

A PROSPECTIVE SAFETY EFFICACY AND EXPULSION OF POST-PLACENTAL AND INTRA-CESAREAN INSERTION OF INTRAUTERINE CONTRACEPTIVE DEVICES (PPIUCD) IN TERTIARY CARE HOSPITALS IN KOLKATA

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Abstract

Introduction: Preventing pregnancy with an intrauterine device (PPIUCD) is one of the earliest forms of contraception available today. IUCD is a very effective, discreet, safe, long-acting, coitus-independent, quickly reversible, and minimally invasive method of contraception. The most economical kind of birth control is intrauterine contraception. IUCD is also highly convenient for many women because, once inserted, it takes very little care.

Aims: To determine the rates of uterine perforation, expulsion, pelvic infections, lost strings and displacements following PPIUCD insertion among the acceptors by 6 to 18 months.

Materials and method: The present study was an institutional based prospective observational study. This study was conducted from JANUARY 2021 to JUNE 2022 at Department of Obstetrics and Gynecology, Medical College and Hospital, Kolkata. 260 patients were included in this study.

Result:

Conclusion: We concluded that immediate postpartum contraception can be safely and effectively achieved with the insertion of a PPIUCD during or after cesarean delivery. **Keywords:** USG, Diabetic Arteriopathy, surgical intervention and Doppler.

INTRODUCTION

Preventing pregnancy with an intrauterine device (PPIUCD) is one of the earliest forms of contraception available today. IUCD is a very effective, discreet, safe, long-acting, coitus-independent, quickly reversible, and minimally invasive method of contraception. The most economical kind of birth control is intrauterine contraception. IUCD is also highly convenient for many women because, once inserted, it takes very little care. Since the introduction of JSY and JSSK, more and more Indian women are giving birth in hospitals. It gives the state the chance to offer PPIUCD in a significant level.

In 2017, India accounted for 17.85% of the global population, with an annual birth rate of about 25 million. According to estimates from around the

world, 20% of all obstetrical causes of death and 90% of maternal deaths associated with unsafe abortions can be avoided with efficient contraceptive use [1].

The National Family Health Survey 4 indicates that there is now a 12.9% overall unmet demand for contraception and a 5.7% unmet need for spacing. One of the most important times is the postpartum period, when ovulation is incredibly unpredictable, couples frequently underestimate the chance of becoming pregnant, and women are more likely to become pregnant unintentionally. Due to the short interpregnancy gap and high fertility rate, there is a significant prevalence of sickness and mortality among mothers and newborns [2].

The prevention of unwanted and closely spaced pregnancies can be achieved using a variety of postpartum family planning (PPFP) techniques, including

lactational amenorrhea, barrier approaches, progesterone-only preparations, and intrauterine copper device (IUCD) as a temporary measure. The Medical Eligibility Criteria (MEC) of the World Health Organization (WHO) state that an IUCD, also known as a post-partum IUCD (PPIUCD), may be placed within 48 hours of giving birth. When women have limited access to medical care and delivery may be their sole interaction with healthcare providers, PPIUCD insertion ensures that the woman is not pregnant and is convenient for both the woman and the service provider. The purpose of this study was to evaluate the safety, problems, and expulsion of intracerebral PPIUCD insertion in a rural Indian tertiary-care hospital that serves a population that is disproportionately diverse within its catchment area. Even though this subject appears to be older, pregnant women in rural India are unfamiliar with it entirely. Expulsion, complications, and safety (abnormal vaginal discharge, infection, and irregular bleeding) were the main outcomes measured by intracerebral PPIUCD in the target women.

MATERIALS AND METHODS

Study Design: It was an institutional based prospective observational study

Place of Study: Medical College and Hospital, Kolkata

Period of Study: JANUARY 2021 to JUNE 2022

Sample Size: 260

Inclusion Criteria: All the antenatal patients who was admitted for delivery to their hospital was counselled for PPIUCD. Consent was obtained from them, who will opt for insertion; among those who are fulfilling the followings was considered.

1. 18-45 years old.
2. Gestational Age 36-40 Weeks.
3. Desire to have CuT after counseling before insertion.
4. No infections.
5. Hb>10 gm/dl.
6. AMTSL universally provided after the delivery of the infants.

