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Original Research Article

Study on acceptance of immediate postpartum intrauterine contraceptive device and their follow-up

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ABSTRACT

Background: India faces a persistent challenge with a high unmet need for family planning, particularly in the immediate postpartum period, with 65% of women in the first-year postpartum requiring contraception. Immediate postpartum intrauterine contraceptive devices (PPIUCDs) offer a highly safe, effective, long-acting, and reversible method that does not interfere with breastfeeding. This study aimed to determine the acceptance rate of PPIUCD, identify key factors influencing acceptance, and analyse reasons for discontinuation among postpartum women in a tertiary care centre.

Methods: A study was conducted on 1,000 postpartum participants at Government Medical College, Kozhikode. Participants were counselled on PPIUCD (Cu T 380A), and acceptance, demographics, and follow-up data were collected at 6 weeks and 6 months postpartum.

Results: The overall acceptance rate was 18% (n=179). Acceptance was significantly higher among parity 2 women (23.5%). Key reasons for acceptance included long-term use (41%) and reversibility (23%). The main reasons for rejection were fear of pain and bleeding (33%) and partner refusal (29.7%). At the 6-week follow-up, the continuation rate was 87%. Discontinuation (13%) was due to removal or expulsion.

Conclusions: PPIUCD acceptance remains low but is significantly influenced by parity, age, and counselling location. Targeted, culturally sensitive counselling is essential to address common misconceptions and partner concerns to improve the uptake of this highly effective contraceptive method.

Keywords: Acceptance, Complications, PPIUCD, Rejection

INTRODUCTION

India faces a significant demographic challenge with a population exceeding 1.21 billion and a persistent unmet family planning need of approximately 13%. Short inter-pregnancy intervals significantly increase the risk of maternal anaemia, miscarriage, and mortality, as well as neonatal preterm birth and morbidity. The postpartum intrauterine contraceptive device (PPIUCD) has emerged as a vital strategy to address these risks. Endorsed by the American College of Obstetricians and Gynecologists (ACOG), the PPIUCD is a safe, long-acting, reversible, and non-hormonal option that does not interfere with breastfeeding.¹⁻³

Capitalizing on the rise in institutional deliveries, immediate postpartum insertion- optimally within 10 minutes of placental delivery- offers unique advantages: high patient motivation, convenience, cost-effectiveness, and reduced expulsion rates compared to delayed insertion. The Copper T 380A, the standard device in India, represents the culmination of decades of IUD evolution, offering high efficacy. Promoting PPIUCD uptake is essential to bridge the gap in contraceptive coverage and improve overall maternal and child health outcomes.

PPIUCD is the insertion of an intrauterine contraceptive device immediately after delivery of the baby, either

during cesarean section or after vaginal delivery. It is a safe, effective, and convenient method of long-acting reversible contraception that can be offered to women in the immediate postpartum period. It allows women to space their pregnancies and avoid unintended pregnancies during the postpartum period.⁴ Studies have shown that awareness regarding PPIUCD among women is low, with only a small percentage of women knowing about it. The acceptance rate of PPIUCD has been variable, ranging from 6.3% to 22% in different studies.⁵

Timing of IUCD insertion⁶

Post placental- insertion within 10 minutes of placental expulsion after vaginal delivery, immediate postpartum-within 48 hours of delivery before discharging the patient, intra cesarean- insertion during cesarean section, post abortal- after excluding infection, bleeding, other contra indications, and interval- any time after 6 weeks postpartum.

The benefits of immediate insertion after delivery include: A window of high motivation for contraception, convenience, as the procedure is performed in the same setting, eliminating the need for a separate visit, effectiveness, long-term action, coitus independence, and no interference with breastfeeding.

Types of IUCDs

Copper containing IUCDs- Cu T 380A, Cu T 375(Multiload), Cu T 250 and Progestin releasing IUCDs- LNG-IUS (levonorgestrel releasing intra uterine system): it is a hormone releasing IUCD which contains 52 mg of levonorgestrel contained in a rate controlling membrane and releases 20mcg LNG per day.⁷

The most common device, the Copper T 380A, is highly effective (pearl index 0.6-0.8 indicates 99.2-99.4% effectiveness) and safe for use for up to 10 years.⁶ However, existing literature indicates that awareness regarding PPIUCDs is generally low, and acceptance rates are variable. Barriers to uptake often include lack of awareness, fear of side effects, and partner resistance.

