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RESEARCH ARTICLE

Comparing usefulness of immediate postpartum intrauterine contraceptive device among the women undergoing caesarean or vaginal insertion

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ABSTRACT

Background: During the first year postpartum only 26% of the women use any method of family planning. Using IUCD in the immediate post-partum period can offer an effective and safe method for spacing and limiting births. **Objectives:** The objectives of the present study were to evaluate and compare the safety and efficacy of PPIUCD inserted at caesarean versus vaginal delivery. **Methods:** This is a prospective study conducted at Govt. Medical College Shivpuri and District Hospital Shivpuri from February 2016 to February 2017. A total of 100 patients with caesarean and vaginal deliveries had PPIUCD insertions and they were followed up for one year. The outcome measure analyzed were safety measures (menstrual irregularities, vaginal discharge, pelvic infection, perforation, failure, expulsion and removal). **Results:** PPIUCD is an effective intervention in both caesarean and vaginal delivery with no significant differences in safety (menstrual complaints, fever and vaginal discharge; $p>0.05$) and efficacy depending on the route of insertion as the majority of the clients were satisfied with PPIUCD insertion (65.7%) with only 4.5% unsatisfied with the procedure. There was no case of perforation or failure and no significant risk of infection in either group (only 1.8% vaginal discharge). Spontaneous expulsion occurred in three cases inserted by vaginal route. Missing string incidence is high in the caesarean group (48.5%) compared to vaginal insertion (25%) ($p= 0.02$). **Conclusion:** PPIUCD is a safe effective and convenient method of contraception and should be encouraged in both vaginal and caesarean deliveries.

Keywords: Menstrual irregularities, contraception, postpartum intrauterine contraceptive device.

Previous studies on postpartum unintended pregnancies have found that 86% of them are the result of non-use of contraception and 88% resulted in induced abortions.[1] A increase in maternal complications and adverse perinatal outcomes are noted with the continuation of these pregnancies.[2] Data from India revealed that 65% of the women in the first year postpartum have an unmet need for family planning.[3] Hence it becomes very important to provide contraception in this sensitive period.

A postpartum intrauterine contraceptive device (PPIUCD) is an emerging option for contraception.[4] There is a common belief that PPIUCD insertion immediately after delivery is linked to a higher expulsion rate than interval IUCD insertion. However, data on the use of PPIUCD insertion in a caesarean and vaginal delivery is lacking. Hence in the present series, we tried to compare the safety and efficacy of PPIUCD inserted at caesarean versus vaginal delivery.

Materials and methods

A hundred patients after antenatal counselling were studied after obtaining written informed consent at the onset of labour at Govt. Medical College, Shivpuri & District Hospital, Shivpuri from February 2016 to February 2017.

Women delivering vaginally or by caesarean section who

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had received counselling for PPIUCD contraception were included whereas patients belonging to MEC (medical eligibility criteria) categories 3 and 4 (explained below) were excluded from the present study.

Category 1: Patients with immediate post placental (within 10 min of placental delivery) or immediate postpartum < 48 hours after delivery; Category 2: No conditions; Category 3: Between 48 hrs and 6 weeks postpartum, chorioamnionitis or prolonged rupture of membranes > 18 hours and Category 4: Puerperal sepsis or unresolved postpartum haemorrhage (PPH).

PPIUCD insertion was performed depending on their mode of delivery and all the patients were divided based on vaginal or caesarean insertion. Outcome measures were analyzed at follow-up visits scheduled at 6 weeks, 6 months and 1 year after insertion. The WHO medical eligibility criteria were the scientific foundation for client assessment and selection.

Details of the IUCD (intrauterine contraceptive device) used: It was a copper T 380 A and multi-load 375. Only doctors trained for insertion according to the national training program were involved in the study. The correct fundal placement with long curved Kelly's placental forceps was highly emphasized. AMTSL (active management of third-stage labour) was performed as routine. Post insertion counselling was given before discharge. This included an IUCD client card showing the type of IUCD date of insertion and date of review, and advice regarding side effects like irregular vaginal bleeding, foul smelling discharge. Uterine cramping, fever and spontaneous expulsion. She was advised to follow up at six weeks, six months and one year after insertion.

All follow-up, outcome measures were studied in terms of safety, efficacy and missing strings. These outcomes were compared for vaginal and caesarean insertions.

All the data analysis was performed using IBM SPSS version 20 software. Frequency distribution and cross tabulation were performed to prepare the tables. PRISM software was used to prepare the graphs. All the data are presented as a number or percentage. A Chi-square test was performed to find out the level of significance. A p-value of <0.05 was considered significant.

Results and observations

Out of 100 women where PPIUCD was inserted, 50 were for intra-caesarean insertion and a comparable group of another 50 for vaginal insertions. 12 patients were lost to follow-up.

