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Research Article

Comparison of expulsion and complications of intrauterine device insertion in immediate post placental period with interval period: a prospective study

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ABSTRACT

Background: In India unmet need for contraception is estimated to be 15.8% as estimated by DHS survey. Immediate insertion of IUCD after delivery of placenta provides important opportunity to address the need for contraception. This study was carried out to evaluate complications and expulsion rates of immediate post placental insertion of IUCD in comparison to interval insertion.

Methods: This was a prospective clinical study conducted at ESIC medical college and district hospital, Kalaburgi, Karnataka, India with sample size of 150 women (50 each in vaginal, cesarean delivery and interval insertion) from June 2015 to Jan 2016.

Results: Majority of women were multipara with mean age of 27.5 years. There was no statistically significant difference in the overall rates of complication in each group in follow up period ($p= 0.7, 0.9, 0.5$ for bleeding, pain and infection respectively). While comparing expulsion rates among the three groups, vaginal delivery (group A) had higher expulsion 6%, trans cesarean insertion (group B) had one expulsion 2% and there were no expulsion in interval insertion (group C). The difference was found to be statistically significant among group A and C.

Conclusions: From above study postpartum insertion of IUCD is safe, effective and feasible reversible method of contraception. The rate of expulsion is higher in postpartum insertion compared to trans cesarean and interval insertion, can be minimized if it is inserted by trained provider and placed at fundus. The continuation rates were comparable in three groups i.e., 94%, 96% and 100% respectively.

Keywords: PPIUCD, IUCD, Expulsion, Contraception

INTRODUCTION

Contraceptive prevalence is low in developing countries owing to unmet need for contraception. In India the unmet need is estimated to be 15.8% as estimated by DHS survey.¹ Half of these women have no positive intention of using contraceptives but still wish to avoid pregnancy. Immediate insertion of an IUCD after the delivery of placenta provides an important opportunity to address the need for contraception. For many women, it would be convenient to leave the hospital after delivery already protected against unplanned pregnancy, since no

show rates at interval of 6 weeks postpartum may be high, patients may become pregnant before visit. And as a contraceptive used during the postpartum period, the IUCD has a distinct advantage

- High motivation
- Assurance that woman is not pregnant
- No effect on the quantity and quality of breast milk, as do many systemic contraceptive methods.

In contrast, women waiting for IUCD may experience an unintended pregnancy or never return for the insertion.

The current national strategy in India is for increasing IUCD uptake. The available target to cover with PPIUCD as a method of contraception has expanded in the recent past; since there is a 10 fold increase in women delivering in hospitals due to maternity benefit scheme.²

The objective of this study was carried out to evaluate complications and expulsion rates of immediate post placental insertion of IUCD.

METHODS

A prospective clinical study was conducted by the department of OBG, ESIC medical college and district hospital Gulbarga, Karnataka, India.

The study population was total of 150 women were included in the study, 50 women each were divided into 3 three groups

- Group A: Immediate post placental insertion after vaginal delivery
- Group B: Trans cesarean insertion
- Group C: Interval insertion

The Study period was June 2015 to January 2016

Inclusion criteria

- All the women aged 18-45years.

Exclusion criteria

- Postpartum hemorrhage
- Prolonged rupture of membranes
- Intrauterine fetal demise
- Uterine anomalies, fibroids, suspected or confirmed cases of genital malignancies
- Diagnosed case of HIV/AIDS.

Cu-T 380 A was used in this study for all women, which was supplied free of cost by the Govt. of India.

Method of insertion

Immediate post placental IUCD insertion

Bimanual examination was performed to evaluate the cervix and the uterus after the delivery of the placenta and ensured empty cavity with contracted uterus. The cervix and the vaginal walls were cleansed with the antiseptic solution. The anterior lip of the cervix was held with ring forceps gently. The IUCD was removed from the inserter tube with Kelly's forceps using no touch technique. Once the IUCD was placed in the lower uterine segment, other hand was moved to the woman's abdomen and pushes the uterus upward towards the uterine fundus. To help prevent the IUCD being drawn downward in the uterus, the instrument is swept to the

right to ensure that the instrument is away from the IUCD. Then the instrument is slowly withdrawn, keeping it slightly open. The strings were cut to the level of cervix.

