

Women's Contraceptive Use and Preferences Following Postplacental, Early Postpartum, and Interval Intra Uterine Device Insertion in Turkey: A 10-year Follow-up Study*

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ABSTRACT

Intra-Uterine Device (IUD) was one of the most preferred and known, also potentially effective contraceptive methods for meeting women's unmet contraceptive needs for a long time. A retrospective cohort type study evaluated data of a total of 44 women who could be reached by phone call 10 years after the initial insertion of an IUD. In the immediate post placental group and the early postpartum group, the most frequently continuation period was found between 1-3 years. Almost all the women (90.9%) stated that they were satisfied with the method. Among the reasons for discontinuation to IUD were partial expulsion and desiring pregnancy in the immediate post placental and early postpartum groups. The condom was determined the most frequently reported contraceptive choice at the 10 years follow-up, across groups. Although there were very low the number of women reached in this study, it is first long-term (10 years follow-up) a retrospective cohort type follow-up study that compares the use duration and preference of the method according to the time of application of the IUD both in Turkey and in the world. Further studies are needed to conduct monitoring with regular follow-up of contraceptive continuation, especially for postpartum intrauterine device insertions.

Key words: Contraception, Copper IUDs, Follow-up, Postpartum, Retrospective cohort.

Türkiye'de Postplasental, Erken Postpartum ve İnterval Rahim İçi Araç Uygulanan Kadınların Kontraseptif Kullanımı ve Yöntem Tercihleri: 10 Yıllık İzlem Çalışması

ÖZET

Rahim İçi Araç (RIA), kadınlar tarafından en çok tercih edilen ve bilinen, aynı zamanda karşılanamayan kontraseptif yöntem ihtiyacını uzun süre karşılama potansiyeli olan etkili yöntemlerden biridir. Retrospektif kohort tipte yapılmış olan çalışmada; ilk RIA uygulamasından 10 yıl sonra telefon görüşmesiyle ulaşılabilen 44 kadının verileri değerlendirilmiştir. Postplasental ve erken postpartum gruptaki kadınların çoğunun RIA'ya devam etme süresi 1-3 yıl arasında bulunmuştur. Kadınların tamamına yakını (% 90.9) yöntemden memnun olduğunu ifade etmiştir. Postplasental ve erken postpartum gruplarda RIA'ya devam etmeme nedenleri arasında ilk sırayı kısmi atılma ve gebelik isteği almıştır. On yıllık takibin sonunda, gruplar arasında en sık tercih edilen kontraseptif yöntemin kondom olduğu saptanmıştır. Bu çalışma; ulaşılan kadın sayısı çok az olmasına karşın hem Türkiye'de hem de dünyada RIA'nın uygulanma zamanına göre yöntem kullanma süresi ve tercihini karşılaştıran ilk uzun süreli (10 yıllık izlem) retrospektif kohort tipi izlem çalışmasıdır. Postpartum RIA başta olmak üzere, kontraseptif yöntem devamlılığı konusunda daha fazla izlem çalışmasına ihtiyaç vardır.

Anahtar kelimeler: Bakırlı RIA, İzlem, Postpartum Retrospektif kohort.

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INTRODUCTION

The postpartum period has several potential benefits for implant insertion or IUD placement because women are known not to be pregnant and many women are motivated to avoid short-interval pregnancy (The American College of Obstetricians and Gynecologists, 2016). Once inserted, the IUD can be used for a long period of time; the TCu 380A can be used for up to 10 years. The IUD is a cost-effective, useful contraceptive method. Especially for low- and middle-income countries, these characteristics of the IUD are very important. The IUD is also potentially effective for meeting Turkish women's unmet contraceptive needs (The American College of Obstetricians and Gynecologists, 2011).

Postpartum IUD insertion can meet women's birth control needs and contribute to a reduction in healthcare costs (Erođlu et al., 2006, Washington et al., 2015). A recent cohort study has suggested that IPP (immediate post placental) insertion is effective and convenient, even though expulsion rates are higher than with interval (INT) insertions (Erođlu et al., 2006). The IUD insertion in the postpartum and post-abortion periods has several advantages, including the high motivation of women, easiness of insertion, and availability of skilled personnel and appropriate facilities. Past studies have demonstrated that postpartum IUD insertion is preferable in terms of safety aspects, including side effects and complication rates, such as pain, hemorrhage, expulsion, perforation, and pregnancy with the device inserted (Erođlu et al., 2006; Grimes et al., 2006; Jacobson et al., 2011; Whitaker et al., 2014). However, randomized controlled studies comparing implantation of the IUD immediately after placenta with early postpartum (EP) or intermittent placement lack in the literature (Grimes et al., 2010).

