**Original Article**

# Timings of insertion and complications among intrauterine copper device users; A prospective cohort study

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**Objective:** To determine the frequency of timings of insertion and follow up complications like menstrual irregularities and vaginal discharge among intrauterine copper device users (IUCD).

**Methodology**: This prospective Cohort study was conducted in obstetrics and gynecology department, Fauji Foundation Hospital, Rawalpindi from June to December 2018. A total of 101 patients of age between 25 to 45 years were included in the study. A self-structured questionnaire was used to collect data regarding demographics and timing of insertion then they were followed after six week, three month and six month time period to get data regarding complications of IUCD. SPSS version 21 was used to analyze data.

**Results**: Out of 101 patients, mean age was 33.38±4.19 years among them 13(12.9%) women were of 35 years old. After follow up, 24(23.8%) reported vaginal discharge, 16(15.8%) came up with menstrual irregularities while 10(9.9%) experienced heavy menstrual bleeding with 14(13.9%) women having no complain after IUCD usage.

**Conclusion**: Post-Partum IUCD was found to be more frequently inserted at a lower (uterine) segment caesarean section, while the most common complication noted was vaginal discharge and then menstrual irregularities. (Rawal Med J 202;45:731-734).

**Keywords:** IUCD, menstrual irregularities, vaginal discharge.

## INTRODUCTION

Pakistan stands as the six largest populated countries in the world with a population of 197.02 million with growth rate of 2.1% in 2017 and average total fertility rate 3.07 children.[1,2] According to Pakistan demographic health survey (PDHS 2013) prevalence of unintended pregnancies is 38-46%, contraceptive prevalence rate (CPR) is 35% in which modern methods are only 26% with IUCD usage only 2%.[1,2] World Health Organization guidelines for safe motherhood state that a couple must have a gap of at least two years between last delivery and next conception.[3] Intra Uterine Devices (IUCDs) are recommended as first-line contraceptives by American College of Obstetrics and Gynecology (ACOG) and the American Academy of Pediatricians (AAP).[4]

It is coitus-independent, reversible and effective form of contraception with immediate contraceptive action.[5] Among IUD users worldwide 5% are in United States and 83% live in Asia.[6] The Copper-bearing IUCDs named Cu T-380A is widely used. It is T shaped frameless device placed within uterine cavity near uterine fundus. This device prevents fertilization by a specific mechanism of inflammation that is spermicidal and it causes significant changes at endometrium thus inhibiting fertilization.[7] Post-partum family planning was first introduced in Pakistan in 2012 in collaboration with Jhpiego.[1] A modified version of the 1983 World Health Organization (WHO) definitions for insertion after delivery includes post placental (immediate postpartum) IUCD insertion within 10 min of delivery of the placenta, early postpartum IUD insertion >10 min to 1 week postpartum, delayed postpartum IUD insertion 1 week through 6–8 weeks after delivery, interval IUCD insertion unrelated to timing of delivery, usually after 6–8 weeks.[4]

Immediate postpartum provision of long-acting reversible contraception has several advantages including, client motivation, safety, convenience, assurance of no pregnancy, facilitating adequate birth spacing, non-interference with lactation and immediately reversibilty.[8] However, there is

possible risk of infection, bleeding, higher expulsion rates, partial perforation of the uterus, vagal reaction, bleeding and pain.[9,10] Delayed complications include spontaneous expulsion, lost IUCD, ectopic pregnancy, pelvic inflammatory disease (PID), uterine perforation, heavy bleeding, dysmenorrhea, and unplanned pregnancy.[9] It can have mal-positioning with uncommon complications including fragmentation and calcification. Despite the benefits of postpartum IUCD, its uptake in our country is very low, with high rate of unintended pregnancy, which is explained by the lack of user's and provider's knowledge about its benefits, long term usage and its complications and lack of appropriate technical skills to provide postpartum contraceptive counseling and services.[11] The objective of our study was to determine the association of timing of insertion and follow up complications among IUCD users.

## METHODOLGY

The study was conducted in obstetrics and gynecology department of Fauji Foundation Hospital, Rawalpindi from June to December 2018. Approval was taken from ethical review committee of Fauji Foundation Hospital and informed consents were taken from all mothers. In this prospective cohort study a total of 130 post-partum patients of age between 25 to 45 years were included initially but 29 patients didn't respond on follow up, hence 101 patients were left.

A self-structured questionnaire was developed for which peer review was done from experts of the field. It was then used to collect data regarding demographics and timing of insertion then they were followed for six weeks, three months and six months' time period through phone calls and hospital visits to get data regarding complications of IUCD.

**Statistical Analysis:** SPSS version 21 was used to analyze data which is represented in the form of frequencies, percentages and tables

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## RESULTS

Mean age of the participants was 33.38±4.19 years among them 13(12.9%) women were of 35 years old. Mean parity was 3.28±1.50 of which 35(34.7%) had Para 3 which was most common while 7(6.9%) had parity 1, 26(25.71%) had parity 2 and 13(12.9%) had parity 4. Mean previous LSCS frequency was found to be 1.75±1.37 out of which 41(40.6%) had previous 2 scars while only 2(2.0%) had previous 4 LSCS reported (Table 1). When timings of follow were calculated it was found that 56(49.5%) were followed up for 6 weeks, 30(29.7%) post-partum mothers were followed for 3 months and 21(20.8%) were followed after the time period of 6 months as shown in ( Table 2).

