

Reasons for Continuation or Discontinuation of IUD in Postplacental/Early Postpartum Periods and Postpuerperal/Interval Periods: One-Year Follow-Up

Postplasental/Erken Postpartum ve Postpuerperal/İnterval Dönem RİA Uygulamalarında Yönteme Devam Etme ve Etmeme Nedenleri: 1 Yıllık İzlem Sonuçlarının Karşılaştırılması

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ABSTRACT Objective: To compare postplacental and early postpartum intrauterine device (IUD) insertions with postpuerperal and interval IUD insertions regarding the reason for continuation and discontinuation. **Material and Methods:** A study of 130 women (84 postplacental and 46 postpartum) and a control group of 138 women (62 postpuerperal and 76 interval) who had T Cu 380A IUDs inserted were followed-up at 8 weeks and 6 and 12 months, and the data was analyzed. **Results:** Continuation occurred in 38.6% of the study group and in 72.3% of the control group ($p < 0.001$). The highest continuation rate was in interval, postpuerperal and postplacental groups respectively ($p < 0.05$). The reason for discontinuation was frequently partial expulsion in the study group (52.6%) and displacement in the control group (27.8%). The insertion time of IUD most frequently discontinued was postplacental in the study group (55.2%) and interval in the control group (31.3%). **Conclusion:** The results of this study suggest that the postplacental and early postpartum IUD insertion techniques should be re-evaluated in units that offer this service to decrease the rate of discontinuation due to complications.

Key Words: Contraception; postpartum period; intrauterine devices, copper; intrauterine device expulsion; maternal-child nursing

ÖZET Amaç: Postplasental ve erken postpartum dönemde rahim içi araç (RİA) uygulamaları ile postpuerperal ve interval RİA uygulamalarında, yönteme devam etme ve etmeme durumunun karşılaştırılması. **Gereç ve Yöntemler:** T Cu 380 A tipi RİA uygulanmış 130 kadın çalışma grubuna (84 postplasental, 46 erken postpartum) ve 138 kadın da kontrol grubuna (62 postpuerperal, 76 interval) alınmış, uygulamayı takiben 8. hafta, 6. ve 12. ay izlemleri gerçekleştirilmiş, izlem sonrasında elde edilen veriler değerlendirilmiştir. **Bulgular:** Çalışma grubundaki kadınların %38.6'sında, kontrol grubundaki kadınların ise %72.3'ünde 1 yıl sonunda RİA'nın yerinde olduğu saptanmıştır. Devam etme hızı sırasıyla interval, postpuerperal ve postplasental RİA uygulanan gruplarda en yüksek saptanmıştır ($p < 0.05$). RİA'ya devam etmeme nedeni, çalışma grubunda en sık kısmi atılma (%52.6), kontrol grubunda ise yer değiştirme (%27.8) olarak belirlenmiştir. RİA uygulama zamanına göre karşılaştırıldığında RİA'ya devam etmeme oranı, çalışma grubunda postplasental RİA grubunda (%55.2), kontrol grubunda ise interval RİA grubunda (%31.3) en yüksek bulunmuştur. **Sonuç:** Postplasental ve erken postpartum RİA uygulama teknikleri, aile planlaması ünitelerinde ve diğer ilgili birimlerde yeniden değerlendirilerek komplikasyonlara bağlı devam etmeme hızlarının azaltılması sağlanabilir.

Anahtar Kelimeler: Kontrasepsiyon; postpartum dönem; rahim içi araç, bakır; rahim içi araç çıkarılması, doğum ve yenidoğan hemşireliği

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In developing countries the postpartum period is not considered a major opportunity to help women choose an effective contraceptive method. This is a missed opportunity because women generally do not return to

the clinic in the postpartum period until they are pregnant again. No counseling for Family Planning (FP) results with a new and usually unwanted pregnancy within 1-2 years. Thus, the postpartum period, when motivation is at its peak, is the ideal time to starting contraception.¹

Intrauterine device (IUD) is a long-term method of contraception. Studies reported that 70-90 out of 100 women were using the TCu 380A.² In addition, seven years after insertion 25 to 44 out of 100 women continued with the TCu 380A.² A study by Gu et al revealed that IUD was the first choice of 2880 women in East China after their first delivery.³

In Turkey, the interval period is the most preferred time for IUD insertion. Postplacental and early postpartum IUD insertion is available in some centers in limited numbers. In a study done by Özvarış and Akın, in the early postpartum period 24.6% of women's contraceptive method choice was IUD.⁴ This suggests that, IUD might be selected in the postpartum period with appropriate antenatal and/or intrapartum counseling and clinical services in our country. The use of IUD, which is the most preferred among all effective methods, in the postpartum period, will cover the majority of unmet needs.