The postpartum period is an ideal time to start birth control by effective information, consultancy, and communication services. If women are given counseling, they will be highly motivated to use contraceptives during the postpartum period. IPP IUD insertion is beneficial for women who desire early contraception or have difficulty returning for postpartum contraceptive visits (Bilgili et al., 2006, Sonalkar and Kapp., 2014). However, a study conducted by Senturk Erenel et al. (2011) found that only 6.5% of women

in Turkey used contraceptive methods in the postpartum period (Senturk Erenel et al., 2011). This contrasts with the work of Yilmazel and Balcı (2013), which found that 86.4% of pregnant women in Turkey reported that they intended to use a contraceptive method in the postpartum period and that the IUD was the most preferred method (Yilmazel et al., 2013).

The Demographic and Health Surveys in Turkey-2018 show that the IUD was the most widely known and one of the most preferred contraceptive methods in 2003, 2008, 2013 and 2018. With 14%, it is the second preferred modern method after condom. The rate of unmet contraceptive needs among married women is 12%. Meeting this need would reduce the total birth rate (Turkey Demographic and Health Survey, 2018). With appropriate antenatal and/or intrapartum counseling and clinical services, the IUD might be selected more frequently in the postpartum period in Turkey. The use of the IUD, which is the most preferred among all effective methods of contraception, in the postpartum period would cover most of the unmet need (Senturk Erenel et al., 2011, Yilmazel et al., 2013, Washinton et al., 2015). The IUD is a good choice to meet women's unmet contraceptive needs in the postpartum period, although family planning politics have changed over the past decade and the issue is seen as less important in the country. In this period, the woman is still in the hospital, so the IUD can be inserted by a specialist without requiring that the woman returns to the hospital.

However, IPP, EP, and IUD insertion are available only in a limited number of centers in Turkey. The method dropout rate is an important indicator that measures the quality of contraceptive usage (Turkey Demographic and Health Survey, 2018). Continuation rates following INT IUD insertions are very high among Turkish women, with discontinuation rates of 11%, 13%, 11%, and 12% in the Turkey Demographic and Health Surveys 2003, 2008, 2013 and 2018 in respectively (Turkey Demographic and Health Survey, 2003, 2013, & 2018). The most common reason for the IUD discontinuing method is the desire to become pregnant (29%) and side effects/anxiety of health (23%) (Turkey Demographic and Health Survey, 2018).

In Akkuzu et al.'s (2009) one-year study, at the 8-week follow-up, 62.4% of the study group (IPP and EP IUD insertions) and

88.3% of the control group (post puerperal and interval IUD insertions) continued to use the IUD. At the 6-month follow-up, 78.8% of the study group and 91.6% of the control group continued to use the method, and, at the 12-month follow-up, 79.0% of the study group and 90.4% of the control group continued to use the IUD (Akkuzu et al., 2009). In another study that followed women with IPP IUD insertions performed during cesarean section deliveries, continuation rates of using at 6 and 12 months were 81.6% and 62%, respectively (Celen et al., 2011). The discontinuation rate was 16.5% in a previous study, where IUDs were inserted immediately postpartum in a mixed cohort of vaginal and cesarean deliveries (Celen et al., 2004). A study done in Tanzania shows the continuation rate when CuT380A is used for immediate postpartum contraception is high, with low complication and failure rates (Rwegoshora et al., 2020).

It is important to understand differences in IUD continuation/discontinuation, reasons for discontinuation, and contraceptive preferences by the IUD insertion period. This study is the first long-term cohort follow-up study comparing women 10 years and one-year after IUD insertion, both in Turkey and in the world.

This study is compared women with IPP, EP, and IUD in 10-year follow-up with those with intermittent IUD in terms of maintenance, reasons for discontinuation, and contraceptive selection.

METHODS

This retrospective cohort study recruited participants at a government hospital unit from June 1, 2000 to September 30, 2000. The sample consisted of women who had had a TCu 380A IUD insertion: Eighty-four women undergoing IPP insertion, 46 with EP insertion, and 138 with interval insertion were included at the one-year follow-up. IPP insertion is defined as an insertion within 10 minutes after removal of the placenta following vaginal or cesarean delivery. EP insertion involved insertions made less than 10 minutes after placental removal but within 72 hours after birth. All other insertions performed at least 6 weeks following vaginal delivery in the delivery room or at least 8 weeks after cesarean section were defined as INT. No insertions from 72 hours to 6 weeks were included in the sample. Two questionnaires

were administered at 4 week and 12-month follow-up visits. One questionnaire collected data on socio-demographic characteristics and obstetric health status.

