

A Prospective Study of Immediate Postpartum Intra Uterine Contraception Device (IUCD) Insertion in a Teaching Hospital of South India

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Received: 20-07-2024 / Revised: 21-08-2024 / Accepted: 27-09-2024

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Conflict of interest: Nil

Abstract:

Background: The intrauterine contraceptive device (IUCD) is one of the oldest methods of contraception used to prevent pregnancy. Modern IUCDs are highly effective, safe, discreet, long-acting, and reversible. This study aimed to evaluate the acceptability and safety of postpartum intrauterine contraceptive devices (PPIUCD) during the postpartum period, as well as to assess their feasibility, safety, effectiveness, and expulsion rates.

Methods: The women presenting to antenatal OPD were counseled about family planning and encouraged to opt for copper-T insertion immediately after delivery. In this study, the Copper T 380A was used, with insertions performed by trained obstetricians following all recommended clinical and infection prevention protocols outlined in the National Family Welfare guidelines. Before hospital discharge, all patients were examined for vaginal bleeding and discharge. Follow-up visits were scheduled at 6 weeks, 6 months, and 1 year. During these visits, pelvic examinations were conducted to check for any signs of bleeding, infection, or displacement, and abdominal ultrasounds (USG) were performed to confirm IUCD positioning.

Results: A significant number of women accepted the IUCD as a contraceptive method, with an overall acceptance rate of 52.52%. Antenatal counseling was more effective in promoting IUCD acceptance compared to postpartum counseling. A large majority of women (94.35%) continued using the IUCD for at least 12 months, indicating high satisfaction and effectiveness. The overall complication rate associated with IUCD use was low, with most complications being mild and manageable. Factors such as age, education, and socioeconomic status influenced the decision to accept or refuse the IUCD.

Conclusion: Antenatal counseling was more efficient in encouraging IUCD uptake than postpartum counseling. Age, education, and economic class affected their willingness to accept or reject IUCD. A greater proportion of younger women, those with higher education, and those with higher socio-economic status accepted the use of IUCD. A statistically significant number of women (94.35%) continued using IUCD for at least 12 months, suggesting the effectiveness and acceptability of the method.

Keywords: Intrauterine contraceptive Device (IUCD), Postpartum insertion, complications.

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Introduction

India's total population crossed the one billion mark in 2000. By the 2011 census, it became 1.21 billion and is expected to be over 1.53 billion by 2050, making India the world's most populous country [1, 2]. The National Population Policy of India was formulated in 2000 to attain the policy of sustainable population in the framework of National Population Policy 2000 and 51 by the year 2045, aiming at achieving sustainable economic and social development. One of its near-term goals is fulfilling the unmet need for contraception. It was also established that a good number of women in the postnatal period desire to use a condom, IPPT, or injectable to space or limit childbearing

[3]. IUCDs are among the broad classes of reversible contraceptive methods used for women of childbearing age worldwide. At the global level, it emerged that 153 million married contraceptive users aged 15-49, use IUCDs, meaning that one in every 20 married contraceptive users use it [4]. Long-acting contraceptives are widely recommended and distributed to all interested initiator women for spacing [5]. Report to the National Family Health Survey 4, India's overall unmet demand for modern contraceptives is 12.9 %, and for spacing services 5.7% [6]. The provision of effective means of preventing conception among women of childbearing age not

only prevents population explosion but also breaks health infrastructure bottlenecks, thus opening up a way to improve healthcare services in India. IUCD is more than 99 percent effective, is a low-cost method of family planning, is reversible, requires no effort by the user after implantation, and lasts for 5-10 years [7]. However, in India, only 3% of women use IUCDs, while at global standards, 20% of women of reproductive age employ IUCDs [8]. Oddly, the government of India has been providing CuT380A for free a device that can last up to a decade but CuT380A is notoriously underused. The advantages are described in light of myths and misconceptions, while the possible dangers and side effects are greatly overestimated [9]. Various studies have been conducted to determine the efficacy of different copper IUD devices, and all of these studies provide evidence of a low cumulative pregnancy rate for the Copper T 380A, which is 1 to 2.2 pregnancies per 100 women for the duration of the IUD's contraceptive utility [10]. While there are some common side effects of IUCD, none of these are severe, and most of the time, they disappear within the first few months of use in women. The current study aimed to compare numerous IUCD-related clinical parameters to assess acceptability, safety, and efficacy in immediate postpartum vaginal insertion and intra-caesarean insertion.