Disadvantages of postpartum IUD, such as expulsion, infection, perforation and bleeding and the fact that women have to refer to health centers for reinsertion after expulsion have a negative effect on the effectiveness and the continuation rate of the method.^{2,5-10} The purpose of this study was to determine the reasons of continuation or discontinuation of the IUD inserted in the postplacental, early postpartum, postpuerperal and interval periods after one year.

IUD can be inserted at any time that is appropriate for the woman and at any part of the menstrual cycle of a woman who is not pregnant. The first 10 days of the cycle are preferred to be sure that the woman is not pregnant. The administration of an IUD during this period is called interval administration.¹¹

MATERIAL AND METHODS

This experimental study was conducted at a maternity hospital FP clinic and maternity units between June 1 and September 30, 2000. Specially trained nurses gave counseling on FP methods to women with at least 32 weeks of gestation, who presented for antenatal outpatient care. At the end of the counseling session, women who decided to receive postplacental and early postpartum IUD insertions formed the study group. Women who decided to have postpuerperal-interval IUD insertions in postnatal services and in the FP clinic made up the control group.

Sample size was calculated as 137 according to the method to estimate the population proportion. The final study group consisted of 130 women, of whom 84 had postplacental (59 vaginal and 25 cesarean) and 46 had postpartum IUD insertion. The control group consisted of 62 postpuerperal and 76 interval women (total number: 138). Excluding 3 early postpartum, 2 postpuerperal, and 6 interval (total 11) women who were lost to follow-up, all patients were followed-up for one year and complications were recorded.

Routine gynecological examination was performed after IUD insertion at 4 weeks for all women. Nurses attended the follow-up visits at 8 weeks, 6 months and 12 months after IUD insertion. Bleeding twice as much as the previous menstrual cycles was considered heavy bleeding.

The statistical analysis was carried out using the Chi-square test and the Fisher's exact test by using SPSS 11.0 package program for Microsoft. In this study, the technique for IUD insertion was standard in the hospital and postplacental TCu 380A type IUDs were inserted using ring forceps by the trained doctors and nurses.

Postplacental insertions were carried out within 10 minutes after expulsion of the placenta after vaginal delivery or removal of the placenta in cesarean section. Early postpartum insertion was carried out within 72 hours after delivery while the mother was still at the hospital; postpuerperal insertion was the insertion of IUD 6 weeks after va-

ginal delivery or 8 weeks after cesarean section and interval insertion was the insertion of IUD other than these described periods.

All women signed an informed consent form after detailed information was given at the time of recruitment. The study was approved by the local ethics committees.

RESULTS

Most women in both groups were in the 20-29 age group [study group (S) 71.5%, control group (C) 57.3%]. In the study group 10.8% and in the control group 22.5% of the women had at least one pregnancy termination. No statistically significant difference was found between the two groups for any of the descriptive characteristics except for age and number of induced abortions. Considering study and control groups, there was no statistical difference ($p > 0.05$) between groups, except for age, living children and decision on the number of children.

The majority of the women in all groups (postplacental, early postpartum, postpuerperal and interval) were between 20-29 years old, more than half were primary school graduates, the majority were not employed, did not have a history of abortion or stillbirth, did not want any more children and decided on the number of children with their husbands. More than half of the women had experienced two or more pregnancies in all groups except the postpuerperal group and more than half had two or more children in all groups except the postplacental and postpuerperal groups. A statistically significant difference was present for age, number of pregnancies, number of living children and decision about the number of children between the groups regarding IUD insertion time ($p < 0.05$). However, no statistically significant difference was found for educational level, employment status, having a miscarriage or abortion, having a stillbirth and the desire for another child ($p > 0.05$).