It was aimed to reach all women continuing the IUD by using two phone numbers from past records (one of the lines belong to women and the other one was her relative's). Researchers phoned all women a maximum of three times on different days and times. However, 10 years have passed, it was determined that some phones were turned off/not used, some numbers changed names, and some did not respond to the phone. For this reason, the study has been conducted with a limited number of women.

Ten years after their IUD insertions, 10 women with IPP insertions, 4 with EP insertions, and 30 with interval insertion from the initial sample were reached by telephone.

One author's office telephone line at the Bařkent University was used to make these local calls to participants' homes. Mobile phones were called using the authors' own telephones. A third questionnaire was administered during the call. This questionnaire comprised questions about IUD continuation/discontinuation, reasons for discontinuation, and current use of contraception. Continuation and reasons for discontinuation at one and 10 years following IPP, EP, and INT insertion were compared. Counts and percentages were used to evaluate the data because of the limited number of participants. In this study 16.4% of the participants in the one-year follow-up being reached at the 10-year mark.

The initial study was approved by Hacettepe University Scientific Research Unit (Project No: 9902403001). The participants gave oral permission for future contact by telephone.

RESULTS

This study examined the responses of the 14 women with the IPP&EP IUD insertions and 30 with interval the IUD insertions. Five out of 10 for the IPP group were aged 20-29, two out of 4 for EP, 11 out of 30 for the INT group were aged 30-34 (Table 1).

In the IPP group, five out of 10, three out of four for the EP group and 14 out of 30 women for the INT group were primary school gradulators. Four out of 10 for the IPP group had one

pregnancy, two out of four had one pregnancy for the EP group, 12 out of 30 women had one pregnancy (Table 1).

In this study 8 out of 10 women in the IPP group, all women in the EP group and 25 out of 30 women for the interval group had no spontaneous abortion experience. Eight out of 10 for the IPP group, all women in the EP group and 22 out of 30 women for the interval group had no induced abortion experience (Table 1).

Table 1. Demographic characteristics of women

| Demographic characteristics | IPP (n=10) | | EP (n=4) | | INT (n=30) | |
|----------------------------------|------------|------|----------|-------|------------|------|
| | n | % | n | % | n | % |
| Age groups | | | | | | |
| 20-29 | 5 | 50.0 | 1 | 25.0 | 3 | 10.0 |
| 30-34 | 4 | 40.0 | 2 | 50.0 | 11 | 36.7 |
| 35-39 | 1 | 10.0 | - | - | 9 | 30.0 |
| 40-44 | - | - | 1 | 25.0 | 7 | 23.3 |
| Educational level | | | | | | |
| Primary school | 5 | 50.0 | 3 | 75.0 | 14 | 46.6 |
| Secondary school | 1 | 10.0 | - | - | 1 | 3.4 |
| Higher graduates | 4 | 40.0 | 1 | 25.0 | 15 | 50.0 |
| Number of pregnancies | | | | | | |
| 1 | 4 | 40.0 | 2 | 50.0 | 12 | 40.0 |
| 2 | 4 | 40.0 | 1 | 25.0 | 6 | 20.0 |
| 3 | 2 | 20.0 | 1 | 25.0 | 12 | 40.0 |
| Number of living children | | | | | | |
| 1 | 4 | 40.0 | 2 | 50.0 | 12 | 40.0 |
| 2 | 4 | 40.0 | 1 | 25.0 | 11 | 36.7 |
| 3 | 2 | 20.0 | 1 | 25.0 | 7 | 23.3 |
| Induced abortion | | | | | | |
| Without experience | 2 | 20.0 | - | - | 8 | 26.7 |
| With experience | 8 | 80.0 | 4 | 100.0 | 22 | 73.3 |