Mode of action of Cu T 380A

Copper IUDs work primarily by preventing fertilization. The presence of copper in the uterus interferes with sperm migration, ovum transport and fertilization. It also has a secondary effect of making the uterine and tubal environment hostile to sperm and ova. Copper cause inflammatory reaction in endometrial cavity and hence prevents implantation. Copper is toxic to sperms. It also changes the consistency of cervical mucous and hence ascend of sperms are prevented.

Copper T as an abortifacient. Contrary to common misconception, Cu-IUDs do not cause abortion.⁹ They prevent pregnancy by inhibiting fertilization and not by

interrupting an established pregnancy. Postpartum IUDs can be safely inserted in the immediate postpartum period, 4-6 weeks postpartum, and during the interval period.¹⁰ Factors that influence the acceptance of PPIUCD include counselling, involvement of the husband, and the timing of counselling, with early counselling during labour being most effective.⁴

This study aimed to evaluate the acceptance rate of PPIUCD in a tertiary care setting in Kerala, India, and to specifically identify the demographic, social, and counselling factors that predict acceptance or lead to discontinuation.

METHODS

The study employed a prospective observational design to evaluate the acceptance and follow-up of PPIUCDs.

Study setting and population

The study was conducted at the department of obstetrics and gynecology at Government Medical College, Kozhikode, a major tertiary care centre in Kerala, India for a period of one and half years November 2022-April 2024. A total of 1,000 postpartum women were enrolled as participants.

Counselling and intervention

All eligible participants were offered counselling on various contraceptive options, with a focus on the advantages, insertion timing, potential side effects, and follow-up care for PPIUCD (Copper T 380A). Counselling was performed at different time points, including during antenatal visits, early labour, and on the first postpartum day. Participants were assessed for medical eligibility (using WHO medical eligibility criteria) and provided informed consent prior to insertion.

Inclusion criteria

Term antenatal women who are 19-35 years old with singleton pregnancy and are delivering in IMCH Kozhikode during the study period.

Exclusion criteria

PROM>18 hours, women with postpartum haemorrhage /antepartum eclampsia/MROP, patients with immunosuppressed state, history of ectopic pregnancy, women having distorted uterine cavity, anaemia, copper allergies, active pelvic infection and pelvic malignancies.

Techniques included

Post-placental insertion: Within 10 minutes of placental expulsion after vaginal delivery. Immediate postpartum insertion: within 48 hours of delivery. Intra-cesarean insertion: during cesarean section.

Instruments used for PPIUCD

Sim’s speculum, sponge holding forceps, long placental forceps, scissor, copper T 380 A, antiseptic solution, cotton balls, adequate lighting and sterile gloves.



Figure 1: Instruments for postplacental PPIUCD insertion.

Data collection and follow-up

Data was collected using a structured proforma which captured demographic variables (age, parity, education,

religion), counselling time and location, and reasons for acceptance or rejection.

Patients who accepted and underwent PPIUCD insertion were followed up at 6 weeks and 6 months postpartum. Follow-up visits assessed: continuation rate, the presence of complications (e.g., abdominal pain, bleeding, infection), expulsion (partial or complete) and removal rate.

Statistical analysis

The collected data were compiled and analysed to determine descriptive statistics (mean, percentage) and to find associations between demographic/counselling factors and PPIUCD acceptance/discontinuation using appropriate tests of significance.

RESULTS

Study population and acceptance rate

A total of 1,000 participants were enrolled in the study. The mean age was 26.46±4.178 years, with the majority (48.8%) falling in the 24-29-year age group. Following counselling, the overall acceptance rate of PPIUCD was (18%); conversely, 82% of participants rejected the device.

Table 1: Age group with IUCD acceptance.

			Accepted	Rejected	Total
Age group (in years)	18-23	N	51	225	276
		%	18.5	81.5	100.0
	24-29	N	101	387	488
		%	20.7	79.3	100.0
	30-35	N	27	209	236
		%	11.4	88.6	100.0
Total	N	179	821	1000	
	%	17.9	82.1	100.0	

Table 2: Parity and IUCD acceptance.

