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Original Research Article

Acceptance and outcomes of postpartum intrauterine contraceptive device insertion in a tertiary care hospital: a prospective observational study

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ABSTRACT

Background: The postpartum period is an ideal time to address the unmet need for contraception. The postpartum intrauterine contraceptive device (PPIUCD) is a safe, effective, long-acting, reversible, and non-hormonal contraceptive that can be inserted immediately after delivery or within 48 hours. Objectives were to evaluate acceptance, demographic profile, reasons for acceptance and refusal, and clinical outcomes of PPIUCD insertion among postpartum women.
Methods: This prospective observational study was conducted at Dhiraj Hospital, Sumandeep Vidyapeeth, Vadodara, Gujarat, from January 2024 to January 2025. A total of 1,500 antenatal and postpartum women were counselled regarding PPIUCD. Of these, 300 women accepted copper T (Cu-T) 380A insertion and were followed up at 6 weeks and 6 months. Data on acceptance, demographic characteristics, reasons for acceptance/refusal, complications, expulsions, and removals were analysed.
Results: The acceptance rate was 22.2%. Most acceptors were 20-24 years old, second gravida (60%), and educated (82%). Intra-caesarean insertion was performed in 70% of cases. Convenience, long-term contraception, avoidance of an additional hospital visit, and absence of hormonal side effects were the main reasons for acceptance, while inability to make an independent decision without partner involvement was the commonest reason for refusal. At 6 weeks, 66% of women were asymptomatic, increasing to 94.7% at 6 months. No uterine perforation or pelvic infection occurred. Six expulsions and 14 removals were recorded during follow-up.
Conclusions: PPIUCD is a safe, effective, and well-tolerated postpartum contraceptive with high continuation and low complication rates. Strengthening antenatal counselling and partner involvement may improve acceptance.

Keywords: Postpartum intrauterine contraceptive device, PPIUCD, Cu-T 380A, Postpartum contraception, Long-acting reversible contraception, Family planning, Unmet need

INTRODUCTION

The postpartum period is a critical phase in a woman's life that requires comprehensive care for both the mother and the newborn. It also presents an important opportunity to address the unmet need for contraception, as women are particularly vulnerable to unintended pregnancies during this period. Studies have shown that nearly 60% of women resume sexual activity within eight weeks of delivery, and almost all resume sexual activity within one year postpartum.[1] Therefore, timely contraceptive counselling and provision of effective family planning methods are essential components of postpartum care.[2]

Short interpregnancy intervals, especially pregnancies occurring within 24 months of a previous birth, are

associated with increased risks of adverse maternal and neonatal outcomes, including spontaneous abortion, preterm labour, postpartum haemorrhage, low birth weight, and perinatal morbidity.[3-5] Appropriate postpartum contraception can help prevent these complications by promoting optimal birth spacing.

The concept of unmet need for family planning refers to the gap between a woman's reproductive intentions and her actual contraceptive use.[6] The immediate postpartum period, defined as the first 48 hours after childbirth, and the early postpartum period, extending up to seven days postpartum, provide a unique window during which women are highly motivated and receptive to family planning information and services.[7]

The PPIUCD, particularly the Cu T 380A, is a safe, highly effective, long-acting, reversible, and non-hormonal contraceptive method that can be inserted immediately after delivery.[8] It offers the advantage of providing reliable contraception before hospital discharge, thereby reducing missed opportunities for family planning.

The present study was undertaken to evaluate the acceptance, efficacy, safety, and continuation of PPIUCD among postpartum women at a tertiary care teaching hospital and to assess factors influencing its utilisation.

METHODS

This prospective observational study was conducted in the Department of Obstetrics and Gynaecology at Dhiraj Hospital, Sumandeep Vidyapeeth, Vadodara, Gujarat, over a period of one year from January 2024 to January 2025. During the study period, 1,500 antenatal and postpartum women attending the hospital were counselled regarding the benefits, safety, and effectiveness of the PPIUCD. Women who consented to PPIUCD insertion and fulfilled the eligibility criteria underwent insertion of Cu-T 380A either immediately following vaginal delivery or during caesarean section. A total of 300 women accepted PPIUCD insertion and were enrolled in the study.

Baseline demographic and obstetric characteristics were recorded. Participants were followed up at 6 weeks and 6 months postpartum to assess continuation rates, complications, adverse effects, expulsions, removals, and overall satisfaction with method. Information regarding reasons for acceptance or refusal of PPIUCD was also collected and analysed. The data were compiled and analysed using appropriate descriptive statistical methods, and results were expressed as frequencies and percentages.

