

Efficacy and safety of Post-Partum Intrauterine Contraceptive device (PPIUCD) insertion-A prospective study

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Abstract

Introduction: Significantly increased institutional deliveries in India provide an opportune time for offering postpartum family planning services to the women. Although the available contraceptive methods are many, need of a single efficacious, feasible and cost effective method is desirable especially in a low resource country like India.

This study was done to evaluate the acceptance, efficacy and safety of intrauterine contraceptive device as an immediate family planning method following delivery, and the complications associated with it.

Materials and Method: A total of 115 women who underwent PPIUCD insertion were followed up at 1, 3 & 6 weeks and at 3 & 6 months post-partum. Outcome in terms of side effects, removal and expulsion was noted and compared in vaginal delivery and caesarean section insertions.

Results: Out of 280 women who were counselled, only 115 women (41.07%) accepted the PPIUCD insertion. Insertion in literate women was high and extremely statistically significant ($P < 0.0001$) as compared to illiterate women. Expulsion rate was 17.85%. There was no expulsion in intra-caesarean PPIUCD insertion which is statistically significant ($P < 0.01$) as compared to postplacental insertion. Excessive discharge (26.09%), missing strings (5.22%) and menorrhagia (4.35%) were minor complications. 3 women (2.61%) had failure of PPIUCD at 6 months follow up.

Conclusion: PPIUCD is a safe and efficacious family planning method after vaginal as well as caesarean delivery.

Keywords: PPIUCD insertion, Acceptance, Complications

Introduction

Ensuring healthy timing and spacing of pregnancies is now considered the most important intervention for reproductive, maternal, neonatal, child and adolescent health (RMNCH+A). This has renewed the emphasis on spacing methods of family planning. Approximately, 27% of deliveries in India happen in less than 24 months after the first delivery; another 34% of deliveries between 24 and 35 months. So 61% births in India are at intervals that are shorter than the recommended birth to birth interval of approximately 36 months. With a remarkably low failure rate of less than 1 per 100 women in the first year of use, the Cu 375 offers an effective and safe method for spacing and limiting births in the immediate postpartum period.⁽¹⁾

Taking advantage of the immediate postpartum period for counselling on family planning and PPIUCD insertion overcomes multiple barriers to service providers. In developing countries, delivery is the only opportunity when the healthy women come in contact to the health care providers, and they may never return seeking contraception advice, so IUCD insertion during delivery may be the best scope to curtail the fertility rate.⁽²⁾

The PPIUCD must be placed after the women is counselled and gives informed consent. Counselling should be done in the antenatal period, in early labour or immediate postpartum. PPIUCD can be placed immediately following delivery of placenta, during caesarean section or within 48 hours following childbirth.⁽³⁾

There is a common belief that PPIUCD insertion is associated with higher complication than interval IUCD insertion, so the aim of the study was to evaluate the efficacy and safety in terms of complications like accidental pregnancy, expulsion, infection, missing string, pain abdomen, bleeding per vagina, white discharge, uterine perforation and discontinuation; and to compare them among the two modes of insertion i.e. vaginal versus intra-caesarean insertion.

Material and Method

Study setting: In a Tertiary level health care setting of the Department of Obstetrics & Gynecology, Santosh Medical College & Hospital, Santosh University, Ghaziabad, U.P.

Study design: Prospective observational study

Study period: 1 year

Study participants: Women attending hospital antenatal clinics of Santosh Medical College, Ghaziabad (UP).

Sample size: A total of 280 women irrespective of their mode of delivery were counselled for IUD insertion in antenatal period or in early labour and women willing to participate in the study were inserted with Cu 375 IUD after taking the informed consent.

Eligibility:

Inclusion Criteria:

- Pregnant Women coming for antenatal check-up and eligible for PPIUCD insertion.

- Unbooked women delivered in our hospital and meeting all the eligibility criteria for Post Partum IUCD Insertion.

Exclusion Criteria: Women having-

- Haemoglobin less than 8 gms%
- Prolonged rupture of membranes of >18hrs
- Extensive genital trauma.
- Unresolved PPH
- Any abnormality of uterus or a large fibroid distorting its cavity
- Chorioamnionitis or Puerperal sepsis.
- HIV/AIDS

Methodology: After getting approval from the ethical committee and after taking informed consent from the women, PPIUCD was inserted as per the recommended method described by the government of India training manual.⁽⁴⁾

PPIUCD insertion done within 10 minutes of expulsion of placenta was considered postplacental, within 48 hours of delivery was considered postpartum and insertion during caesarean section was considered intra-caesarean.

PPIUCD was placed in uterine fundus with the help of long and curved forceps without lock for vaginal insertions, within 10 minutes of removal of placenta. During caesarean section ring forceps were used to place the IUCD in fundus of uterus through the lower segment incision which was closed subsequently as routine. The IUCD strings were not trimmed in both types of insertions and left in uterine cavity. Active management of third stage of labour was performed as routine. All PPIUCD insertions were done by doctors who had been trained for this purpose. Post insertion counselling was done and women were advised to follow-up.