			Accepted	Rejected	Total
Parity	P1	N	61	342	403
		%	15.1	84.9	100.0
	P2	N	99	323	422
		%	23.5	76.5	100.0
	P3	N	19	156	175
		%	10.8	89.1	100.0
Total		179	821	1000	
		17.9	82.1	100.0	

Factors influencing acceptance

Statistically significant associations were found between PPIUCD acceptance and several key variables: parity: PPIUCD acceptance was highest among parity 2 (P2) women (42.2%). Age: the 30-35-year age group showed the highest rejection rates (88.6%). Religion: the Hindu religion had the highest acceptance rate (43.3%) compared to other religious groups. Education: although the overall

association was not statistically significant, acceptance was highest among degree holders (45.6%). Counselling location: counselling performed in the hospital ward was associated with the highest acceptance rates (48.6%).

Of the women who accepted, were followed up (with at 6 months). The majority of insertions were intra-caesarean (79.4%), followed by post-placental (18.2%).

Table 3: Education and PPIUCD acceptance.

			Accepted	Rejected	Total	P value
Education	Degree	N	96	354	450	0.128
		%	21.4	78.6	100.0	
	HS	N	2	23	25	
		%	8.0	92.0	100.0	
	HSS	N	74	389	463	
		%	16.0	84.0	100.0	
PG	N	7	43	50		
	%	14.0	86.0	100.0		
Total	N	179	809	988		
	%	18.1	81.9	100.0		

Table 4: Reason for PPIUCD acceptance (n=179).

	Frequency	Percentage
lesser clinical visits	19	10.7
Long term use	73	41.0
No interference with feeding	4	2.2
Reversible	42	23.6
Safe	41	22.5

Table 5: Reasons for PPIUCD rejection (n=179).

	Frequency	Percentage
Fear of pain and bleeding	271	33
Fear of cancer	21	2.6
Interferes with sexual intercourse	14	1.7
No need of contraception immediately	88	10.7
Partner refusal	244	29.7
Prefer to use other method	83	10.1
Religious	100	12.2
Total	821	100.0

Table 6: Follow-up among PPIUCD acceptors at 6 weeks (n=160).

Complications	Frequency	Percentage
White discharge PV	4	2.5
Missing thread	7	4.4
Expelled	9	5.6
Removed	11	6.9
Long thread	12	7.5
AUB	18	11.3
Abdominal pain	25	15.6

Reasons for acceptance and rejection

The primary reasons cited by women for accepting PPIUCD were: Long-term use: 41.0%. Other reasons: reversibility (23.6%), safety (22.5%), need for fewer clinical visits (10.7%), and no interference with breastfeeding (2.2%).

The main reasons for rejection were: fear of pain and bleeding: 33% and partner refusal: 29.7%.

Follow-up outcomes

At the 6-week follow-up, the continuation rate was 87%. The discontinuation rate was due to either removal (6.9%) or expulsion (5.6%) (Table 6).

Table 7: Follow-up among PPIUCD Acceptors at 6 months (n=140)

	Frequency	Percentage
Missing thread	15	10.7
Removed	13	9.29
AUB	14	10.00
Pain abdomen	15	10.71

Common complications reported at the 6-week check-up included: abdominal pain: 15.6%, menstrual problems (heavy bleeding/spotting): 11.3% and long thread: 7.5%. complications reported at the 6-month follow-up included abdominal pain (10.7%), heavy menstrual bleeding (10%), and missing thread (10.7%) (Table 7).

DISCUSSION

This study was done to determine the acceptance rate of post-partum IUCD, to describe the factors which leads to acceptance of post-partum IUCD and to describe the factors which leads to discontinuation of post-partum IUCD. In this study, the mean age of participants was 26.46±4.178 years, with the majority (48.8%) aged 24-29 years, reflecting the typical demographic of antenatal women at our facility. These findings align closely with Shiferaw et al, who reported a similar mean age of 25.18±4.56 years and a majority in the 20-25 age group.¹¹ Similarly, Tomar et al found that 57% of participants were between 21 and 25 years old.¹² Maximum rejection rates were observed in the 30-35 age group (88.6%), as these women frequently preferred permanent sterilization, whereas the 24-29 age group showed the highest acceptance (20.7%), likely due to younger women's greater receptivity to counselling.