The majority of participants belonged to 20-25 years of age (50.3%). The Middle socio-economic group (70.7%) constituted the majority and 85.4% were primary or secondary school educated (table 1). Only 14.6% showed the need for increased public awareness to convince the higher social strata. Evaluation of their clinical profile revealed that multipara constituted the majority (73.3%), while primipara was very reluctant for PPIUCD (26.7%) (table 2). Among the primies, those undergoing caesarean had a higher percentage of acceptance 80.6% probably because of better spacing after a caesarean section. Acceptance was better when counselled in early labour (56%) compared to antenatal counselling (44%).

Table 1: Sociodemographic profile of acceptors

Parameters		No of patients	Percentage
Age in years	<19	3	3
	20-25	56	56
	31-35	32	32
	>35	9	9
Education	No formal education	5	5
	Primary	22	22
	Secondary	63	63
	Higher education	10	10
Socio-economic status	Lower	26	26
	Middle	74	74
Residence	Rural	84	84
	Urban	16	16
Religion	Hindu	79	79
	Christian	11	11
	Muslim	10	10

Table 2: Obstetric profile of acceptors

Parameters		Frequency	Percentage
Parity	Primi para	23	23
	Multi	77	77
Gestational age	Term	79	79
	Preterm	21	21
Time of counselling	Antenatal	42	42
	Early labour	56	56
	Postnatal	2	2
Route of injection	Post placental (in 10 min)	48	48
	Postpartum (in 48 hrs)	2	2
	Intra-caesarean	50	50

Follow-up clinic attendance of PPIUCD was 88%, and 16% of patients had persistent menorrhagia at the end of one year (table 3). Three per cent of patients had fever at 6-week menstrual problems in the form of irregular spotting and dysmenorrhea, but only 5% of patients had to follow up which was attributed to urinary tract infection (UTI), mastitis and lower respiratory tract infection (LRTI). No further episodes of fever at subsequent follow-up were noted. There was no case of puerperal sepsis or pelvic inflammatory disease. Vaginal discharge noticed by 2 patients was diagnosed as normal leucorrhoea and candidacies which responded to reassurance and antifungal treatment respectively. There was no case of uterine perforation or

IUCD failure in our study. Three cases of expulsion occurred in the vaginal delivery group before the six-week follow-up which could be due to improper fundal placement or string entangled in Kelly's forceps coursing downward displacement. Beyond 6 weeks there was no spontaneous expulsion 16 patients insisted on removal at one-year follow-up due to persistent menorrhagia not relieved by tranexamic acid and husband's pressure for IUCD removal.

Table 3: Comparison of menstrual complaints and route of insertion

Parameters		Vaginal (N=50) No (%)	Cesarean (N=50) No (%)	Total No(%)	P value
Menstrual complaints	6 weeks	0 (0)	0 (0)	0 (0)	>0.05
	6 months	8 (16)	6 (12)	14 (14)	
	1 year	9 (18)	7 (14)	16 (16)	
Fever	6 weeks	3 (6)	0 (0)	3 (3)	
	6 months	0 (0)	0 (0)	0 (0)	
	1 year	0 (0)	0 (0)	0 (0)	
Vaginal discharge	6 weeks	1 (2)	0 (0)	1 (1)	
	6 months	2 (4)	1 (2)	3 (3)	
	1 year	1 (2)	1 (2)	2 (2)	

Table 4: Comparison of parity and missing string between vaginal and caesarean deliveries

Parameters		Vaginal (N=50) No (%)	Cesarean (N=50) No (%)	Total No (%)	P value
Parity	Primi	6 (12)	21 (42)	27 (27)	<0.001
	Multi	44 (88)	29 (58)	73 (73)	
Missing string	Yes	8 (16)	30 (60)	38 (38)	0.002
	No	42 (84)	20 (40)	62 (62)	

Table 5: Client satisfaction and type of insertion

Satisfaction score	Vaginal (N=50) No (%)	Cesarean (N=50) No (%)	Total No (%)
Not satisfied	6 (12)	6 (12)	12 (12)
Unsure	14 (28)	16 (32)	30 (30)
Satisfied	26 (52)	24 (48)	50 (50)
Very satisfied	4 (8)	4 (8)	8 (8)

There was no significant association between menstrual complaints and route of insertion. The missing string was significantly higher in the caesarean group (p=0.02) compared to vaginal insertion (table 4). The majority of the clients were satisfied with PPIUCD insertion (65.7%) with only 4.5% unsatisfied with the procedure (table 5). There is no significant association between client satisfaction and route of insertion.