At 8 weeks of follow-up 62.4% of the study group and 88.3% of the control group, at 6 months of follow-up 78.8% of the study group and 91.6% of the control group, and at 12 months of follow-up

79.0% of the study group and 90.4% of the control group seemed to continue with their IUDs (Table 1). While this difference between groups was significant at 6 weeks and 6 months follow-up ($p < 0.05$), there was no significant difference at 12 months ($p > 0.05$).

Table 1 shows that at the end of one year 38.6% of the study group had continued with their IUDs compared to the high percentage of 72.3% for the control group. This difference between the experimental and control groups for continuation of IUD after one year was statistically significant ($p < 0.05$) (Table 1).

As shown in Table 2, there was a striking finding of 55.8% discontinuation rate for the early postpartum group on the first nurse follow-up, visit and 28% for the postplacental group. On the second and third nurse visits, the IUD discontinuation rate for the early postpartum group (42.1% on the 2nd and 36.3% on the 3rd follow-up visit) and for the postplacental group (14.8% on the 2nd and 17.6% on the 3rd follow-up visit) was higher than for the other groups. There was a statistically significant difference between the IUD insertion periods for IUD continuation status on the first, second and third nurse follow-up visit ($p < 0.05$).

The distribution of IUD continuation status of the women at the end of one year according to the IUD insertion period was shown in Table 2 indicating that 83.7% of the women in the early postpartum group, 50.0% of the women in the postplacental group and 33.3% of the women in the postpuerperal group were continuing with the IUD method. The table did not show that 52% of the women in the caesarean group continued. The rate of continuation of IUD was high in interval group (77.1%) at the end of one year, followed by postpuerperal (66.7%) and postplacental (50.8%) groups. A statistically significant difference was found between the insertion periods for the continuation status of IUD after one year ($p < 0.05$).

Table 3 showed that the reason for discontinuation was partial expulsion in 55%, complete expulsion in 25.6%, and displacement in 14.1%. In the control group, 27.8% of women in the control

TABLE 1: Continuation status according to groups.

Follow-up/ Continuation of IUD	8 weeks *		6 months**		12 months***		One year****									
	S (n= 125)	C (n= 137)	S (n= 80)	C (n= 119)	S (n= 62)	C (n= 104)	S (n= 127)	C (n= 130)								
	n	%	n	%	n	%	n	%								
Discontinued	47	37.6	16	11.7	17	21.2	10	8.4	13	21.0	10	9.6	78	61.4	36	27.7
Continued	78	62.4	121	88.3	63	78.8	109	91.6	49	79.0	94	90.4	49	38.6	94	72.3
Statistics	p = 0.000		p= 0.009		p= 0.067		p = 0.000									

E: Experimental group, C: Control group

* At the 1st follow-up 3 women from the experimental and 3 from the control groups for a total of 6 women could not be reached. Mean length of time at 1st follow-up was 66.7 days.

** At the 2nd follow-up 1 woman from the experimental and 2 from the control groups for a total of 3 women could not be reached. Mean length of time at 2nd follow-up was 182.8 days.

*** At the 3rd follow-up 4 women from the experimental and 7 from the control groups for a total of 11 women could not be reached. One of the women who could not be reached at the 2nd follow-up was reached for the 3rd. Mean length of time at the 3rd follow-up was 367.6 days.

**** At the end of year: 3 women in the experimental and 8 women in the control groups for a total of 11 women could not be reached. In the study it was determined that there were 3 displacement case, 4 PID, 2 bleeding problems, however they were continuing with IUD.

group discontinued using IUD due to displacement within the uterus, 19.4% due to bleeding and 13.9% due to complete expulsion.

The reasons for IUD discontinuation at the end of one year according to the IUD insertion period was shown in Table 3. The primary reasons were partial expulsion and expulsion for the post-placental period (55.2%, 31.0%), early postpartum period (61.1%, 22.2%) and for the caesarean group of women (23.1%, 23.1%). Displacement within

the uterus was the highest (46%) in the caesarean group, and was 31.3% in the interval and 25% in the postpuerperal groups. Problems with bleeding were the top two reasons for postpuerperal (20%) and interval (18.8%) group women. In addition, it is noteworthy that 15% of the women in the post-puerperal group did not continue using IUD because they became pregnant.

