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Original Research Paper

Acceptance, safety and efficacy of Postpartum intrauterine contraceptive device (PPIUCD) insertion at tertiary health care centre.

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ABSTRACT:
Background: The unmet need for contraception in the postpartum period is a major challenge in our country. According to survey done by USAID/ ACCESS, 65% of women in first year postpartum have an Unmet need for family planning in India. Pregnancy before 24 Months of previous birth increase maternal and perinatal morbidity and mortality. Unintended pregnancies are highest in the first year after birth, and postpartum IUCD insertion is an effective and reversible way to counter this problem. This study was planned to study acceptability, safety, efficacy and complication of PPIUCD. **Methods**: This retrospective study was conducted at Smt. Kashibai Navale medical college, from January 2019 to December 2021. Patients were followed up at 6 weeks and 6 months period after insertion of PPIUCD for its acceptance and complaints. **Results**: Total 450 patients were inserted PPIUCD during study period. Overall acceptance rate was 85.4%. Most common cause for removal of PPIUCD was family pressure (36.4%) followed by pain in lower abdomen (34.8%). Acceptance rate was higher between 25 to 30 years of age (44.79 %). On follow up after 6 months of insertion 82.97 % women had no any complaint. Most common complaints were lower abdominal pain (10.22%), missing thread (6.57%) and vaginal discharge (5.11%). Only 17 (3.7%) women complained about expulsion of IUCD. There was no any case of perforation or failure reported. **Conclusions**: Present study shows that PPIUCD is a safe, highly effective, low-cost and long-acting method of contraception. It is beneficial for Indian women where unmet need is high for contraception during postpartum period.

Keywords: Post partum, acceptance, Intra caesarean, Post placental, PPIUCD

INTRODUCTION:

The unmet need for contraception in the postpartum period poses a significant challenge in India [1]. A USAID/ACCESS survey revealed that 65% of women have an unmet need for family planning in the first postpartum year [2]. Furthermore, an estimated 61% of births in India occur at intervals shorter than the recommended 36 months [3]. The postpartum period is critical for both women and newborns, requiring specialized and integrated health services due to high morbidity and mortality rates [4]. Research indicates that pregnancies within 24 months after delivery increase maternal and perinatal morbidity and mortality [5]. Family planning can prevent over 30% of maternal deaths and 10% of child mortality if pregnancies are spaced more than 2 years apart [6]. PPIUCD insertion offers several advantages, including convenience, safety, and no risk of uterine perforation. It also reduces initial side effects, has no impact on breastfeeding, and can be provided before hospital discharge. The CuT-380A is approved for immediate postpartum insertion, making it an effective and reversible method for preventing unintended pregnancies [2]. This study assessed the acceptability, safety, and efficacy of Immediate Postpartum Intra Uterine Contraceptive Device (PPIUCD) insertion following vaginal and caesarean deliveries. The results will inform evidence-based guidelines, healthcare provider training, and implementation strategies to improve maternal and reproductive health outcomes.

Study Design and Methodology:

This retrospective observational study was designed to evaluate the acceptance, safety, and efficacy of Postpartum Intrauterine Contraceptive Device (PPIUCD) insertion at Smt. Kashibai Navale Medical College and General Hospital, Pune from January 2019 to December 2021. Ethical approval was taken prior to commencement of study from the Institutional Ethics Committee.

Study Participants:
A total of 450 women who delivered vaginally or via Lower Segment Caesarean Section (LSCS) and underwent PPIUCD (CuT 380A) insertion during the study period were included. The participants were selected based on strict inclusion and exclusion criteria to ensure the validity and reliability of study.

Inclusion Criteria:
Women who met eligibility criteria as per the World Health Organization (WHO) for Post-partum IUCD Insertion [7] and willing to undergo Copper T insertion & follow-up were included in the study.

Exclusion Criteria:
Women having unresolved postpartum haemorrhage (PPH), extensive genital trauma, uterine abnormalities, distorting the cavity, Chorioamnionitis, large fibroids, prolonged rupture of membranes (>18 hours), malignant or benign trophoblastic disease, HIV/AIDS and pelvic inflammatory disease were excluded from the study.

Procedure:
Women who fulfilled the inclusion criteria were counselled by experienced healthcare providers, and informed consent was obtained. PPIUCD (CuT 380A) insertion was performed by skilled healthcare professionals. The IUCD was placed within 10 minutes after removal of placenta using Kelly's forceps for vaginal deliveries, following active management of the third stage of labour. For caesarean sections, the IUCD was held between the middle and index fingers and released at the fundus through the incision after removal of placenta and membrane.
At discharge, patients were advised to return for follow-up after 6 weeks and next after 6 months. They were counselled about potential side effects, including foul-smelling vaginal discharge, excessive vaginal bleeding, severe lower abdominal pain, fever, and device expulsion. Patients were instructed to report any symptoms promptly. For the follow-up prior telephonic confirmation was obtained to reduce attrition rate. During follow-up visits per speculum examination was done to check position of thread and signs of infection. USG pelvis was performed in case of missing thread. Observations, examination findings, patient's complaints and feedback were recorded in a PPIUCD follow-up register and analysed. For this study, acceptance of Postpartum Intrauterine Contraceptive Devices (PPIUCD) at 6 months was defined as retention of the IUCD at the end of 6 months, indicating successful acceptance of the method.