Exclusion Criteria:

1. Fever during labor and delivery
2. Having active STD or other lower genital tract infection or high risk for STD
3. Known to have ruptured membranes for more than 24 hrs. prior to delivery
4. Known uterine malformations eg. Bicornuate /septate uterus

5. Manual removal of placenta
6. Unresolved postpartum hemorrhage or postpartum uterine
7. Atony requiring use of additional oxytocic agents in addition to AMTSL

Study Tools:

1. Pre-designed and Pre-tested data collection form
2. Routine investigation like complete hemogram
3. CuT380A
4. socio-demographic information,
5. antenatal and previous obstetrics performance
6. Thorough Clinical assessment
7. gynecological history including previous contraceptives history
8. Awareness of PPIUCD.

Statistical Analysis:

For statistical analysis, data were initially entered into a Microsoft Excel spreadsheet and then analyzed using SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism (version 5). Numerical variables were summarized using means and standard deviations, while categorical variables were described with counts and percentages. Two-sample t-tests, which compare the means of independent or unpaired samples, were used to assess differences between groups. Paired t-tests, which account for the correlation between paired observations, offer greater power than unpaired tests. Chi-square tests (χ^2 tests) were employed to evaluate hypotheses where the sampling distribution of the test statistic follows a chi-squared distribution under the null hypothesis; Pearson's chi-squared test is often referred to simply as the chi-squared test. For comparisons of unpaired proportions, either the chi-square test or Fisher's exact test was used, depending on the context. To perform t-tests, the relevant formulae for test statistics, which either exactly follow or closely approximate a t-distribution under the null hypothesis, were applied, with specific degrees of freedom indicated for each test. P-values were determined from Student's t-distribution tables. A p-value ≤ 0.05 was considered statistically significant, leading to the rejection of the null hypothesis in favour of the alternative hypothesis.

RESULT

Table: Association between Reason for Not Acceptability: Acceptability

		Acceptability				
			No	Yes	Total	p-value:
Reason For Not Acceptability	Dont Want Contraception Immediately	10	0	10	<0.0001	
	Row %	100.0	0.0	100.0		
	Col %	7.0	0.0	7.0		
	Fear Of Pain And Heavy Bleeding	10	0	10		
	Row %	100.0	0.0	100.0		
	Col %	7.0	0.0	7.0		
	Fears Cancer	5	0	5		
	Row %	100.0	0.0	100.0		
Col %	3.5	0.0	3.5			
No Specific Reason	10	0	10			
Row %	100.0	0.0	100.0			
Col %	7.0	0.0	7.0			
Partner Refusal	30	0	30			
Row %	100.0	0.0	100.0			
Col %	21.1	0.0	21.1			
Prefer To Use Another Method	51	0	51			
Row %	100.0	0.0	100.0			
Col %	35.9	0.0	35.9			
Religion Belief	26	0	26			
Row %	100.0	0.0	100.0			
Col %	18.3	0.0	18.3			
Total	142	0	142			
Row %	100.0	0.0	100.0			
Col %	100.0	100.0	100.0			

Table: Association between MOD: Acceptability

		Acceptability			
		No	Yes	Total	p-value
MOD	LUCS	89	56	145	0.0139
	Row %	61.4	38.6	100.0	
	Col %	62.7	47.5	55.8	
MOD	VD	53	62	115	
	Row %	46.1	53.9	100.0	
	Col %	37.3	52.5	44.2	
MOD	Total	142	118	260	
	Row %	54.6	45.4	100.0	
	Col %	100.0	100.0	100.0	
Changes In Menstrual Bleeding Patterns	Heavy & [Prolong-Ppiucd Removed	0	5	5	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	4.2	1.9	
Changes In Menstrual Bleeding Patterns	Heavy & Prolong -Ppiucd Continued	0	6	6	
	Row %	0.0	100.0	100.0	
	Col %	0.0	5.1	2.3	
Changes In Menstrual Bleeding Patterns	Heavy & Prolonge-Ppiucd Removed	0	5	5	
	Row %	0.0	100.0	100.0	
	Col %	0.0	4.2	1.9	

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	Heavy & Prolong-Ppiucd Continued	0	6	6
	Row %	0.0	100.0	100.0
	Col %	0.0	5.1	2.3
	Na	142	11	153
	Row %	92.8	7.2	100.0
	Col %	100.0	9.3	58.8
	Normal	0	85	85
	Row %	0.0	100.0	100.0
	Col %	0.0	72.0	32.7
	Total	142	118	260
	Row %	54.6	45.4	100.0
	Col %	100.0	100.0	100.0