Erosion and myoma were not considered reasons for discontinuation in the postplacental, early

TABLE 2: Continuation status according to time of insertion of IUD at the nurse visit.

Follow-up/ Continuation of IUD	PP ****		EP		P		I		Statistics								
	Discontinued	Continued	Discontinued	Continued	Discontinued	Continued	Discontinued	Continued									
	n	%	n	%	n	%	n	%									
8 weeks *	23	28.0	59	72.0	24	55.8	19	44.2	11	17.7	51	82.3	5	6.7	70	93.3	p= 0.000
	n= 82		n= 43		n= 62		n= 75										
6 months **	9	14.8	52	85.2	8	42.1	11	57.9	4	8.2	45	91.8	6	8.6	64	91.4	p= 0.001
	n= 51		n= 11		n= 45		n= 59										
12 months ***	9	17.6	42	82.4	4	36.3	7	63.7	5	11.1	40	88.9	5	8.5	54	91.5	p= 0.080
	n= 84		n= 43		n= 60		n= 70										
One year****	42	50.0	42	50.0	36	83.7	7	16.3	20	33.3	40	66.7	16	22.9	54	77.1	p= 0.000

PP: Postplacental EP: Early Postartum P: Postpartum I: Interval

* At the 1st Follow-up, 3 early postpartum women, 2 postpuerperal, and 1 interval, for a total of 6 women could not be reached. The mean length of time at the 1st follow-up was 66.75 days.

** At the 2nd follow-up 1 woman with early postpartum insertion and 2 postpuerperal for a total of 3 women could not be reached. Mean length of time at the 2nd follow-up was 182.88 days.

*** At the 3rd Follow-up 1 woman postplacental insertion, 3 early postpartum, 2 postpuerperal, and 5 interval for a total of 11 women could not be reached. One woman who could not be reached at the 2nd follow-up were reached at the 3rd follow-up. Mean length of time at the 3rd follow-up was 182.88 days

**** The caesarean group was included in the postplacental group. The Mean length of time at 3rd follow-up was 367.68 days.

**** In the study 3 women in early postpartum insertion group, 2 postpuerperal, and 6 interval for a total of 11 women could not be reached.

TABLE 3: Reasons for IUD discontinuation at the end of one year.

Causes	PP ****		Cesarean		EP		Study		P		I		Control		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
	n= 29		n= 13		n= 36		n= 78**		n= 20		n= 16		n= 36**		n= 114**	
Partial expulsion	16	55.2	3	23.1	22	61.1	41	52.6	1	5.0	3	18.8	4	11.1	45	39.5
Complete expulsion*	9	31.0	3	23.1	8	22.2	20	25.6	2	10.0	3	18.8	5	13.9	25	21.9
Uterus perforation	-	-	-	-	-	-	-	-	3	15.0	-	-	3	8.3	3	2.6
Displacement in uterus	1	3.4	6	46.0	4	11.1	11	14.1	5	25.0	5	31.3	10	27.8	21	18.4
Removed at request	2	6.9	-	-	-	-	2	2.6	-	-	-	-	-	-	2	1.8
Erosion	-	-	-	-	-	-	-	-	1	5.0	-	-	1	2.8	1	0.9
Pregnancy*	1	3.4	1	7.7	2	5.6	4	5.1	3	15.0	1	6.3	4	11.1	8	7.0
Bleeding	1	3.4	1	7.7	1	2.8	3	3.8	4	20.0	3	18.8	7	19.4	10	8.8
Myoma	-	-	-	-	-	-	-	-	1	5.0	1	6.3	2	5.6	2	1.8

PP: Postplacental EP: Early Postartum P: Postpartum I: Interval

* The reason for discontinuation for 2 women in the study who became pregnant after complete expulsion of IUD was evaluated as complete expulsion of IUD and not as pregnancy.