Follow up visits were done at 1, 3 & 6 weeks and at 3 & 6 months of insertion to check for thread, signs of infection, excessive bleeding and expulsion.

In case the thread was not visible even after 6 months of follow up then the women was asked to get an ultrasound done to check for the position of PPIUCD. If in place, women were counselled to continue the usage of PPIUCD. In case PPIUCD was expelled then the women was advised to get re-insertion of IUCD after resumption of menstruation. In case of failure of PPIUCD women was asked to terminate the pregnancy

along with removal of IUCD and was advised another method of contraception.

Outcome measures:

A. Primary outcome measure:

- Expulsion rates

B. Secondary outcome measure:

- Continuation rates
- Complications in 2 groups-vaginal versus intra-caesarean insertion
- Women acceptability for PPIUCD
- Failure rates

Data collection and Data Analysis: The data was collected and entered in MS Excel 2007 and reported in frequencies and percentages. Categorical data was generated. Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) version 19.0. Test of significance was applied using Chi-Square and Fisher's Exact test and a p-value of <0.05 was considered as statistically significant.

Results

Table 1: Women Acceptability to PPIUCD

Sl. No.	Number of women	No.	Percentage
01	Counselled	280	100.00
02	Agreed when Counselled	184	65.71
03	Declined when Counselled	96	34.29
04	PPIUCD inserted	115	41.07

A total 280 women were counselled for PPIUCD (Cu 375) insertion irrespective of mode of delivery. Out of which 184 (65.71%) women agreed for the insertion of Cu 375 and 96 (34.29%) refused. Out of 184 women, 115 (62.5%) got PPIUCD insertion irrespective of mode of delivery. Rest 69 women either got delivered somewhere else (lost to follow up), or refused at the last minute mainly under family pressure. Out of 115 women, 81 had postplacental, 3 postpartum and 31 intra-caesarean insertions (Table 1).

Table 2: Socio-demographic characteristics of the women accepting PPIUCD

	Sub Group	Got PPIUCD Insertion	Percentage
		N=115	100%
Age (Years)	20 – 25	57	49.57
	26 – 30	52	45.22
	31 – 35	6	5.22
Parity	1	30	26.09
	2	65	56.52

	3	20	17.39
Religion	Hindu	97	84.35
	Muslim	18	15.65
Socio-Economic Status	High class	2	1.74
	Low class	5	4.35
	Lower middle class	33	28.70
	Middle class	69	60.00
	Upper middle class	6	5.21
Educational status	Illiterate	11	9.56
	Primary	45	39.13
	Secondary	33	28.70
	Graduate	26	22.61

Table 2 shows socio-demographic factors of women who got Cu 375 inserted. Insertion of PPIUCD in literate women was high and extremely statistically significant (P< 0.0001) as compared to illiterate women.

Table 3: Comparison of timing of insertion with particular complication

Sl. No.	Complications	Post-Placental	Post-Partum	Intra-Caesarean
01	Excessive Discharge	20 (17.39%)	1 (0.87%)	9 (7.83%)
02	Missing Strings	3 (2.61%)	0	3 (2.61%)
03	Menorrhagia	5 (4.35%)	0	0
04	Failure	1 (0.87%)	0	2 (1.74%)

Excessive discharge 30 (26.09%), missing strings 6 (5.22%), menorrhagia 5 (4.35%) were the minor complications. Out of 30(26.09%) women with excessive discharge, 20(17.39%) women had post-placental insertion and 9(7.83%) had intra-caesarean insertion. There was no perforation; however, there were 3 pregnancies, 1 (0.87%) in post-placental insertion and 2 (1.74%) in intra-caesarean insertion. (Table 3)

Table 4: Continuation rate with timing of insertion

Sl. No.	Timing of Insertion	Number	%
01	Postplacental	66	81.48
02	Postpartum	3	100
03	Intra-caesarean	31	100

Continuation rate was 81.48% in women with postplacental insertion, whereas 100% with postpartum and intra-caesarean insertion. (Table 4)

Table 5: Expulsion rate with timing of insertion

Sl. No.	Timing of Insertion	Expulsion(N)	%
01	Postplacental	15	17.85
02	Postpartum	0	0
03	Intra-caesarean	0	0

Out of 84 women in which postplacental insertion was done, expulsion occurred in 15 (17.85%) women. There was no expulsion in intra-caesarean PPIUCD insertion as compared to postplacental insertion (Table 5).