Table: Association between Cramping Pain: Acceptability

	Acceptability			p-value:	
		No	Yes		Total
Cramping+Pain	Na	142	11	153	<0.0001
	Row %	92.8	7.2	100.0	
	Col %	100.0	9.3	58.8	
	No	0	101	101	
	Row %	0.0	100.0	100.0	
	Col %	0.0	85.6	38.8	
	Yes-Ppiucd Continued	0	6	6	
	Row %	0.0	100.0	100.0	
	Col %	0.0	5.1	2.3	
	Total	142	118	260	
	Row %	54.6	45.4	100.0	
	Col %	100.0	100.0	100.0	
Compliance	Na	142	11	153	<0.0001
	Row %	92.8	7.2	100.0	
	Col %	100.0	9.3	58.8	
	No	0	64	64	
	Row %	0.0	100.0	100.0	
	Col %	0.0	54.2	24.6	
	Yes	0	43	43	
	Row %	0.0	100.0	100.0	
	Col %	0.0	36.4	16.5	
	Total	142	118	260	
	Row %	54.6	45.4	100.0	
	Col %	100.0	100.0	100.0	

Table: Association between IUCD String problem: Acceptability

		Acceptability			
		No	Yes	Total	p-value
IUCD String problem	Missing stings-ppiucd continued	0	12	12	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	10.2	4.6	
	Missing stings-ppiucd removed	0	36	36	
	Row %	0.0	100.0	100.0	
	Col %	0.0	30.5	13.8	
strings-ppiucd continued	Missing strings-ppiucd continued	0	6	6	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	5.1	2.3	
	NA	142	11	153	
	Row %	92.8	7.2	100.0	
	Col %	100.0	9.3	58.8	
No	No	0	53	53	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	44.9	20.4	
	TOTAL	142	118	260	
	Row %	54.6	45.4	100.0	
	Col %	100.0	100.0	100.0	
Expulsion	Complete	0	6	6	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	5.1	2.3	
	NA	142	11	153	
	Row %	92.8	7.2	100.0	
	Col %	100.0	9.3	58.8	
No	No	0	96	96	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	81.4	36.9	
	Partial	0	5	5	
	Row %	0.0	100.0	100.0	
	Col %	0.0	4.2	1.9	
Total	Total	142	118	260	<0.0001
	Row %	54.6	45.4	100.0	
	Col %	100.0	100.0	100.0	

Table: Association between USG Finding to detect IUCD: Acceptability

		Acceptability			
USG Finding to detect IUCD		No	Yes	Total	p-value:
IUCD not seen	IUCD not seen	0	52	52	<0.0001
	Row %	0.0	100.0	100.0	
	Col %	0.0	44.1	20.0	
IUCD noted	IUCD noted	0	50	50	
	Row %	0.0	100.0	100.0	
	Col %	0.0	42.4	19.2	
Iucd noted in cervical canal	Iucd noted in cervical canal	0	5	5	
	Row %	0.0	100.0	100.0	
	Col %	0.0	4.2	1.9	
NA		142	11	153	

Row	%	92.8	7.2	100.0
Col %		100.0	9.3	58.8
Total		142	118	260
Row	%	54.6	45.4	100.0
Col %		100.0	100.0	100.0

Association of Reason for Not Acceptability with Acceptability was statistically significant ($p < 0.0001$). In Acceptability, 56 (47.5%) patients had LUCS and 62 (52.5%) patients had VD in MOD Association of MOD with Acceptability was statistically significant ($p = 0.0139$).

In Acceptability, 5 (4.2%) patients had Heavy & Prolong-Ppiucd Removed and 6 (5.1%) patients had Heavy & Prolong -Ppiucd Continued, 5 (4.2%) patients had Heavy & Prolong-Ppiucd Removed, 6 (5.1%) patients had Heavy & Prolong-Ppiucd Continued and 85 (72.0%) patients had Normal. Association of Changes in Menstrual Bleeding Patterns with Acceptability was statistically significant ($p < 0.0001$).

In Acceptability, 6 (5.1%) patients had Yes-Ppiucd Continued Cramping Pain. Association of Yes-Ppiucd Continued Cramping Pain with Acceptability was statistically significant ($p < 0.0001$).

In Acceptability, 43 (36.4%) patients had Compliance. Association of Compliance with Acceptability was statistically significant ($p < 0.0001$).

In Acceptability, 12 (10.2%) patients had Missing stings-ppiucd continued, 36 (30.5%) patients had Missing stings-ppiucd removed, 6 (5.1%) patients had Missing strings-ppiucd continued. Association of IUCD String problem with Acceptability was statistically significant ($p < 0.0001$).

In Acceptability, 6 (5.1%) patients had Complete, 5 (4.2%) patients had partial in expulsion. Association of Expulsion with Acceptability was statistically significant ($p < 0.0001$).