Inclusion criteria

All women undergoing PPIUCD insertion during the study period, irrespective of age and parity, were eligible for inclusion. Written informed consent was obtained from all participants before insertion. Depending upon timing of insertion, PPIUCD placement was categorised as post-placental insertion-insertion within 10 min of placental delivery following vaginal birth, Immediate postpartum insertion-insertion within 48 hrs of delivery, intra-caesarean insertion-insertion through the uterine incision immediately after placental removal during C-section.

Exclusion criteria

Women with any of the following conditions were excluded from the study; prolonged rupture of membranes (>18 hours), clinical evidence of chorioamnionitis, severe antepartum haemorrhage, active genital tract infection during the third trimester, HIV-positive women with CD4 count <200 cells/mm^3 who were not receiving antiretroviral therapy, Severe anaemia or significant cardiac disease, known congenital uterine malformations, refusal to provide consent for PPIUCD insertion.

Method of PPIUCD insertion

The Cu T 380A intrauterine contraceptive device was used for all insertions. For post-placental insertion, the device was inserted immediately after expulsion of the placenta and before repair of the episiotomy, if present. Active management of the third stage of labour was completed before insertion.

Insertion was performed using Kelly's placental forceps, a specially designed instrument without a locking mechanism and with a curved profile to facilitate safe placement within the postpartum uterus. The uterus was stabilised by elevating the fundus abdominally to straighten the uterine axis, and the IUCD was carefully placed at the uterine fundus to ensure optimal positioning.[9]

For intra-caesarean insertion, the device was manually placed at the uterine fundus through the uterine incision immediately after placental delivery and before uterine closure. The IUCD strings were guided towards the lower uterine segment without being pulled through the cervix.

Following insertion, all women were provided with a PPIUCD client card containing details such as name, age, registration number, address, contact information, date of insertion, and scheduled follow-up visits. Participants were counselled regarding expected side effects, warning signs, and the importance of follow-up.

The first follow-up visit was scheduled at 6 weeks postpartum, either routinely or earlier if the patient developed any complaints. Information regarding vaginal discharge, abnormal uterine bleeding, abdominal pain, expulsion, infection, and removal request was recorded. Women presenting with excessive vaginal discharge or abnormal bleeding were managed appropriately according to standard clinical protocols. Subsequent follow-up was conducted at 6 months postpartum through outpatient visits and telephonic contact. Continuation rates, complications, expulsions, removals, and reasons for discontinuation were documented and analysed.

RESULTS

During the study period, 1,500 antenatal and postpartum women were counselled regarding PPIUCD insertion. Of these, 300 women accepted the method, resulting in an overall acceptance rate of 20%.

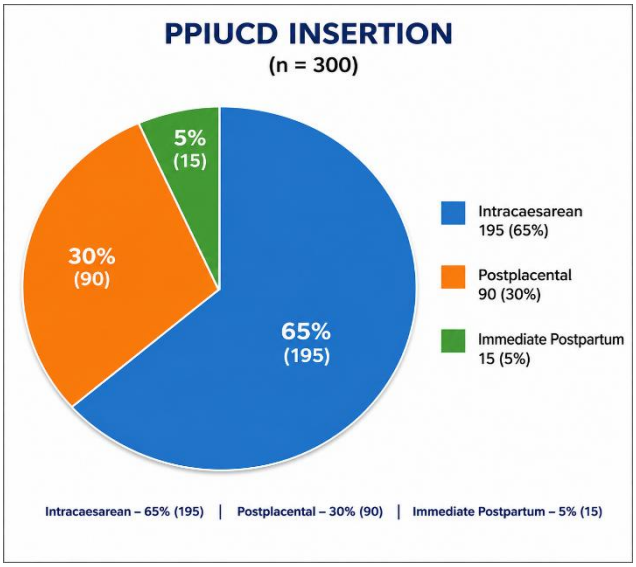

Figure 1: Distribution for 300 PPIUCD insertions.

Table 1: Age-wise distribution of PPIUCD acceptors, (n=300).

Age (in years)	N	Percentage (%)
15-19	53	17.7
20-24	165	55.0
25-29	64	21.3
30-35	15	5.0
>35	3	1.0
Total	300	100

Table 2: Parity-wise distribution of PPIUCD acceptors, (n=300).