Overall evaluation of the study shows that PPIUCD is demonstrably safe and effective long-term contraception. There was no significant difference in safety and efficacy depending on the route of insertion. In fact, ease of insertion at caesarean and lower risk of expulsion makes it very attractive option for those undergoing caesarean section.

Discussion

PPIUCD is emerging as a good option for contraception with the help of counselling on family planning immediately after the postpartum period. In developing countries like India, delivery is the only occasion when healthy women come in contact with health care providers, and they may never return seeking contraception guidance, so IUCD insertion during this period may be the best scope to limit fertility rate.[3]

The present study revealed that maternal age is a key factor in the acceptance of contraception. We found that majority of the women who accepted contraception were of 20-25 years of age (50%). Another study from Kolkata by Halder et al including 200 women found that in both groups (vaginal insertion and intra-caesarean), acceptance of PPIUCD was highest among the age group between 21–25 (44 %) followed by 25–30 years (23 %).[5] Hence focus should be on young primiparas who are reluctant to return for interval contraception.

In the present study, it was found that the majority of participants accepted the method when they were informed during early labour (65%) compared to antenatal counselling (44%). Those patients who were willing to accept during the antenatal period become reluctant later as they are more exposed to rumours and myths regarding copper T. Involvement of the husband in counselling increased the acceptance rate for PPIUCD as revealed in previous studies. In a similar series by Smith et al where women who received information on contraception did not have any significant difference in contraceptive use as compared to those who did not receive such information.[6] Providing key essential messages at all contact points during the maternity cycle will increase the proportion of women who received the information and can make an informed decision.

Using copper IUCDs is often accompanied by an increased amount of menstrual bleeding. Halder et al reported bleeding among 10 % of mothers in each vaginal group and 5 % of mothers in the intra-caesarean group [5]. But bleeding was irregular, mild, and on and off in 6.6 % in post-placental insertion, 10 % in immediate post-partum insertion and 2 % in intra-caesarean insertion. [5] In a similar study by Pareek and Gandhi found bleeding rates to be 6.6% with caesarean insertion.[7] In a similar series by Shukla et al found an increased incidence of menorrhagia with the use of copper T 200 as interval insertion. This should be noted that the difference in types of IUCD used could explain the different rates of bleeding problems.[8] In the present study we did not

find any significant association between menstrual complaints with the route of insertion.

The present study showed only 1.8% vaginal discharge and there was no significant association between vaginal discharge and route of insertion. In agreement with to present study Welkovic et al compared the infection rate among IUCD users and non-users and found no difference.[9]

There is debate whether a difference in expulsion rates is related to the time of insertion. Type of IUCD, technique of insertion and skill and expertise of service provider. Expulsion of PPICD usually occurs in the first few months after insertion. Halder et al reported an expulsion rate of 4 % in the vaginal group and 2 % in the intra-caesarean group. [5] Celen et al reported that the 1-year cumulative expulsion rate with copper T was 12.3 % in the early post-placental insertion of IUCD. [10] UNPOPIN report stated a 6-month cumulative expulsion rate of 9% for post placement compared with 37% for postpartum insertion. In the present study, we had no expulsion in the caesarean group while 3 cases of expulsion occurred in the vaginal delivery group. This has an emphasis on the correct fundal placement of the device and avoiding downward displacement both during vaginal and caesarean insertions.

In the present study, there was no case of perforation or failed IUCD as the uterine wall is thick after delivery and uterine perforation is unlikely to occur during the postpartum period.

One very important observation made in the present study during follow-up was the missing strings. In a report by Halder et al, missing strings were complained about by 16 % of mothers in the vaginal group and 30 % of mothers in the intra-caesarean group.[5] There is limited evidence regarding the missing strings in PPIUCD insertion. However, Mishra et al reported the missing string rate in interval IUCD insertion to be 15.6%.[11] Present study showed a significantly high occurrence of missing strings with postpartum IUCD (35.5%). This was significantly higher with caesarean placement than with vaginal insertion (48.5% versus 25%). However, an ultrasound done showed PPIUCD in-situ and counselling and reassurance encouraged them to continue with the device.

Conclusion

PPIUCD is an effective safe and convenient method of contraception which can be integrated with maternal child health services ensuring an appropriate long-term reversible family planning method before returning home. It is an effective intervention in both caesarean and vaginal deliveries with no significant difference in safety and efficacy depending on the route of insertion. A relatively higher incidence of expulsion after vaginal insertion can be taken care of by trained personnel with emphasis on the immediate post-placement timing of insertion and principles of fondling placement using long placental forceps. PPIUCD is therefore a strong weapon in the family planning armamentarium and should be encouraged in both vaginal and caesarean deliveries.

Conflict of interest: None. **Disclaimer:** Nil.

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