Transcesarean insertion

After placental delivery and controlling bleeding, presences of uterine malformations were ruled out. The IUCD was held between the index and the middle finger; it was inserted through the uterine incision and released at the fundus. Strings were gently guided towards the lower uterine segment without disturbing the IUCD's position.

Interval insertion

The IUCD was inserted by no touch technique using withdrawal method.

Follow up

- For Group A and B: 6 weeks, 3 months and 6 months following insertion
- For Group C: 3 and 6 months post insertion.

RESULTS

Table 1: Demographic features.

Characters	
Age	
Max	32
Min	22
Mean	27.5
History	N (%)
Primi	54 (36%)
Multi	96 (64%)

Table 2: Comparison of demographic features.

Age (years)	Group A (N=50)	Group B (N=50)	Group C (N=50)
22-25	15 (30%)	14 (28%)	9 (16%)
26-30	34 (68%)	30 (60%)	32 (68%)
31-35	1 (2%)	6 (12%)	9 (16%)
Parity			
1	18 (36%)	17 (34%)	18 (36%)
2	21 (42%)	22 (44%)	24 (48%)
3	10 (20%)	10 (20%)	8 (16%)
≥4	1 (2%)	1 (2%)	-

Table 1 and 2 shows the demographic features of the study population. Overall the age of the study subjects ranged from 22 to 32 years. Majority (64%) of the women were multiparous, fifty four participants (36%) were primiparas as shown in Table 1 below. These demographic features were not statistically significant

between groups as shown in Table 2 (p value=0.5 and 0.7 for age and parity respectively). The mean age of the participants was 27.5years (range 22-35years) as shown in Table 1.

Complications at the time of insertion

In the present study, pain and syncope as complications were evaluated in group A and group C at the time of the insertion. None of the patients in both groups had pain and syncope at the time of insertion. In the group B since the patient was under anaesthesia, these features could not be evaluated. No case of perforation was noted in the three groups at the time of insertion.

Complications at follow up

At follow up excessive bleeding and pain during periods and infection were noted. As a routine at each follow up visit, women were asked regarding excessive bleeding or amenorrhoea, abnormal vaginal discharge, discomfort in abdomen. Per speculum and per vaginal examination was done to look for vaginal discharge, missing strings and forniceal tenderness.

Table 3: Comparison of complications at follow up.

Clinical features	PPIUCD %	TC %	Interval %	P value
Bleeding	1 2.1	1 2	2 4	0.7
Pain	1 2.1	1 2	1 2	0.9
Infection	1 2.1	0 -	1 2	0.8

In group A, out of 47 women (after excluding 3 who had immediate expulsion before the first follow up), one had excess bleeding during menses which was managed medically and counselled to continue IUCD. One woman each in group B and C had also excess bleeding who was managed conservatively with tranexemic acid effectively. One participant each in Group A and C had vaginal discharge and mild forniceal tenderness; they were treated with oral antibiotics (PID treatment) and continued the IUCD use. In group A, intermittent pain abdomen was noted in one participant who was unrelated to menstrual cycles and not associated with PID or UTI. Pain was treated with oral analgesics.

In group B, one participant had acute episode of pain lower abdomen 1 month after insertion of IUCD, there was no evidence of PID (no forniceal tenderness/vaginal discharge, no fever) or UTI. USG abdomen done revealed intrauterine position of IUCD. The participant did not want to continue and got the IUCD removed.

There was no statistically significant difference in the overall rates of complication in each group in the follow up period (p= 0.7, 0.9, 0.5 for bleeding, pain and infection respectively) as shown in the Table 3.

Expulsion rates of IUCD

Of the total 150 participants 4 patients had expulsion of the IUCD, of which majority were multipara 3 (6%) and 1 participant was primiparas as shown in the Table 4. Thus expulsion rate was higher in the multipara but there was no statistical significant difference between the two groups (p value= 0.5). While comparing the expulsion rates among the three groups, group A had higher three expulsion 6%, group B had one expulsion 2% and there were no expulsion in group C. The difference was found to be statically significant among group A and C.

Table 4: Comparison of expulsion rates.

Types of insertion	Primi (n=53)	Multi (n=97)	Total
Vaginal (n=50)	0	3 (6%)	3 (6%)
TC (n=50)	1 (2%)	0	1 (2%)
Interval (n=50)	0	0	0

Continuation rates of IUCD

Continuation rates at the end of 6 month follow up period was comparable in the three groups as shown in Table 5.