Parity	N	Percentage (%)
Primigravida	88	29.3
Second gravida	180	60.0
Third gravida	30	10.0
Fourth gravida	2	0.7
Total	300	100.0

Table 1 shows the majority of PPIUCD acceptors belonged to the 20–24 years age group (55%), followed by 25–29 years (21.3%) and 15-19 years (17.7%). As per Table 2, second gravida women constituted the largest proportion of acceptors (60%), while 82% of participants were educated (Table 3). Figure 1 shows, Intra-caesarean insertion was the most common mode of PPIUCD placement (65%), followed by post-placental insertion (30%) and immediate postpartum insertion (5%).

Table 3: Educational status of PPIUCD acceptors (n=300).

Education level	N	Percentage (%)
Uneducated	54	18.0
Up to 10th standard	180	60.0
Up to 12th standard	45	15.0
Graduation	15	5.0
Postgraduation	6	2.0
Total	300	100.0

Table 4: Reasons for acceptance of PPIUCD among study participants (n=300).

Reason for acceptance	N	Percentage (%)
Start with immediate contraception	15	5
No need for a second visit for contraception	190	63.3
Least compliance required	30	10
Faith in the doctor	30	10
Previous use of IUCD	8	2.7
Previous use of other contraception that failed	21	7
Gained knowledge from media/neighbourhood	3	1
Cost-effective method	3	1
Total	300	100

Table 5: Reasons for non-acceptance of PPIUCD despite counselling, (n=1200).

Reason for non-acceptance	N	Percentage (%)
Not able to decide on counselling	600	50
Fear regarding PPIUCD	214	17.8
Perceived risk of perforation	171	14.3
Belief that PPIUCD interferes with sexual activity	77	6.4
Misconception that PPIUCD is a permanent method	26	2.2
Desire for permanent contraception later	34	2.8
Previous unsatisfactory experience with IUCD	10	0.8
Could not define a specific reason	42	3.5
Never heard of PPIUCD before counselling	26	2.2
Total	1200	100

Table 4 shows the most common reason for acceptance was the convenience of receiving contraception without the need for a second hospital visit (63.3%), followed by minimal compliance required (10%) and faith in the treating physician (10%). Table 5 shows that the women who declined PPIUCD despite counselling, the commonest reason was inability to make an independent decision (50%), followed by fear of the method (17.8%) and concern regarding uterine perforation (14.3%).

At the 6-week follow-up, 66% of women reported no complaints. The common complaints were missing IUCD threads (13%), excessive per vaginal bleeding (5.7%), excessive vaginal discharge (5%), and lower abdominal pain (3%). At the 6-month follow-up, 94.7% of women were asymptomatic, while only a small proportion reported excessive vaginal discharge (2%), abnormal uterine bleeding (1.7%), missing IUCD threads (0.3%), or lower abdominal pain (0.7%). The overall expulsion rate was 2% (6/300), with four expulsions occurring within the first 6 weeks and two by 6 months. Fourteen women (4.7%) requested removal of the device during follow-up. No cases of uterine perforation or pelvic infection were observed, indicating a favourable safety profile and high continuation of PPIUCD use (Table 6).

Table 6: Follow-up outcomes of PPIUCD acceptors at 6 weeks and 6 months, (n=300).

Complaint/outcome	Six weeks, N (%)	Six months, N (%)
No complaints	198 (66.0)	284 (94.7)
Excessive white discharge	15 (5.0)	6 (2.0)
Excessive per vaginal bleeding	17 (5.7)	5 (1.7)
Missing IUCD thread	39 (13.0)	1 (0.3)
Expulsion	4 (1.3)	2 (0.7)
Infection	0 (0.0)	0 (0.0)
Pain in lower abdomen	9 (3.0)	2 (0.7)
Perforation	0 (0.0)	0 (0.0)

Distribution of PPIUCD insertions according to timing of insertion. Intra-caesarean insertion constituted the majority of cases (65%), followed by post-placental insertion (30%) and the immediate postpartum insertion (5%).

DISCUSSION

Postpartum family planning (PPFP) services provide a unique opportunity to address the unmet need for contraception and promote healthy birth spacing. Studies have demonstrated that a majority of women do not desire another pregnancy within the first two years following childbirth.[10] Provision of effective contraceptive services during the postpartum period has the potential to reduce unintended pregnancies, unsafe abortions, and the associated maternal and neonatal morbidity and mortality.[11,12] Despite the availability of contraceptive services, lack of awareness, fear of side effects, misconceptions, and sociocultural influences continue to limit contraceptive uptake.

In the present study, the highest acceptance of PPIUCD was observed among women aged 20–24 years. This finding is expected, as the majority of women in India conceive during this age group. Furthermore, acceptance was higher among multiparous women, particularly second gravida women (60%), many of whom had experienced a short interpregnancy interval following their first childbirth. This highlights the growing awareness among women regarding the importance of birth spacing and family planning.