Data analysis:
The parameters such as age, parity, type of insertion (post-placental or c), spontaneous expulsion, manual removal, reasons for removal, side effects, complications etc. included in the analysis. Data analysis was performed using Microsoft Excel and Epi-Info7 software, with results presented as frequencies and proportions.

RESULTS:

Participants and Demographics:
A total of 450 women who delivered during the study period and met the eligibility criteria for Postpartum Intrauterine Contraceptive Device (PPIUCD) insertion were enrolled in the study. The majority of participants (47.3%) belonged to the 25-30 years age group. 58.7% (n=264) of participants underwent IUCD insertion during Caesarean section, whereas 41.3% (n=186) had IUCD inserted vaginally within 10 minutes of delivery of the placenta after vaginal delivery. The demographic and clinical profiles of the women are presented in Table 1.

Follow-up Visits:
Table 2 shows the complaints reported by women during follow-up visits. At 6 weeks post-insertion, 77.33% of women reported no complaints, while 82.97% reported no complaints at 6 months. The most common complaints reported at 6 weeks were lower abdominal pain (12.44%), cervicovaginal discharge (6.89%), and long thread (6%). At 6 months, the most common complaints were lower abdominal pain (10.2%), missing thread (6.57%), and cervicovaginal discharge (5.11%).

Acceptance and Removal Rates:
As shown in Tables 3-5, 85.4% of women accepted to continue using PPIUCD after 6 months, while 14.6% underwent PPIUCD removal. The acceptance rate with respect to sociodemographic factors is shown in Table 4. The most common reasons for removal were family pressure (36.4%) and lower abdominal pain (34.8%).

Table. 1. Baseline Characteristics of study participants (n=450)

Age in Years	Number of women (n=450)	Percentage
≤ 20	6	1.3%
20 ≤ 25	174	38.7%
25 ≤ 30	213	47.3%
30 ≤ 35	54	12.0%
>35	3	0.7%
Education		
Graduate and above	9	2.0%
Higher secondary	324	72.0%
Primary	99	22.0%
Illiterate	18	4.0%
Occupation		
Home maker	321	71.3%
Self employed	24	5.3%
Service/Job	105	23.3%
Religion		
Hindu	339	75.3%
Muslim	102	22.7%
Others	9	2.0%
Area of residence		
Rural	252	56.0%
Urban	198	44.0%
Family Planning used in the past		
Condom	144	32.0%
Injectable	84	18.7%
IUCD	12	2.7%
Pills	72	16.0%
Others	60	13.3%
No method	78	17.3%
Parity		
Multipara	324	72.0%
Primipara	126	28.0%
PPIUCD inserted		
Intra-caesarean	264	58.7%
Post Placental	186	41.3%

Table. 2. Mejor Complaints reported on follow-up visits (multiple responses)

Complaints	After 6 weeks (n=450)	Percent	After 6 months (n=411)	Percent
No Complaints	**348**	**77.33%**	**341**	**82.97%**
Cervicovaginal discharge	31	6.89%	21	5.11%
Expulsion	10	2.22%	7	1.70%
Long thread	27	6.00%	8	1.95%
Menorrhagia	12	2.67%	6	1.46%
Missing thread	18	4.00%	27	6.57%
Lower abdominal pain	56	12.44%	42	10.22%
Dyspareunia	6	1.33%	5	1.22%
Irregular vaginal bleeding	19	4.22%	12	2.92%

Table.3 Overall acceptance of PPIUCD reported on follow-up visits

Cu T Removal (n=450)	PPIUCD Removal	Percent	PPIUCD Continuation	Percent
After 6 weeks	39	8.7%	411	91.33%
After 6 Months	27	5.9%	384	85.4%
Total	66	14.6%	384	85.4%

Table 4 - Acceptability PPIUCD Insertion with respect to Baseline Characteristics of Women

Age Group	Number of women (n=384)	Percent
≤ 20	3	0.78%
20 ≤ 25	162	42.19%
25 ≤ 30	172	44.79%
30 ≤ 35	46	11.98%
> 35	1	0.26%
Education		
Graduate and above	11	2.86%
Higher secondary	271	70.57%
Primary	86	22.40%
Illiterate	16	4.17%
Occupation		
Home maker	264	68.75%
Self employed	38	9.90%
Service/Job	82	21.35%
Religion		
Hindu	281	73.18%
Muslim and others	103	26.82%
Area of residence		
Rural	205	53.39%
Urban	179	46.61%
Parity		
Multipara	265	69.01%
Primipara	119	30.99%
PPIUCD inserted		
Intra-caesarean	216	56.25%
Post Placental	168	43.75%