Material and Methods

This prospective study was conducted in the Department of Obstetrics and Gynecology, Prathima Institute of Medical Sciences, Naganoor, Karimnagar. Institutional ethical approval was obtained for the study. Written consent was obtained from all the participants of the study after explaining the nature of the research and expected outcomes in the vernacular language. The women presenting to antenatal OPD were counseled about family planning and encouraged to opt for copper-T insertion immediately after delivery.

In this study, the Copper T 380A was used, with insertions performed by trained obstetricians following all recommended clinical and infection prevention protocols as outlined in the National Family Welfare guidelines. Before hospital discharge, all patients were examined for vaginal bleeding and discharge. Follow-up visits were scheduled at 6 weeks, 6 months, and 1 year. During these visits, pelvic examinations were conducted to check for any signs of bleeding, infection, or displacement, and abdominal ultrasounds (USG) were performed to confirm IUCD positioning. Expulsions were verified both clinically and through radiological imaging.

Inclusion Criteria

1. Women meeting the WHO medical eligibility criteria.

2. Women who provided informed written consent and had either vaginal or cesarean deliveries.

Exclusion Criteria

1. Pregnant women with gestation below 28 weeks
2. Genital tuberculosis
3. Postpartum hemorrhage (PPH)
4. Uterine fibroids or anomalies
5. Prolonged rupture of membranes (PROM) for more than 12 hours
6. History of ectopic pregnancy

Patients were subdivided into three groups based on the timing of insertion and mode of delivery:

- a. Post-placental insertion: Performed within 10 minutes of delivery in the labor ward.
- b. Immediate postpartum insertion: Conducted within 48 hours of delivery in the postnatal ward.
- c. Intra-caesarean insertion: Done during a cesarean section, after the removal of the placenta, and before closing the uterine incision.

In this study, 337 patients were counseled for postpartum IUCD insertion. Of these, 177 consented to the procedure and were followed up to one year after IUCD insertion. A follow-up visit was recommended at 6 weeks postpartum and again at 6 months, with additional visits as needed. During these follow-ups, women were asked about any complaints, and a speculum examination was performed to check if the IUD strings had descended into the vagina. For women where the strings were not visible, an ultrasound was conducted to confirm the intrauterine position of the IUD. Findings from these visits, including expulsion, menstrual irregularities, pelvic pain, removals, infections, and other side effects, were documented. If a woman did not attend her scheduled follow-up, she was contacted by phone.

Statistical analysis: All the data available was uploaded to an MS Excel spreadsheet and analyzed by SPSS version 22 in Windows format. The continuous variables were represented as mean, and standard deviation, and the categorical variables were calculated by chi-square test for difference between two groups. The value of p (<0.05) was considered as significant.

Results

The table presents the demographic profile of women who were counseled for intrauterine device (IUCD) insertion. A higher percentage of women accepted the IUCD during antenatal counseling (56.1%) compared to postpartum counseling (42.57%). A higher percentage of women refused the IUCD during postpartum counseling (57.14%) compared to antenatal counseling (43.9%). Overall,

52.52% of women who were counseled accepted the IUCD. The higher acceptance rate during antenatal counseling suggests that women may be more receptive to family planning methods before childbirth. The higher refusal rate during postpartum counseling might be attributed to factors such as fatigue, newborn care

responsibilities, or changes in family planning priorities after childbirth. Despite the differences between antenatal and postpartum counseling, a significant proportion of women (52.52%) accepted the IUCD, indicating its acceptance as a family planning method.

Table 1: Demographic profile of cases counseled for IUCD insertion in our study

	Antenatal counseling	Postpartum counselling	Total
Acceptors	138 (56.1%)	39 (42.57%)	177 (52.52%)
Refusers	108 (43.9%)	52 (57.14%)	160 (47.48%)
Total	246 (100.0%)	(100.0%)	337 (100.0%)

Table 2 presents the demographic and clinical profile of women who accepted intrauterine device (IUCD) insertion. IUCDs were between the ages of 26 and 30, followed by 21-25. A smaller proportion of women in the younger (under 20) and older (31-35) age groups accepted the IUCD. Most acceptors had a secondary level of education (46.89%), followed by primary education (32.77%). A smaller proportion had higher education or were illiterate. The majority of acceptors belonged to the middle class (30.5%), followed by the upper class (35.6%) and lower class (33.9%). A majority of acceptors were multipara (44.06%), indicating that they had

previous pregnancies. The higher acceptance rates in the younger age groups might suggest that younger women are more open to long-acting reversible contraceptives (LARCs) like IUCDs. The data suggests that women with higher education and socioeconomic status are more likely to accept IUCDs. This could be attributed to greater awareness of family planning options and access to healthcare services. The relatively high proportion of multipara women accepting IUCDs indicates that they may be seeking effective contraception after previous pregnancies.