In Acceptability, 52 (44.1%) patients had IUCD not seen, 50 (42.4%) patients had IUCD noted, 5 (4.2%) patients had IUCD noted in cervical canal. Association of USG Finding to detect IUCD with Acceptability was statistically significant ($p < 0.0001$).

DISCUSSION

In contrast to patients who had Acceptability [53 (44.9%)], the majority of patients in our study had P0+0 in [57 (40.1%)] without it. This was $p < 0.0001$ statistically significant.

The majority of patients, we discovered, had [85 (59.9%)] Multi in without Acceptability as opposed to [65 (55.1%)] with Acceptability. However ($p = 0.4378$), this did not reach statistical significance. There was a statistically significant ($p < 0.0001$) correlation between the Acceptability and Reason for Not Acceptability.

Mishra S et al [3](2014) showed that This study looks at the parameters that influence whether an

immediate PPIUCD insertion is acceptable for women based on their sociodemographic, obstetric, and future pregnancy wishes. It also looks at the rates of pelvic infection, uterine perforation, and expulsion. They were monitored through June 30, 2013. 3209 women in total were counseled; 564 were accepted; 2645 were declined; 130 were lost to follow-up; 434 were followed-up with; complications totaled 190 (expulsion 39, bleeding 102, string problem 49), removal 43, and continuation 352. Inserting CuT 380 A by 10 minutes after placental delivery is part of the PPIUCD.

Goswami G, et al [4](2015) observed that This study was carried out to determine the variables linked to women's acceptability of immediate post-placental IUCD insertion as well as the degree of safety, efficacy, and expulsion of post-placental IUCD insertion. Only 400 of these ladies consented to the insertion of the PPIUCD; the remaining 200 did not. Just 300 women were followed up on after 100 lost follow-ups. Thirty of the follow-up women experienced expulsion, twenty had bleeding problems alone, twenty had abdominal pain alone, sixty had both bleeding and abdominal pain, five had thread problems, 230 continued using the contraceptive method, and seventy of the women stopped using their IUDs due to bleeding, abdominal pain, missing thread, family pressure, etc. Their findings suggest that implantation of CuT 380A within 15 minutes of placental delivery has a high retention rate, a low expulsion rate, and a reduction rate that can be achieved with practice.

According to our analysis, there were more patients with LC (100/84.7%) in the group with acceptability than in the group without acceptability (77.5%), however the difference was not statistically significant ($p = 0.0779$). There were significantly more patients from [104 (73.2%)] areas without acceptability than from [70 (59.3%)] areas with acceptability ($p = 0.0175$). Just eleven patients have statuses for last follow-up. The statistical significance of the relationship between the alteration in menstrual bleeding patterns and acceptability was $p < 0.0001$. It was statistically significant that Yes-Ppiucd Persistent Cramping Pain with Acceptability ($p < 0.0001$).

Barala S, et al [5](2016) showed that An efficient long-acting reversible contraceptive method is the intrauterine contraceptive device (IUCD). They underwent six months of follow-up. A total of 316 women received counseling; of these, 100 accepted and 216 rejected the PPIUCD. There were 2% of cases of expulsion, 3% of bleeding, 8% of missing

strings, 3% of abdominal pain, and 6% of removals. 92% of cases were continued. During the whole follow-up period, there were no cases of pelvic infection, perforation, or pregnancy with the CuT in situ. PPIUCD has a high retention rate of 92% and was clearly safe and effective.

Malathi P, et al [6](2016) observed that In India, the demand for family planning is unmet for 65% of women in the first year after giving birth. Three follow-up visits were made to the women at four, six, three months, and one year. Results: Of the 4141 women who received counseling, 2850 accepted, 1291 declined, and 109 consented but were not inserted because the requirements were not met. Suspended till 46 days later, monitored for 2850 days, and experienced problems (removal 28, bleeding 33, string issue 363, IUCD in situ with pregnancy 1, etc.). The woman receives extremely effective contraception at the time of discharge thanks to an immediate post-placental IUCD implantation. The government must devise plans to use various media outlets to raise public knowledge of the PPIUCD. In India, the demand for family planning is unmet for 65% of women in the first year after giving birth. Therefore, using contraception during this crucial time is necessary.

It was discovered that while there were more Muslim patients [85 (72.0%)] with acceptability than without [89 (62.7%)], the difference was not statistically significant ($p=0.1103$). The majority of patients [58 (49.2%)] Primary education with acceptability was statistically significantly ($p<0.0001$) different from that without acceptability [68 (47.9%)]. In comparison to patients with acceptability [62 (52.5%)], the majority of patients [89 (62.7%)] had LUCS in the latter category. This difference was statistically significant ($p=0.0139$). There were just 43 patients that met the requirements. There was no IUCD String issue in 142 patients.