Table.5 Mejor cause reported for removal of PPIUCD on follow-up visits (Multiple responses)

Causes	After 6 weeks (n=39)	Percent	After 6 Months (n=27)	Percent	Total (n=66)	Percent
Family pressure	9	23.08%	15	55.56%	24	36.4%
Dyspareunia	5	12.82%	3	11.11%	8	12.1%
Lower abdominal pain	15	38.46%	8	29.63%	23	34.8%
Menorrhagia	9	23.08%	3	11.11%	12	18.2%
Cervicovaginal discharge	11	28.21%	6	22.22%	17	25.8%
Want tubal ligation	3	7.69%	2	7.41%	5	7.6%

DISCUSSION:

This study evaluated the acceptance and continuation of Postpartum Intrauterine Contraceptive Device (PPIUCD) among women of reproductive age. The present study shows overall 85.4% acceptance rate at 6 months of insertion, comparable to the study done by Deshpande S et al. where the acceptance rate was 80.4% [8]. Similar high acceptance and continuation rates were reported in the other Indian studies [11-13]. Effective counselling and education may have contributed to the high continuation rate observed.

The present study found the highest acceptance rate of Postpartum Intrauterine Contraceptive Device (PPIUCD) among women aged 25-30 years (44.79%), followed by those aged 20-25 years (42.19%). This finding is consistent with studies done by Deshpande S et al. and Bai Gujju RL et al. [8,14]. However, a study by Rani K et al. reported a slightly different age-specific acceptance rate, with the highest rate among women aged 20-25 years [10]. The discrepancy may be due to differences in study population, sample size, and demographic characteristics.

The majority of participants (70.57%) had higher secondary education, and 68.75% were homemakers, which was associated with higher PPIUCD acceptance. This is consistent with studies by Deshpande S et al. and Nalini N et al. [8,9]. Most participants (73.18%) were Hindu, and 53.39% resided in rural areas, which was linked to higher PPIUCD acceptance. While the finding on religion aligns with other studies [8-10]. The result on residence contrasts with study done by Deshpande S. et al. that reported higher acceptance among urban women [8].

The present study found a higher acceptance rate of Postpartum Intrauterine Contraceptive Device (PPIUCD) among multiparous women (69%) compared to primiparous women, consistent with various studies in India [8,10,15]. Regarding insertion methods, the study found a higher acceptance rate among participants who underwent post-caesarean section (CS) insertion (56.25%), consistent with Gupta S et al. [11]. However, Rani K et al. reported a higher acceptance rate among participants who underwent post-placental insertion (69.3%) [10]. These varying results suggest that the method of PPIUCD insertion may not be the sole determining factor for acceptance.

The present study found that 82.9% of women reported no any major complaints 6 months after Postpartum Intrauterine Contraceptive Device (PPIUCD) insertion. The most common complaints reported in 17.1% women were lower abdominal pain (10.22%), missing thread (6.57%), and cervicovaginal discharge (5.11%). Menorrhagia was reported by only 1.46% of participants. In comparison, a study by Rani K et al. reported a lower percentage of women with no complaints (44.3%) and a higher percentage of women experiencing lower abdominal pain (15%), missing thread (14.6%), and menorrhagia (2.28%). The differences in complaint rates between the two studies may be attributed to variations in study population, sample size, and follow-up duration. [10]

The present study reported a low expulsion rate of 2.22% at 6 weeks, comparable to Gautam R et al. who reported an expulsion rate of 3.1% at 6 weeks [13]. The low expulsion rates observed in both studies suggest that PPIUCD is a stable and effective contraceptive method when properly inserted.

A total of 66 (14.4%) participants underwent removal of PPIUCD. The main causes of removal being family pressure (36.4%), lower abdominal pain (34.4%) and cervicovaginal discharge (25.8). These findings are partially consistent with other studies. Mishra S et al. and Rungun D et al. reported 23.26% and 27.27% of removals were due to family pressure [12, 17]. However, a study by Rani K et al. found that lower abdominal pain was the main cause of removal [10]. These variations in findings may be attributed to differences in study populations, cultural contexts, and individual experiences.

CONCLUSIONS:

The postpartum intrauterine contraceptive device (PPIUCD) is a highly effective and safe method of contraception with high acceptance that addresses the unmet need for family planning in India during the postpartum period. With proper counselling starting from the antenatal period, PPIUCD can have a significant impact on reducing unplanned pregnancies and their negative consequences, ultimately improving maternal and child health outcomes.

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