Table 2: Variables and clinical profile of the cases included in the study

Variable	IUCD Acceptors	Acceptance rate
Maternal Age		
< 20	10	5.65
21 – 25	59	33.33
26 – 30	92	51.98
31 – 35	16	9.03
Total	177	100.0
Maternal education Status		
Illiterate	16	9.04
Primary	58	32.77
Secondary	83	46.89
Higher education	20	11.29
Total	177	100.0
Maternal socioeconomic status		
Upper class	63	35.6
Middle class	54	30.5
Lower class	60	33.9
Parity		
Primipara	99	55.93
Multipara	78	44.06

Figure 1 presents the distribution of IUCD insertions based on the timing of the procedure. The categories include within 48 hours of delivery, post-placental, and during cesarean section. The majority of IUCDs (49.72%) were inserted post-placentally, indicating that this is the most common timing for insertion. A significant number of IUCDs (22.03%) were inserted within 48 hours of

delivery. Approximately 28.25% of IUCDs were inserted during cesarean section. A significant number of women chose to have the IUCD inserted within 48 hours of delivery, indicating a desire for early contraception. The insertion of IUCDs during cesarean section is a viable option for women who are undergoing this procedure.

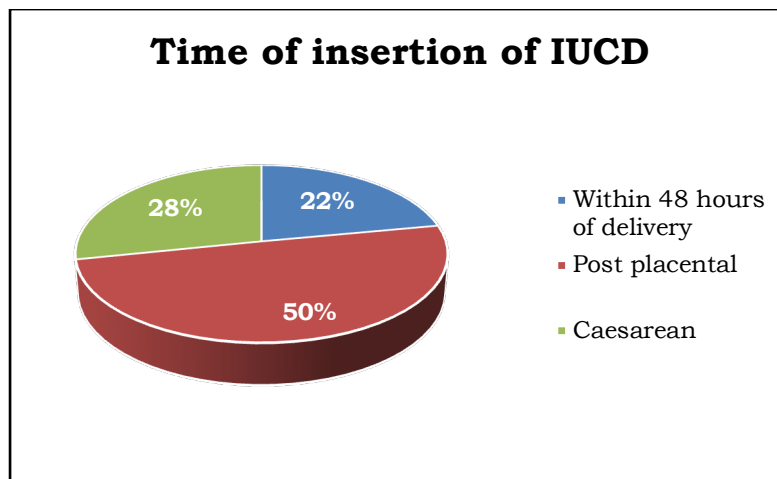


Figure 1: Time of insertion of IUCD in the cases of the study

Table 3 depicts the frequency of complications reported by women who underwent IUCD insertion and were followed up for one year. Overall, the complication rate was relatively low, with only 27 out of 177 women (15.2%) experiencing at least one complication. Abdominal pain and leukorrhea

were the most common complications, affecting 3.9% and 6.77% of women, respectively. These symptoms are usually mild and resolve on their own. Perforation did not occur in any of the cases, suggesting that the procedure was performed safely.

Table 3 Complications of IUCD at the time of follow-up visit in one year

Complications	Frequency (%)
Abdominal pain	7 (3.9%)
Leukorrhea	12 (6.77%)
Bleeding per vaginum	5 (2.82%)
Missing thread	1 (0.56%)
Bleeding and abdominal pain	8 (4.51%)
Expulsion	3 (1.69%)
Perforation	4(2.20%)

Table 4 shows the continuation rates of IUCDs inserted at different times. The highest continuation rate was observed in women who had the IUCD inserted post-placentally (48.02%). Women who had the IUCD inserted within 48 hours of delivery

or during a cesarean section had lower continuation rates (19.77% and 26.55%, respectively). Overall, 94.35% of women continued using the IUCD after 12 months, indicating a high level of satisfaction and effectiveness.

Table 4 Association between time of insertion and continuation of IUCD

Time of Insertion	Continued after 12 months			
	Yes		No	
	N	%	N	%
Within 48 hours of delivery	35	19.77	4	2.20
Post placental	85	48.02	3	1.69
Cesarean	47	26.55	3	1.69
Total	167	94.35	10	5.65

Table 5 depicts the reasons for IUCD removal in 10 women who underwent the procedure. Bleeding P/V and PID/pain were the most common reasons for IUCD removal, accounting for 20% of cases each. Other social factors contributed to IUCD

removal in 50% of cases, suggesting that personal or family circumstances may influence the decision to discontinue use. Overall, the removal rate was relatively low, with only 10 out of 177 women (5.65%) discontinuing the IUCD within 12 months.