Table 2. 10-year follow-up outcomes (2000-2010)*

| OUTCOMES | IPP&EP [n=14] | | INT [n=30] | |
|--------------------------------------|----------------|------|----------------|------|
| | n | % | n | % |
| Total years of IUD use | | | | |
| 3 years and less | 6 | 42.8 | 9 | 30.0 |
| 4-6 years | 4 | 28.6 | 9 | 30.0 |
| 7-9 years | 2 | 14.3 | 6 | 20.0 |
| 10 years* | 2 | 14.3 | 6 | 20.0 |
| Women's satisfaction from IUD | | | | |
| Yes | 12 | 85.7 | 28 | 93.3 |
| No | 2 | 14.3 | 2 | 6.7 |
| Having problem with IUD | | | | |
| Yes | 7 | 50.0 | 17 | 56.6 |
| No | 7 | 50.0 | 13 | 43.4 |
| Reason for discontinuation | | | | |
| Expulsion | - | - | 2 | 8.3 |
| Partial expulsion | 3 | 25.0 | 4 | 16.7 |
| Pain | - | - | 1 | 4.1 |
| Pregnancy | 1 ¹ | 8.3 | 3 ² | 12.5 |
| Bleeding | 2 | 16.8 | 5 | 20.8 |
| Irregular menstruation | 1 | 8.3 | 3 | 12.6 |
| Pregnancy desire | 5 | 41.6 | 1 | 4.1 |
| Expiration | - | - | 3 | 12.6 |
| Personal desire/discharge | - | - | 2 | 8.3 |

IUD=The intrauterine device, IP = immediate postpartum, EP = early postpartum, INT= interval

* Family planning counseling is recommended and referred because T380A IUDs expired. 10 women with IPP, 4 with EP insertion.

¹Continued to use the IUD after induced abortion.

²One continued to use condoms after delivery, one continued to use the IUD after intentional abortion, and one continued to use condoms after abortion.

By 10 years, two out of 14 women with IPP&EP and six out of 30 INT continued to use the method; In the IPP&EP group, six out of 14 and nine out of 30 women continued to use the method until 3 years. Twelve women out of 14 for the IPP&EP group were satisfied with the method, 28 out of 30 women for the interval group were satisfied with the method. Seven out of 14 women for the IPP & EP group reported a problem with IUD (Table 2). The most frequent discontinuation reasons mentioned in the interval group were bleeding (five out of 24), IPP&EP group two out of 12, partial expulsion three out of 12 for IPP&EP group, four out of 24 for interval and desiring a pregnancy for IPP&EP group five out of 12 and (one out of 24)

(Table 2).

As part of the telephone interview, women who still had the IUD inserted (three women with an INT) were advised that the expiration date had passed and that they should have the IUD removed; none of these women reported any symptoms at the 10-year follow-up. The condom was the most reported current contraceptive choice at the 10-year follow-up in the discontinued IPP group (four out of eight), in EP group two out of four and ten out of 24 for interval group. IUD was the most second frequently reported current contraceptive choice in the continued interval group five out of six (Table 3).

Table 3. Contraceptive choice at the 10-year follow-up

| Contraceptive choice | Continued | | | | | | Discontinued | | | | | | Total | | | | | |
|----------------------|-------------|-------|----------|---|-------------|------|--------------|------|------------|------|--------------|------|--------------|------|------------|------|----------------|------|
| | IPP (n = 2) | | EP (n=0) | | INT (n = 6) | | IPP (n = 8) | | EP (n = 4) | | INT (n = 24) | | IPP (n = 10) | | EP (n = 4) | | INT (n = 30) | |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| IUD | 2 | 100.0 | - | - | 5 | 83.3 | 1 | 12.5 | 1 | 25.0 | 9 | 33.3 | 3 | 30.0 | 1 | 25.0 | 13 | 43.4 |
| Tubal ligation | - | - | - | - | - | - | 2 | 50.0 | - | - | - | - | 2 | 20.0 | - | - | - | - |
| Condoms | - | - | - | - | 1 | - | 4 | 25.0 | 2 | 50 | 10 | 37.5 | 4 | 40.0 | 2 | 50.0 | 10 | 33.4 |
| Withdrawal | - | - | - | - | - | - | 1 | 12.5 | 1 | 25.0 | - | - | 1 | 10.0 | 1 | 25.0 | 2 ¹ | 6.6 |
| None | - | - | - | - | - | - | - | - | - | - | 5 | 29.2 | - | - | - | - | 5 ² | 16.6 |

IP = immediate postpartum, EP = early postpartum, INT= interval

¹One wants to have a child.

²Divorced, alone, close to menopause, undecided (was given counseling)

DISCUSSION

Contraception is one of the most important tools for regulating the number and interval of births. Some women want to control their fertility but do not use any contraceptive method, because they do not have access to contraceptive methods (Kantorová et al., 2020). As seen in table 1, 20% of women had induced abortion. This result shows that one out of five women cannot control their fertility and there is an unmet need for women about contraception.