** Because there was more than one reason for women the percentage was taken according to n (it was determined that 2 women had bleeding-displacement in uterus,

1 woman had partial expulsion and bleeding, and 2 women had PID and partial expulsion.

postpartum and caesarean group women, but erosion and myoma constituted a reason for 5% of the women in the postpuerperal group. Only two women in the postplacental group discontinued contraception with IUD on their own request.

DISCUSSION

There is a major need for FP methods to be used in the postpartum period and this time is an excellent opportunity to make the necessary evaluations for this service.⁴ In developing countries and in particular in the rural or semi-urban areas women with limited resources have difficulty reaching to a family planning clinic or a Mother-Child Health-Family Planning Center after childbirth. This emphasizes the need and importance of providing family planning services in the postpartum period. In addition, it is an indisputable fact that postpartum family planning methods have an effect on decreasing costs.

Other studies have also shown that family planning services were required in the early postpartum period.¹¹ The preferred times for IUD insertion in Turkey are particularly the interval period followed by the postpuerperal period. Post-

placental and early postpartum IUD insertion is available in some centers in limited numbers. In a four-year study conducted by the Turkish Demographic Health Survey, starting from 1988 to the present IUD was the most effective contraceptive method in our country. Thus, IUD may be a preferable method in the postpartum period when offered with appropriate antenatal and/or intrapartum period counseling and within clinical services in the postpartum period. Another study determined that, following a counseling program concerning postpartum period contraceptives, more than half of the women started to use a contraceptive method; the incidence of contraceptive use increased from 7% to 55%.¹² Üstün et al also showed that IUD was the first choice of women who participated in a training and counseling program on family planning methods.¹³ A Turkish study conducted in the early 1990s found that 95% of postpartum and 88% of postabortal women were willing to use a contraceptive method immediately after termination of pregnancy; however, more than 70% of the women who were admitted for delivery or termination of pregnancy left the institution without receiving a contraceptive method.¹⁴ It has been reported that the contraceptive prevalen-

ce in a center providing postpartum IUD was 82%; however, in a center not using the practice the prevalence was 69% and that a 13% increase could be achieved.⁶ In addition, providing postpartum IUD services in a hospital seemed to encourage the use of an effective contraceptive method six months after childbirth.⁷

Family planning services after childbirth and miscarriage were included in the Health Ministry's National Activities Plan for 1998. In the plan, ensuring the use of an effective method was predicted to decrease to the minimum of unmet contraceptive services requests. However, studies on increasing the use of immediate postpartum family planning in Turkey are limited. There is practically no research conducted on immediate postpartum IUD insertion. Thus, it is important to discuss the results of this study.

The rapid closure of the gap that exists in access to effective methods of contraception is an important intervention in the protection of mother-child health. In addition, the need for new approaches and strategies in FP services was demonstrated.

The Indonesian national family planning program statistics have shown that 65-75% of IUD users continued with the same method after three years.² A number of studies reported that 70 to 74% of the GYNE-T 380 A IUDs were still being used after one year.² In a study conducted by the World Health Organization (WHO), the rate of IUD continuation was 88.2% after 12 months. In another study with women who used TCu 380A the continuation rate was 89.9% for IUD after one year.^{15,16}

In our study, 55.6% of the women in both groups continued with their IUDs after one year (Table 1). This suggests that the continuation rate in our study was lower than that reported in the literature. Review of the literature revealed that no study examined IUD use in the postplacental, cesarean, early postpartum and interval periods concurrently. The rate of women in our study in the study group who continued to use IUD at the end of one year was significantly lower than that in the control group (Table 1). In addition, the percenta-

ge of IUD continuation continued to increase on the follow-up visit at 8 weeks, 6 months and 12 months; the percentage in the control group was significantly lower compared to the study group, particularly at 8 weeks and 6 months of follow-up (Table 1). Çelen et al found higher continuation rates of postplacental T380 Cu 380A at week 3 (94.3%), month 6 (87.6%), and year one of follow-up (76.3%).¹⁷

In the analysis of IUD use according to period of insertion, the IUD discontinuation rate for women who preferred the early postpartum period was significantly higher than for the other periods for all three follow-up times (Table 2). It is also noteworthy that the IUD continuation rate for women who preferred the postpuerperal and interval periods (control group) was significantly higher than in the study group (Table 2).

