, 9, and 12 months, respectively. The illiterate group had the longest duration of contraceptive use (7.62 months), while those with academic education had the lowest consumption duration (4.31 months). In another investigation, the contraceptive continuity rates were 56%, 37%, 30%, and 27% at the intervals of 3, 6, 9, and 12 months, respectively (3). In a study conducted in Kenya, these rates were reported as 83%, 70%, 61%, and 56% at the intervals of 3, 6, 9, and 12 months, respectively (9).

In a study performed by Pandis, about 80% and 66% of the users continued using contraceptives at the end of 6 and 12 months, respectively (21). In the studies conducted in Vietnam (15), Kenya, Egypt (18), and Karachi, the contraceptive continuation annual rates were 74%, 56.5%, 63.2%, and 42.4%, respectively (13, 15). Hall reported that the continuation rate ranged within 42.3% to 52% (13). In another study, he demonstrated that the overall 12-month life table discontinuation rates ranged between 33.5% and 71.8% in different cities (22).

In line with this study, all of the above studies reported the reduction of continuation rate over time. The discrepancies between the percentages presented by the aforementioned studies could be due to the difference in sample size, cultural differences, economic status of each social community, and provision of counselling prior to Cyclofem prescription. One of the major side effects associated with contraceptives, especially the hormonal methods, is disturbance in the menstrual bleeding pattern.

Salah revealed that two-thirds of long-term contraceptive users had irregular bleeding (1). Speroff, Rezay Soltani, and Parsae stated that this rate was 80% (6, 23). In the WHO sessions held in 1981, menstrual bleeding problems were identified as the main reasons for contraceptive discontinuation (24). Bleeding pattern can vary from once-a-month bleeding, no bleeding, intermenstrual spotting, as well as frequent and prolonged bleeding to unpredictable bleeding (5).

Despite the positive effects of Cyclofem, one of the most important side effects, resulting in contraceptive discontinuation, is the persistence of irregular bleeding (9, 10, 12, 14, 19).

In a study performed by Jamali, 50% of the Cyclofem users discontinued the method because of menstrual changes and their desire to use another method (11). Likewise, in the present study, menstrual change was the most common problem expressed by the subjects. The median values for 19 countries and the cause-specific discontinuation probabilities for all contraceptive methods were reported as 40.6%, 62.8%, and 77.1% in the months 12, 24, and 36 per 100 episodes, respectively. In the mentioned study, contraceptive side effects were recognized as the most important reason of discontinuation by 26.9%, 39.8%, and 50.6% of the participants in the months 12, 24, and 36, respectively (8).

In a study conducted by Eslamloo, the continuation rate of Cyclofem at the end of the 12th months was 36.2%, and the most common reason for this discontinuation was the problems associated with irregular menstrual bleeding (25). Thelma et al. reported that amenorrhea, infrequent bleeding, frequent bleeding, irregular bleeding, and prolonged bleeding accounted for 8.9%, 17.8%, 4.4%, 17.8%, and 6.7% of the discontinuation rate, respectively (26).

Likewise, other studies reported increasing or decreasing rate of menstrual cycles (15, 19, 27), prolonged menstrual bleeding (4, 19, 28), and irregular bleeding (10, 15). The discontinuation rates due to menstrual disturbances vary from 5.1 to 9.2 (14). The significant difference in the rate of complications and problems can be ascribed to dose-dependent differences in populations, number of follow-ups by healthcare providers, unavailability of Cyclofem, and the need to visit health centres (which in most cases have no Cyclofem).

Irregular uterine bleeding can be resolved within the first 2-3 months and in a maximum period of one year (23). Accordingly, menstrual changes can gradually reduce; 70% of the combined injectable contraceptive (CIC) consumers will experience regular menstrual bleeding in the first year (27). In a study carried out by Kerman University of Medical Sciences, Kerman, Iran, menstrual bleeding disorder reduced from 83% in the first quarter to 10% in the second quarter of consumption period (15). Kaunitz reported that the majority of the women experiencing regular bleeding after three months had predictable bleeding patterns (29). It has been suggested that the consumers should be encouraged to continue Cyclofem use for a longer time.

Although amenorrhea is not common a complication among the CICs consumers (incidence rate of 3%), it can be a reason for contraceptive discontinuation (12, 27). In this

study, 9.6% of the Cyclofem users experienced amenorrhea. Different rates have also been reported in other studies. For example, in a large multicentre WHO report and the studies conducted by Ruminijo, Homayounfar, Safavi, and Kaunitz,amenorrhea had the incidence rates of 3.2%, 20.8%, 6.97%, 6.52%, and 4%, respectively (3, 19, 29, 30, 32); nonetheless, Pahlevani did not report any cases (10).