Table 6: Comparison of timing of expulsion with timing of insertion

Sl. No.	Timing of Insertion	3 Weeks	6 Weeks	3 Months	6 Months
01	Postplacental	3 (20%)	9 (60%)	2 (13.33%)	1 (6.67%)
02	Postpartum	0	0	0	0
03	Intra-caesarean	0	0	0	0

Postplacental insertion of PPIUCD had 60% of expulsion rate at 6 weeks interval after delivery (Table 6) (Fig. 1).

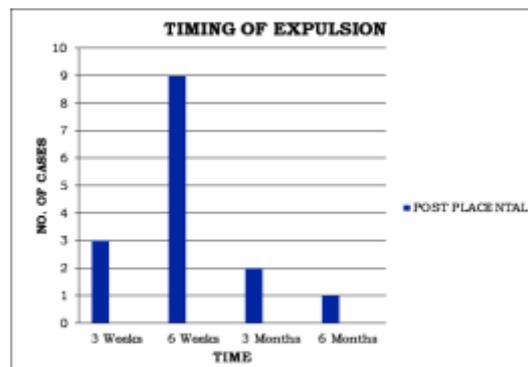


Fig. 1: Comparison of timing of expulsion with timing of insertion

Discussion

Mean age of women in which PPIUCD was inserted in the present study was 25.43 ± 3.49 which is slightly higher than the study done by Kanhere AV et al⁽⁵⁾ (24.3 years), as according to them women above 30 years of age were inclined for accepting permanent method of contraception. In our study there was no statistically significant difference ($P = 0.80$) between the women who declined PPIUCD and accepted PPIUCD.

In our study, acceptance of the PPIUCD was higher among parity 1 and parity 2, which was comparable with studies by Laskar et al⁽²⁾ and Halder et al;⁽³⁾ but contradicted by the study done by Safwat et al⁽⁶⁾ in Egypt, where 16% of primipara mothers accepted the use of PPIUCD compared to one-third of grand multiparous.

The present study showed that majority of women who accepted PPIUCD had attained secondary education and graduation (51.31%), and only 9% were illiterate; similar recent studies by Kanhere et al⁽⁵⁾ and Gujju et al⁽⁷⁾ also showed 43% and 32.67% of educated accepting PPIUCD respectively. In the present study insertion of PPIUCD in literate women was high and extremely statistically significant ($P < 0.0001$) as compared to illiterate women.

The expulsion rate was 17.85% in the present study out of which 55% were among the initial part of the study. All the women belonged to the postplacental period and none in the intra-caesarean period. In a study by Hooda et al⁽⁸⁾ women who had IUCD inserted after vaginal delivery had significantly higher expulsion rates (9.1%) than intra-caesarean IUCDs (2.1%). Lower expulsion rate during caesarean section is likely due to the fact that it is easier to reliably reach the uterine fundus during caesarean section. In the present study among the 17.85%, 20% women expelled the IUCD after 3 weeks of delivery, 60% at 6 weeks, 13.33% at 3 months and 6.67% at 6 months interval. This was supported by study done by Mallik et al⁽⁹⁾ (14.3% expulsion rate at 6 weeks which was reduced to 0% at 6 months). Expulsion rate in the present study was higher in the beginning of the study (80%) due to lack of training; but with continuous training for insertion of PPIUCD, the expulsion rate reduced down to only 20% by the end of the study. In the present study, out of 84 women in which post-placental insertion was done, expulsion occurred in 15 (17.85%) women. There was no expulsion in intra-caesarean PPIUCD insertion which is statistically significant ($P < 0.01$) as compared to post-placental insertion. In all the studies maximum expulsions were between 4 to 6 weeks.

The excessive discharge in 26.09% women was the most common symptom in the present study as compared to other studies done with Cu T 380 A by Sharma A et al⁽¹⁰⁾ (1.04%). The reason for higher rate of excessive discharge in this study could be due to the reaction caused by nylon thread of Cu 375 in contrast to polyethylene thread of Cu T 380 A used in other studies. Only 4.35% women had menorrhagia in the present study which was lower than the study done by Sharma A et al⁽¹⁰⁾ (16.66%) and Kanhere et al⁽⁵⁾ (6%). Lower rates of menorrhagia in the present study could be due to

coverage of broad spectrum antibiotics and anti-inflammatory after the PPIUCD insertion. 3 women (2.61%) after 6 months reported pregnancy in the present study; unfortunately the reason could not be explained. These women were counselled to continue the pregnancy missing strings (5.22%) was another complication which was checked for with the help of ultrasonography after 6 months of delivery, and which was found in situ; women was counselled to continue with the usage of it. In the present study women who underwent postplacental insertion of PPIUCD had more complications (25.22%) than intra-caesarean (12.17%).

Conclusion

PPIUCD is a safe, highly effective, long acting, cost effective method of contraception with very few side effects and no major complication and contraindication. The feasibility of accepting PPIUCD insertion can be increased with antenatal counselling and institutional deliveries.

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