Postpartum IUD insertion appeals to both women and service providers because of its comfort, reduced discomfort, and fewer complications compared to interval (more than 6 weeks

postpartum) insertion. The presented study showed that two out of 14 women with IPP&EP insertions and six out of 30 with interval insertions continued to use the IUD at the 10-year follow-up. In contrast, 12 out of 30 women (40%) in the interval group continued to use the method for 7–10 years (Table 2). In a study continuation rates of IPP IUD insertion during cesarean section delivery were 81.6% and 62% at 6 and 12 months, respectively (Celen et al., 2011). In another study in Tanzania, most IUD discontinuations occurred between the 7th week and 6 months of insertion. The one-year method expulsion rate was 2.1%. There was one reported pregnancy that gives a method failure rate of about two per 1000 (Rwegoshora et al., 2020). Since our study is the first one in the world, the results cannot

be compared with other long-term results. For that reason, researchers who will study this topic in the future should follow up the cases in the long term.

At the 10-year follow-up, 24 women (6 IPP, 1 EP, and 17 INT) reported having had any problem related to the IUD, and most of the women in all groups were satisfied with the method (Table 2). At the 10-year follow-up, half of the women for the IPP & EP group, most of the women in the interval group expressed satisfaction with the IUD and reported no problems (Table 2). In a three-year follow-up study postpartum IUDs were found one of the most satisfied and long-term continued rates (Iftikhar et al., 2019). After 10 years of using the IUD, both women in the IPP group and five of six women in the interval group reported that they would choose the IUD again. Satisfaction was highest for IUDs, more than 80% satisfied, with 66-70% of them reporting very satisfied (Peipert et al., 2011). According to Turkey Demographic and Health Survey 2018, IUD (14%) was the most preferred method after condom (%19) by the women in Turkey. This result shows that when we consider the last 10 years, the first preferences of the couples have changed. However, IUD is still among the most preferred methods. The fact that the condom is more accessible (such as a market, pharmacy) may have affected this result. This change may be due to women's reaching condoms easily and no need to admit a health center for the method.

Examining why the women did not continue to use the IUD, pregnancy desire (five out of 12 in IPP&EP group and one out of 24 in the interval group) and partial expulsion (three out of 12 for the IPP&EP group and four out of 24 for the interval group) were the most common reasons. Bleeding two out of 12 for the IPP&EP group and five out of 24 for the interval group were the most common reasons (Table 2). A study shows 71 women's discontinued the IUD by the end of one year, 25 women had menstrual irregularity, 21 women had abdominal pain, 12 women were influenced from their husbands and 11 women had expulsion problems (Rwegoshora et al, 2020). Shukla et al. (2012) found that 27.23% of women had menorrhagia after IPP IUD insertion. Another study done Çelen et al. (2011) was found removal of IUD for bleeding/pain or other medical reasons were 17.6%. Another study found an overall IUD (levonorgestrel intrauterine system (LNG-IUS) expulsion

rate of 38%. However, this estimate is statistically unstable because of the small sample size, expulsion occurred within 6 months in 12 of 50 participants (24.0%; 95% confidence interval: 13.1-38.2)(Stuart GS et al., 2012).

Studies show that IUD insertion following a cesarean delivery has an acceptable rate of expulsion and no increased rate of adverse effects and provides adequate protection against pregnancy (Celen et al., 2011; Gueye et al., 2013). The study found that on IPP IUD insertion during cesarean section delivery showed that cumulative rates of expulsion, removal for bleeding/pain, and other medical reasons occurred annually in 17.6%, 8.2%, and 2.4%, respectively (Celen et al., 2011). In our study no expulsion was seen for the IPP&EP group, two out of 24 expulsions were seen in the interval group (Table 2).

The literature suggests that one of the problems with the IUD is pain. In our study, only one out of 24 women complained of pain for the interval group (Table 2). A previous study showed that there are significant advantages aspects in pain due to the time of insertion compared to spacing with IPP and EP. Benefiting from anesthetic interventions during delivery reduces pain at the time of insertion. In a study, LNG-IUDs also were found to be well-tolerated and a comfortable method in the postpartum application (Dahlke et al., 2011).

CONCLUSIONS AND RECOMMENDATIONS

TCu 380A IUD is an effective and convenient procedure for long-term use for all insertion times. It is recommended to have more space in the health system to meet the unmet and long-term need for family planning. More studies are needed on the continuation and reason for the discontinuation of IUD.

LIMITATION OF THE STUDY

A major limitation of this study is the low number of women who were reached in the 10-year follow-up study. Although a smaller sample is to be expected after so many years, selectivity in the final sample may have created bias and affected the results. It might be the case that those with stronger family ties or those who are less geographically mobile were more likely to be reached. These groups might have rates of and reasons for IUD discontinuation that are different from those of other women.

An additional limitation is the retrospective nature of the

study design. After many years, it is possible that women did not accurately remember their reasons for continuation/discontinuation.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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