Jain R et al [7](2018) showed that There are more opportunities to offer high-quality postpartum family planning services when institutional delivery rates rise. It seems that PPIUCD is the best way to restrict and space out pregnancies. The current study set out to assess the acceptability, safety, and effectiveness of intrauterine and postplacental Cu-T 380 A IUCD insertion as a contraceptive technique. 360 women who met the inclusion criteria and were admitted for delivery at Gajra Raja Medical College, Gwalior (M.P.), were advised to have PPIUCDs inserted. Cu T 380 A was implanted in 164 women who met all PPIUCD criteria within ten minutes of placenta delivery.

Iftikhar PM, et al [8](2019) showed that The postpartum intrauterine contraceptive device, or PPIUCD, is an affordable, reversible, and practical method of birth control that lowers the abortion rate. Their study's goal was to assess postpartum intrauterine contraceptive device insertion women's satisfaction and efficacy rates. At their institute, a

prospective trial of immediate PPIUCD implantation was carried out between March 2016 and February 2019.]

Jain S et al [9](2019) examined that Rapidly reversible contraceptive methods include intrauterine contraceptive devices, or IUCDs. To ensure the safety and efficacy of IUCD, it is imperative to evaluate its acceptance and uptake among parturients. The study's main objective was to assess parturients' acceptance, safety, and follow-up regarding the postpartum insertion of IUCD in both vaginal and cesarean section deliveries. The ultimate goal was to reduce the number of unintended pregnancies and increase the use of IUCD. The prospective study was carried out between January 2014 and January 2015. The study population consists of parturients accepted for postpartum IUCD (PPIUCD) insertion and all antenatal patients at their visits after 30 weeks of gestation.

We demonstrated that a statistically significant ($p<0.0001$) proportion of patients had no expulsion, USG findings to detect IUCD, pregnancy/failure [142 (100.0%)] in the absence of acceptability compared to 96 (81.4%) in the presence of acceptability.

The mean age was found to be greater [25.4492± 3.6271] in the case of acceptability than in the case of non-acceptability [25.2183± 3.9142], but this difference was not statistically significant ($p=0.6250$).

CONCLUSION

We concluded that immediate postpartum contraception can be safely and effectively achieved with the insertion of a PPIUCD during or after cesarean delivery. The technique should be encouraged in tertiary care settings to support family planning efforts and lower the risk of unintended pregnancies among postpartum women, as indicated by the low rates of expulsion and complications.

REFERENCE

1. Ahmed S, Li Q, Liu L, Tsui AO. Maternal deaths averted by contraceptive use: an analysis of 172 countries. *The Lancet*. 2012 Jul 14;380(9837):111-25.
2. Mignini LE, Carroli G, Betran AP, Fescina R, Cuesta C, Campodonico L, De Mucio B, Khan KS. Interpregnancy interval and perinatal outcomes across Latin America from 1990 to 2009: a large multi-country study. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2016 Apr;123(5):730-7.
3. Mishra S. Evaluation of safety, efficacy, and expulsion of post-placental and intra-cesarean insertion of intrauterine contraceptive devices (PPIUCD). *The journal of obstetrics and gynecology of India*. 2014 Oct;64:337-43.
4. Goswami G, Yadav K, Patel A. A prospective study to evaluate safety, efficacy

- and expulsion rate of post placental insertion of intra uterine device. *Journal of Evolution of Medical and Dental Sciences*. 2015 Jul 13;4(56):9770-4.
5. Barala S, Maheshwari S, Sharma P. Analysis of awareness, acceptance, safety and continuation rate of post-placental and intra-caesarean insertion of intrauterine contraceptive device. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2016 Jun 1;5(6):1974-81.
 6. Malathi P, Patalay K. Intra cesarean-intra uterine contraceptive device 380 a insertion: 3 years experience at a tertiary care center. *IAIM*. 2016 Aug 1;3(8):241-7.
 7. Jain R, Bindal J. Evaluation of Post-Placental and Intra-Cesarean Insertion of Copper-T 380A as a Method of Contraception. *J Med Sci Clin Res*. 2018;6(6):871-7.
 8. Iftikhar PM, Shaheen N, Arora E. Efficacy and satisfaction rate in postpartum intrauterine contraceptive device insertion: a prospective study. *Cureus*. 2019 Sep;11(9).
 9. Jain S, Priyadarshini P, Konar H. Evaluation of acceptability, safety, and efficacy of intrauterine device insertion during the postpartum period: A prospective analysis.