All the patients in group C continued use at end of 6 months; there were no expulsions or removal in this group.

Three patients in group A had early expulsion before first follow up and rest of them continued for the further 6 months. One among the 3 patients had atonic postpartum haemorrhage and had spontaneous expulsion of Cu-T immediately following delivery and did not have the Cu-T reinserted. The other 2 patients had spontaneous expulsion of Cu-T on the postpartum day 2 which was confirmed on the ultrasound. These 2 patients did not have the Cu-T reinserted and underwent ligation after 6 weeks. In group B one patient had expulsion and other had removal of the IUCD after 1 month of insertion following pain abdomen.

Table 5: Comparison of continuation rates.

Groups	No. of cases	Continuation over 6 months	%
Group A	50	47	94%
Group B	50	48	96%
Group C	50	50	100%

Removal of IUCD

Of the 146 patients at the end of follow up period of the study, only one patient in group B requested for removal of IUCD. The cause for removal was single episode of acute pain abdomen; ultrasound confirmed the correct position of IUCD in the uterine cavity. There was no evidence of infection, however patient insisted for

removal of IUCD. None of the participants had pregnancy during the study period. Rest of the patients in group A and group C had no removal.

DISCUSSION

The present study was conducted to compare the complications and expulsion rates of post placental insertion (within 10 minutes of placental expulsion) of IUCD after vaginal and caesarean delivery and interval insertion. PPIUCD immediately following delivery presents a convenient opportunity for postpartum women to obtain a long acting method of contraception with the advantages of high motivation, assurance that the woman is not pregnant, and convenience and only a few contraindications to method.³ Given the low rate of return for interval insertion, immediate placement may be preferable.⁴ This is more applicable for developing countries where delivery may be the only time when a healthy woman comes into contact with health care providers and the chances of returning for contraceptive advice are uncertain.

In this study, majority of the participants in the age group between 26-30 years (61%). The mean age of the study population was 27.5 years. There were 36% primiparas (N= 54), and 64% multiparas (N=96) in our study. The studies by Shukla et al and Celen et al show preponderance of multipara, similar to our study.^{5,6}

Expulsion rates of IUCD

The expulsion rates after PPIUCD vary from 6-17%. In present study expulsion rate of 6% in PPIUCD group is comparable to study by Gupta et al.⁷ In comparison to PP IUCD the expulsion rates for trans caesarean are lower in present study, this lower expulsion rate after trans caesarean insertion as compared to vaginal insertion may be due to direct placement of IUD at the fundus during caesarean section. In our study complications were seen in 18% (9 women) of who chose immediate postpartum insertion following vaginal delivery (group A). In the interval group (group C) bleeding was the most frequent complication, which was seen in 2 cases (4%), while in the trans caesarean group (group B) no significant difference was noted in the complications observed i.e., bleeding (2%) and pain (2%). Two case of PID were reported in the present study one case each in group A and group C, in comparison to EL Beltagy et al reported no increase in the incidence of PID after immediate postpartum IUCD insertion.⁸ No case of perforation was reported from all the groups. This decreased risk of uterine perforation may be because of thick wall of the uterus. No failure rates were reported in the three groups.

While comparing PPIUCD with interval IUCD the cumulative rate of complications were similar in present study (12% and 8% in PPIUCD group and interval IUCD group respectively). This was in accordance with the

study Eroglu et al where the rates of complications did not differ significantly between the two groups.⁹

The results of present study showed continuation rates were comparable in three groups A and B i.e., 94% and 96% respectively. The continuation rate in group C was 100% in comparison to group A and B.

CONCLUSION

- From the above study we came to the conclusion that postpartum insertion of IUCD is safe, effective and feasible reversible method of contraception.
- The rate of expulsion is higher in postpartum insertion compared to trans caesarean and interval insertion, can be minimized if it is inserted by a trained provider and placed at the fundus.
- Compared with interval insertions, postpartum insertions do not increase the risk of infection or endometritis, and uterine perforation. Overall the complications are similar to the interval insertion.
- Integration of PPIUCD into family planning programs and maternity benefit schemes like JSSK % JSY could address the high unmet need for contraception in India.

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