**Table 1. Demographic distribution.**

| Variable | Mean±SD |
|---|---|
| Age (years) | 33.38± 4.19 |
| Para | 3.28 ± 1.50 |
| Previous LSCS | 1.75 ± 1.37 |

LSCS: Lower segment caesarean section

**Table 2. Timings of IUCD insertion.**

| Time of insertion | Frequency | Percent |
|---|---|---|
| Immediate post-partum | 19 | 18.8 |
| At LSCS | 81 | 80.2 |
| After E & C | 1 | 1.0 |
| Total | 101 | 100 |

**Table 3. Complications after IUCD insertion.**

| Complications | Frequency | Percent |
|---|---|---|
| Active uterine bleeding | 26 | 25.7 |
| Vaginal discharge | 24 | 23.8 |
| Pain | 1 | 1.0 |
| Expulsion | 1 | 1.0 |
| Perforation | 1 | 1.0 |
| Removal | 8 | 7.9 |
| Intact | 8 | 7.9 |
| Thread visible | 14 | 13.9 |
| Thread not visible | 4 | 4.0 |
| No complaint | 14 | 13.9 |
| Total | 101 | 100.0 |

During follow up, 24(23.8%) women reported vaginal discharge and 26(25.7%) active uterine bleeding. Thread was visible in 14(13.9%) (Table 3). No complaints were seen by 14(13.9%). Out of

101 IUCD users, it was found that 8(7.9%) underwent removal for conception purpose.

## DISCUSSION

Although the available contraceptive methods are many, need of a single efficacious, feasible, and cost-effective method is desirable especially in low resource country like Pakistan. Advantages of immediate post-partum insertion include high motivation, assurance that the woman is not pregnant and convenience. Majority of patients were young women who opted for contraception method to delay unplanned pregnancy. In this study mean parity was 3.28±1.50.

The studies done by Kanhere et al contradict our study.[7] In another study, postpartum IUCD insertion was lower among multiparous (27%) compared to primiparous (48%) because multipara patient were interested in permanent method of contraception & primiparous towards spacing methods.[8] In our study, IUCD was inserted in majority of patients at LSCS with frequency 81(80.2%) with immediate post-partum being 19 (18.8%). A randomized control trial by Lester et al also demonstrated that the insertion of Copper T380A during cesarean delivery was 43% higher than when insertion is planned for the postpartum visit without any increased complications.[5,12] The immediate postpartum period also represents an ideal time for IUCD placement because women often have epidurals, there are no additional appointments required.[9]

Keeping this in consideration follow ups were carried out at six weeks of IUCD placement and it was found that 56(49.5%) followed after six weeks, 30(29.7%) postpartum mothers were followed for three months and 21(20.8%) were followed after the time period of six months. In a RCT in 2015, participants were followed with a clinic visit at six weeks, at three months and at six months postpartum.

Considering complications, majority of patients 24(23.8%) in our study complained of vaginal discharge and 14(13.9%) patients had no complain. A study from a tertiary care center in India on 52 patients reported that 43% were comfortable with IUCD, with no complaints, the expulsion rate was 16.4%, post insertion pain was there in 8% and irregular bleeding was present in 6% patient.[8] These are similar to our results. The symptom of irregular bleeding was also higher in another study by Reetu Hooda et al.[13]

In this study, 26(25.7%) experienced active uterine bleeding after IUCD usage. The evidence for active uterine bleeding among young IUCD users varied across the studies. A systematic review by Jatlaoui et al in 2017 on the safety of intrauterine devices among young women documented that after insertion of Cu IUCD at postpartum visit, the rate of bleeding was higher in younger women at one and three months but not at 6 months, which may likely have been affected by the postpartum status.[9] An RCT by Bahamondes et al demonstrated that bleeding disturbances were the most frequent reason for stopping the use of TCu380A IUCD.[14]

One of the largest obstacles to young women using IUCDs is provider concern about pelvic infection, possibly leading to PID and infertility. In a study by Washington et al found that no studies were identified that assessed infertility risk among IUCD users.[9]

PID is a less often diagnosed in IUCD users, risk estimated to be 0.2 (95% CI 0.18–0.58).[14] In this study, we didn't find any expulsion case contradictory to the RCT done by Sardar et al who found that the expulsion rates were higher among women using postpartum IUCD. This can be justified with the fact that in our study the mean age of the participants was 33 and in their study mean age was about 26 years showing that the sample was of younger age patients.[7]

A systematic review also suggests that young women were at increased risk for expulsion.[9] Thread was visible in 14(13.9%). A study by Whitaker et al documented that IUCD strings were visualized on physical examination in (44%) of women who underwent intra cesarean insertion and returned for follow-up.[4] Study limitation was that sample size was small and it was conducted in a single setting.

## CONCLUSION

Post-partum IUCD was found to be more frequently inserted at a lower (uterine) segment caesarean section, while the most common complication noted was vaginal discharge and then menstrual irregularities.

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