The annual rate of contraceptive discontinuation caused by amenorrhea varies greatly among the countries. These rates are reported to be 3.4%, 3.8%, 8%, and 5.1-23.2% in Brazil, Karachi, Colombia, and various clinics in Chile, respectively (13, 14, 19). The reason of this variety can be ascribed to the fact that menstrual changes differ significantly among various cultures. The women who consider menstruation as a sign of health are more likely to withdraw using birth control methods due to amenorrhea.

However, medical side effects are not common reasons for contraceptive discontinuation. In this study, 34.3% of the consumers reported medical problems, including nervous disorders (14.6%), headache (13.1%), and weight gain (12.1%). Likewise, the medical side effects reported in other studies were headache (15-18, 21), dizziness (8, 13, 21), weight gain (11, 15), breast tenderness (3, 4, 11, 19, 30, 32), spotting (4, 11, 18, 19), nausea (15, 18, 21), vomiting (4), hypertension (4), and allergy (4). Different statistics have been reported regarding the rate of medical problems and menstrual changes. In a study performed by Hassanzadeh et al., medical problems had the incidence rate of 3.8% among the Cyclofem users (4). In the study of Hall, the discontinuation rate due to medical reasons ranged within 7.8-26.3 (13).

The non-medical problems are sometimes the cause of discontinuation. In this regard, Ruminijo reported some nonmedical reasons for the discontinuation of contraceptive use (76%), such as the difficulty of having clinical visits (45.1%), inability to visit health centres during the due period of injection (32%), need for frequent referrals (9%), high frequency of clinic visits (8.5%), and transportation problems (6.8%). In the study of Hall, the contraceptive discontinuation rates due to personal reasons varied within 17.2-23.5 (13). In the current study, 21.7% of the subjects continued using Cyclofem for at least one year regardless of its medical or nonmedical side effects.

As indicated in many studies, Cyclofem consumption continues along with the gradual reduction of the problems. The percentage of discontinuing a contraceptive method by the users in the first 12 months is higher than that in the subjects persisting in using it for 12 months but stop it before the 24th month. The conditional probability of stopping contraceptive use between the 24th and 36th still tends to be slightly low (8). For instance, in an American survey conducted in 2005, the probability rates of contraceptive discontinuation were 31%, 24%, and 18% in the first, second, and third years of its consumption, respectively (6).

In a study conducted in Kerman University of Medical Sciences, the rate of adverse events decreased in the second quarter of the consumption period (15). Furthermore, in the study of Hall, the rate of contraceptive discontinuation was lower in the second year of consumption, compared to that in the first year (13).

Globally, 33 million accidental pregnancies are estimated to occur among the women reportedly using either traditional or modern contraceptive methods (32). Strong family planning programs, a wide range of available methods, adequate counseling, informed choice of method, easy access, and proper follow-up services are found to be associated with the consistent and satisfied use of a birth control method (32). Contraceptive counseling method should include the potential benefits and adverse effects of proposed methods and their available alternatives (8).

Concerns about the side effects of the contraceptive methods, particularly hormonal methods, remain the major reason of discontinuation or switch to other less effective methods (8). Therefore, it is critical to provide the women wishing to control their fertility with counseling about the ways of managing the side effects and information about the options for switching to other methods (8).

In a study carried out in the USA, the degree of contraceptive continuation in the women

who had received information about the effectiveness and side effects of the method before the procedure were 2.5 times more than that in the females who did not receive any information in this regard (4). In the present study, the females who were recommended to use Cyclofem were more likely to continue using this method, compared to those selecting Cyclofem due to other reasons; however, the difference was not statistically significant.

The future studies are recommended to investigate the effect of training and counseling during Cyclofem use on the prevention of various complaints about the possible side effects. One of the limitations of this study was the impossibility of the accurate recognition of genital problems, resulting in menstrual problems. Another limitation was the synchronization of the study period with Ramadan month, which caused the females to discontinue using Cyclofem due to the history of spotting or replace it with continued low-dose oral contraceptive pills for the prevention of menstruation in this month.

Conclusion

Considering the numerous advantages of Cyclofem, compared to those of other birth control methods, it is recommended to give special attention to the symptoms reported by clients and other side effects in order to prevent from its discontinuity. Since the most commonly reported reason for the discontinuation of Cyclofem intake was its possible side effects (i.e., menstrual changes as well as medical and nonmedical problems), especially menstrual changes (35.4%), the healthcare providers should elaborate on the adverse effects of this contraceptive method on menstruation prior to the consumption initiation.

Consequently, the enhancement of people's awareness in this regard would decrease the discontinuation rate, and thereby prevent the negative outcomes, such as unintended pregnancies.

Further studies are recommended to compare the sustainability of Cyclofem consumption between two groups provided with customary and specialized consultation just before Cyclofem use.

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Conflicts of interest

Authors declared no conflicts of interest.

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