The primary disadvantage of postpartum IUD insertion is that the rate of expulsion from the body is twice as high as the interval insertion. The risk of expulsion for postpartum IUD use varies between 4-60%.⁵ Studies reported that 2-8% of IUDs were spontaneously expelled within the first year of use.^{2,18} Eroğlu et al found that early postpartum insertions (IPP and EP insertion) of the TCu 380A IUD was an effective and convenient procedure and expulsion rates in these groups were higher than in the interval groups. In conclusion, they mentioned that further studies were necessary to determine the cause of the higher expulsion rates and to find ways to reduce such rates.¹⁴ In this study, although the women in the study group had more expulsion problems than the control group, the rate was high for both groups compared with the literature (Table 3). In addition, it was a noteworthy finding that reasons for IUD discontinuation, such as uterus perforation, myoma, and erosion in the control group were not experienced in the study group.

In the literature, the perforation rate with postpartum IUD was reported to be lower than interval IUD but there was no report on perforation with insertion during caesarean.⁶ Uterine perforation as an unusual complication may cause extrau-

terine mislocation. Seven cases that were diagnosed and treated as extrauterine mislocated IUD in a clinic between 1997 and 2004, were evaluated retrospectively by İnceç et al. Four were lactating at the time of IUD placement. In conclusion, they recommended that insertion of IUD should be controlled because of the potential risk of uterine perforation with or without symptoms.¹⁹ Perforation of the uterus by an IUD is a serious complication and this is possible both during the insertion and later. The review was based on the analysis of 441 cases reported in the literature from 1969 to 2004 by Köşüş et al. They showed that the IUD had been inserted in the intermenstrual period in 63.9% of cases. Most of the perforated IUDs were Copper T and Lippes Loop.²⁰ The ring forceps that are used in postpartum placement are larger than those used in interval placement are; thus, the possibility of perforation is lower. Reports indicated that the majority of perforations could be prevented with careful insertion techniques.^{6,18} Postpartum IUD use is not appropriate for women who have submucosal uterine myomas. Cervical erosion, however, is not an obstacle to IUD use after Pap smear is obtained and necessary treatment is given. Cervical erosion and myoma developed after IUD insertion in this study because IUD was used in women who did not have an indication for IUD.

The higher rate of expulsion and uterus perforation in the postpartum group and the discontinuation of IUD due to these factors suggest that these may be the result of IUD insertion technique. These results also suggest that, although early postpartum IUD insertion was routinely performed at the hospital where the study was conducted, the health care personnel carrying out the procedure were still being trained and may not have had sufficient experience.

In the study conducted by Sastrawita et al, in women using TCu 380A the rate of discontinuation due to unexpected pregnancy at 12 months was 0.4%.²¹ Çelen et al found lower pregnancy rates of postplacental TCu 380A IUD.¹⁷ In the WHO study,

the pregnancy rate with IUD was 0.8%. The rate of pregnancy in our study was higher than in the literature for both the study and the control groups. In this study, the rate of displacement within the uterus in the study group was higher than in the control group.

IUD discontinuation rate due to bleeding was reported to be lower in interval IUD users and that women did not consider their IUDs a reason for bleeding since they accepted bleeding to be a characteristic of the postpartum period. The percentage of women who discontinued IUD because of bleeding in the study group was consistent with the literature, but the percentage of those discontinuing in the control group was quite low (Table 3). Erler et al showed that there was a significant problem with menstrual irregularity at one year of follow-up after interval IUD application and that one woman discontinued using the method because of a bleeding problem.²² Researchers have drawn attention to the finding that discontinuing the use of IUD could be prevented with patient education, close monitoring and medical treatment of the problem.

CONCLUSION

It is recommended that postplacental and early postpartum IUD insertion techniques be re-evaluated in units offering this service, continuing education programs be organized for improving the knowledge, motivation and skills of the health care personnel who insert postpartum IUDs, and thereby decreasing the expulsion complication rate, postplacental and early postpartum IUD insertion procedures would become a more effective part of the postpartum family planning services.

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