Table 5 Causes of removal of IUCD over a period of 12 months

Cause of Removal	Frequency	Percentage
Bleeding P/V	2	20.0
Discharge P/V	1	10.0
PID/Pain	2	20.0
For Conception	0	0.00
Other social factor	5	50.0
Total	10	100.0

Discussion

The IUCD is an intrauterine contraceptive device that is long-term but can be used and removed. Family planning services enable women to avoid pregnancy if they do not want to have another baby; this is important to be discussed during the postpartum period since it is a time when women are most likely going to conceive. When women who have been counseled on PPIUCD decide to have IUCD insertion, they are 10 times more likely to have it inserted than women whose insertion is performed after full involution of the uterus [11]. Sponsored birth control, especially the progressive implant, can be performed within the first few hours after birth via either vaginal or cesarean section with minimal discomfort to the woman. This form is relatively safe and has a low expulsion rate [12, 13]. A total of 337 patients were counseled for postpartum IUCD insertion, of which only 177 (52.52%) were accepted. Only the majority stated that they were too ignorant of contraceptives and afraid of the consequences. This was particularly true because IUCD is a reversible method of birth control. This study revealed that PPIUCD acceptance was highest among women aged 26-30 years (51.98%); 64.4% of them had a middle/low socioeconomic status. This may be because the hospital treats many patients from low-income earners hence many are from the low economic power category. About 46.89% of the sample group women had completed or more than secondary school, while women with higher or secondary education levels accepted PPIUCD most. This finding is in concordance with the findings of Safwat et al. [14] and Thomas et al. [15] in Egyptian settings. The parity distribution was 55.93 % of the patients were primipara and 44.06 % were multipara, the acceptance of which showed preferential birth spacing among the primiparas. These results were consistent with those reported by Grimes et al. [9] In the present study, the acceptability rates of vaginally delivered and LSCS patients were 72.03% and 28.24%, respectively. The acceptance of post-placental IUCD insertion among vaginal deliveries was higher than that among post-cesarean sections at 45.7% and 3.5%, respectively, during the first 48 hours. This means that acceptability is higher when the IUCD is placed within 10 min after placental delivery, as in Goswami et al. [16] Three hundred and fifty-four

patients were followed up at six weeks intervals and six months and one-year intervals respectively. This year, 68 patients were lost to follow-up in the study at a six-month time point. Higher follow-up rates were most likely due to enhanced techniques and increased post-LSCS insertions due to concerns about post-surgery complications. While comparing the level of safety of PPIUCD independently, 12 women complained of leucorrhoea, bleeding, abdominal pain, and expulsion, similar to a study done by Gupta et al. [17] in a study conducted in a hospital in Western Uttar Pradesh, 8 % of patients complained of post-insertion vaginal bleeding. One certainty that detracts from IUCD effectiveness is expulsion. In the present study, three patients (1.6%) reported expulsion, the majority of which occurred within the first 6-12 months. This is much lower than the 17.6 % expulsion rate reported by Celen et al. [13] Furthermore, the IUCD was removed in 10 patients for various reasons, including bleeding (20 %), abdominal pain (20 %), and other complaints (10 %). The remaining 50% had it removed because of incorrect conceptions that included pain and fear of being relocated to the abdomen. Mishra et al. [18] cumulative removal rate as reported was 7% while Sharma et al [19] reported 13.5 % Psychosocial reasons were the most common causes of removal followed by Menstrual and Prolonged pelvic pain respectively.

Conclusion

The current study found that a fairly large number of women accepted IUCD, which reflects its acceptability as a contraceptive method. Antenatal counseling was more efficient in encouraging IUCD uptake than postpartum counseling. Age, education, and economic class affected their willingness to accept or reject IUCD. A greater proportion of younger women, those with higher education, and those with higher socio-economic status accepted the use of IUCD. A statistically significant number of women (94.35%) continued using IUCD for at least 12 months, suggesting the effectiveness and acceptability of the method. The general complication profile observed in the study regarding the use of IUCD was low, and the majority of the complications were minor. This study found that the type of IUCD inserted may affect continuation rates with post-placental IUCD insertion, resulting in high rates. In general, the

present study provides evidence that IUCDs are safe, efficient, and have an acceptable level of side effects. Information on factors determining the acceptance and continuation rates should assist caregivers in modifying family planning to counsel and enhance the use of IUCDs among the targeted population in healthcare facilities.

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