The parity distribution for PPIUCD acceptance was predominantly P2 (42.2%) and P1 (40.3%), which mirrors findings by Kanhere et al and reflects a significant association with IUCD acceptance, which was highest among P2 (23.5%) and P1 (15.1%) participants seeking

birth spacing.¹³ Conversely, participants with higher parity opted for permanent contraceptive methods rather than IUCDs. Although these results highlight parity as a key factor in acceptance, they contrast with Gupta et al, who reported that parity had no significant effect on contraceptive choice.¹⁴ In the current study, participants were predominantly well-educated, with 46.9% having higher secondary education and 45.4% holding a degree, which contrasts with the higher rates of illiteracy and primary education reported by Tomar et al and Kanhere et al.^{12,13} Although no statistically significant association was found between education and PPIUCD acceptance- a finding consistent with Jain et al- the highest uptake in this study was observed among degree holders (21.4%).¹⁵ This suggests that higher education may empower women with greater awareness of birth spacing and contraceptive options.

The PPIUCD acceptance rate was 18%, a figure higher than the rates reported by Naqvi et al (11.5%), but lower than the 35.6% observed by Gebremedhin et al.^{16,17} The primary driver for acceptance was the long-term efficacy of the device (41%), followed by its safety, reversibility, and lack of interference with breastfeeding. These motivations align with findings by Tomar et al, where long-term reversibility was also the leading reason for acceptance (42.3%).¹² These results suggest that while acceptance rates vary significantly across regions, the preference for PPIUCD is consistently rooted in its convenience and long-acting, non-surgical nature.

The reasons for rejection were fear of pain and bleeding (33%), followed closely by partner refusal (29.7%). This fear of complications aligns with findings by Nalini et al and reflects common myths or misconceptions regarding device migration and physical discomfort. While studies by Shiferaw et al identified a preference for other methods or permanent sterilization as leading factors for non-acceptance.^{11,18} Partner and family disagreement remained a significant barrier across multiple studies, including Ghafoor et al.¹⁹ These findings suggest that rejection is often rooted in a lack of comprehensive knowledge and the influence of social support systems, highlighting a need for more effective counselling to address specific concerns about side effects.

Regarding the timing of insertion, the majority of participants in this study received intra-cesarean PPIUCD (79.4%), followed by post-placental (18.2%) and early postpartum (2.5%) insertions. This distribution differs from the findings of Tomar et al who reported higher rates of post-placental insertions during vaginal deliveries.¹²

At the six-week follow-up, the most frequent complications were abdominal pain (15.6%) and menstrual issues (11.3%), which are consistent with the results of Tomar et al.¹² Although IUCD expulsion and missing threads were observed in 5.6% and 4.4% of cases respectively, these rates are comparable to or lower than

those reported by Vishwakarma et al.²¹ Notably, all cases of missing threads in this study were confirmed to be in the intrauterine location via ultrasonography, and no major complications such as perforation were recorded, reaffirming the safety profile of the procedure.

At the six-month follow-up, abdominal pain (10.7%) and per vaginal bleeding (10%) remained the most prevalent complications, with 9.29% of participants opting for IUCD removal. These results are broadly consistent with findings by Vishwakarma et al, who also identified bleeding and pain as persistent issues, though at slightly lower frequencies.²¹ Notably, the incidence of missing threads in this study (7.86%) aligns closely with the 8.4% and 8.6% reported in these comparative studies, suggesting a stabilized complication profile over the long term.

Future perspective

To increase PPIUCD uptake, future strategies should focus on involving male partners in counselling and expanding outreach to antenatal clinics and community settings to address specific barriers like partner refusal and fear of pain. Targeted education for both healthcare providers and older demographic groups can further dispel myths and improve long-term acceptance across diverse populations

The study's limitations include the reliance on a single tertiary care centre and a drop-off in follow-up attendance at 6 months, which is a common challenge in postpartum family planning studies.

CONCLUSION

The high continuation rate among PPIUCD users demonstrates its effectiveness and acceptability. Efforts to increase overall uptake must therefore focus on intensive, evidence-based counselling during the antenatal and immediate postpartum period (e.g., in the ward setting) to overcome misconceptions and effectively engage male partners.

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