A greater proportion of PPIUCD acceptors belonged to urban areas (62.5%) and were educated (82%). These findings suggest that female education and urbanisation play a significant role in improving awareness, accessibility, and acceptance of modern contraceptive methods. Similar observations have been reported by Srivastava et al who demonstrated a positive association between educational status and contraceptive acceptance.[13]

In the present study, intra-caesarean insertion was the most preferred mode of PPIUCD placement (65%), followed by post-placental insertion (30%) and immediate postpartum insertion (5%). The higher acceptance of intra-caesarean insertion may be attributed to concerns regarding early conception following caesarean delivery and the convenience of insertion during an already planned surgical procedure. Similar findings have been reported by Hooda et al.[14]

The major reasons for acceptance of PPIUCD included its long-acting reversible nature, absence of hormonal side effects, compatibility with breastfeeding, and the convenience of obtaining contraception before hospital discharge. Notably, 63.3% of women preferred PPIUCD because it eliminated the need for an additional hospital visit, thereby reducing travel expenses and loss of wages. The method was also considered cost-effective, particularly among women from lower socioeconomic backgrounds.

Despite counselling 1,500 women, only 300 accepted PPIUCD insertion, resulting in an acceptance rate of 20%. The low acceptance rate highlights persistent barriers to postpartum contraception. The most common reasons for refusal included lack of partner involvement in decision-making, fear of complications such as infection or uterine perforation, and prevailing myths and misconceptions regarding IUCD use. These findings emphasise the importance of involving spouses and family members in antenatal counselling sessions to improve acceptance.

Follow-up outcomes demonstrated a high continuation rate and favourable safety profile. At 6 weeks postpartum, 66%

of women reported no complaints, while at 6 months, 94.7% were asymptomatic. The expulsion rate was low, with four expulsions occurring within the first 6 weeks and two additional expulsions at 6 months, corresponding to an overall expulsion rate of 2%. This rate is lower than that reported in other studies from Belgium, Chile, and the Philippines, where expulsion rates ranged from 4.6-16%.[15]

Importantly, no cases of uterine perforation or pelvic infection were observed during the study period, further supporting the safety of postpartum IUCD insertion. Similar findings have been reported by Mishra et al.[16] Only 14 women requested device removal during follow-up. The most common indication for removal was excessive menstrual bleeding, while six women opted for removal at the time of interval sterilisation.

Overall, the findings of the present study reaffirm that PPIUCD is a safe, effective, economical, and highly acceptable method of long-acting reversible contraception. However, its utilisation remains suboptimal due to inadequate awareness and sociocultural barriers. Strengthening antenatal counselling, involving partners and family members in decision-making, and conducting community-based awareness programs are essential strategies to improve acceptance and continuation of PPIUCD services. Expanding training programs for healthcare providers and increasing awareness at peripheral health facilities may further enhance the uptake of this effective contraceptive method.

Strengths

The present study was a prospective observational study conducted in a tertiary care teaching hospital with a relatively large sample size of 300 PPIUCD acceptors. The study evaluated not only the acceptance of PPIUCD but also its safety, complications, continuation rates, and reasons for acceptance and refusal. Follow-up was performed at both 6 weeks and 6 months postpartum, enabling assessment of short-term outcomes and continuation rates. The inclusion of women undergoing post-placental, immediate postpartum, and intra-caesarean insertions provided a comprehensive evaluation of PPIUCD utilisation in routine clinical practice.

Limitations

The study was conducted at a single tertiary care centre, which may limit the generalizability of the findings to other settings. The follow-up period was limited to 6 months; therefore, long-term continuation rates and complications beyond this period could not be assessed. Some women were lost to physical follow-up and had to be contacted telephonically, which may have introduced reporting bias. In addition, qualitative assessment of sociocultural factors, partner influence, and misconceptions regarding contraception was not performed, although these factors appeared to significantly influence acceptance of PPIUCD.

CONCLUSION

PPIUCD insertion is a safe, effective, long-acting, reversible, and non-hormonal method of contraception with low expulsion and removal rates and no major complications. Although acceptance was modest, continuation rates were high, and the majority of women remained satisfied with the method during follow-up. Female education, urban residence, and multiparity were associated with higher acceptance. Strengthening antenatal counselling, addressing misconceptions, and involving partners and family members in contraceptive decision-making may improve the uptake and utilisation of PPIUCD services, thereby contributing to improved maternal and child health outcomes through optimal birth spacing.

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