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Research article

Study of outcome of Intrauterine Contraceptive device (CuT-380A) insertion immediately after vaginal delivery

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Abstract: *Introduction:* Closely spaced pregnancies are associated with adverse outcomes both for mother and foetus. The recommendations based on the results of technical consultants for healthy timing & spacing of pregnancies (HTSP) are that after a live birth, a woman should wait at least 24 months but not more than 5 years before attempting the next pregnancy to reduce the health risks and better outcome for the mother & baby. Here, our study was to see the effects of IUCD (CuT-380A) insertion immediately after vaginal delivery for spacing. *Methods:* This study was done at Agartala Government Medical College (AGMC) and GBP Hospital for one & half years (Jan'16–June'17). Antenatal mother of term pregnancy were counselled. They were recruited from Gynae OPD & emergency and evaluated for different outcomes at 6^{th}, 12^{th}& 18^{th} months in terms of different complications. *Results:* Total of 200 women of term period of gestation (POG) where counselled and 55 women participated in this study. Common complications were expulsion of IUCD 5 (9.1%) at 6^{th} month & bleeding per vagina 3 (5.5%) at one year. Expulsion of IUCD at one & half year was 5 (9.1%) and infection 1 (1.8%). 23 (42.6%) subjects continued with IUCD. *Conclusion:* Major complications are low here, but still outcomes in terms of different parameters are not encouraging. Health workers at different levels can overcome this gap to improve the outcome. All our efforts should be made to enhance the field activities in making people aware about PPIUCD.

Keywords: CuT-380A; post partum IUCD; post partum contraception; post placental insertion; outcome

1. Introduction

Closely spaced pregnancies are complicated with different risks like induced abortion, miscarriage, premature birth, placental abruption etc., in mother and neonatal death, low birth weight, congenital disorders, schizophrenia and autism in foetus [1,2].

The recommendations based on the results of technical consultants for healthy timing & spacing of pregnancies (HTSP) are that after a live birth, a woman should wait at least 24 months but not more than 5 years before attempting the next pregnancy to reduce the health risks and better outcome for the mother & baby. Women should plan a healthy birth to birth interval of about three years between children. After a miscarriage or induced abortion, a woman should wait atleast 6 months before attempting the next pregnancy [1,3].

Approximately 20% of births in India occur in less than 24 months after a previous birth. Another 34% of births occur between 24 to 35 months. 61% of births in India occur at intervals that are shorter than the recommended birth to birth interval of approximately 36 months. Family planning during the 1st year post partum has the potential to reduce a significant proportion of these unintended pregnancies. This is where the question of effective post partum contraception comes for proper birth spacing. The advantages of IUCD use outweighs the risk in many women, even in presence of those conditions previously thought to preclude its use, such as HIV/AIDS, history of PID, ectopic and molar pregnancy [4].

Post partum IUCD (PPIUCD) is inserted after vaginal delivery as highly effective method [4], as:

1. Integration of PPIUCD in delivery services overcome the multiple barriers to service provision, including trained personnel, adequately equipped and accessible facilities.
2. Cost effectiveness- as it is significantly less when PPIUCD is given immediately after vaginal delivery (provided free of cost in government setup).
3. Time and service efficiency- inserting IUCD in the immediate post partum period saves time for both the woman and the provider as the procedure is conducted in the same sitting and involves only a few minutes of additional time [1]. Furthermore, many women will have epidural anesthesia for delivery, which makes insertion painless.

PPIUCD have no effect on breast feeding and it takes only a few minutes for insertion [2].

Despite the benefits of immediate PPIUCD, the acceptance and utilization of immediate PPIUCD are still very low at present in developing countries. Numerous factors could contribute to low acceptance and utilization of immediate PPIUCD. Findings from other studies showed that lack of knowledge about the method, lack of trained providers and preference of short acting contraceptive methods, spousal opposing and fears of complication were the main reason for not accepting the PPIUCD use [5].

The study was done to evaluate the outcome of insertion of PPIUCD (CuT-380A) after vaginal delivery.

2. Materials and method

This is a prospective study of 18 months (Jan'16–June'17), where patients were recruited from Gynae Out Patient Department (OPD) & emergency of Agartala Government Medical College (AGMC) and Govinda Ballav Pant (GBP) Hospital.

2.1. Sample size calculation

N = Required sample size; P = Prevalence of expulsion rate at 10.5 % based on previous study (Katheit G et al. [6]); Q = 100 − P = 100 − 10.5 = 89.5%; I = Margin of error = 6%.

Calculation of sample size (N) is done as-

$N = 4PQ/(I^2)$
$= (4 \times 10.5 \times 89.5)/6^2$
$= 105$

So, the sample size is 105.

2.2. Inclusion criteria

All antenatal mother of term pregnancy, who were admitted in our institution and delivered vaginally were included in the study after giving consent.

2.3. Exclusion criteria

- Patients with hemoglobin less than 8 gm%
- Patients with Pre-labour Rupture of Membrane (PROM) having more than 18 hours before delivery
- Patients who developed Chorioamnionitis
- Patients who developed Post Partum Haemorrhage.

After taking proper written informed consent, PPIUCD were inserted after 3rd stage of labour. Afterwards they were instructed to come for follow up at 6th, 12th& 18th months to evaluate different outcomes.

2.4. Ethics approval of research

The protocol of the thesis was submitted to the Institutional Ethics Committee for Clinical Studies of Agartala Government Medical College, affiliated to Tripura University (A Central University) for approval. The study was conducted after due approval from the committee.

2.5. Statistical analysis

Statistical analysis testing was supported with the statistical package for the social science system version i.e. by SPSS 15.0 and Microsoft Excel software.

3. Results

For this study, 200 antenatal mothers were counselled, but out of them only 55 women participated. Results are in depicted in different tables.

Table 1 shows maximum women (81.8%) were in the age of 21–30 years group, whereas 9.1% each were in less than 20 years and 31–35 years of age group. In this study, 70.4% women delivered

for the 1st time whereas 22.2% women delivered for the 2nd time. If we consider the religion, 89.1% women were of Hindu, only 9.1% women were from Muslim community. In educational qualification, 58.2% women had the education of secondary stage, whereas 21.2% had the education of senior secondary stage. If we consider occupation, only 12.7% were employed, remaining (87.3%) women were house wives. In socioeconomic status, 51% women were from lower middle class, whereas 41.8% women were of upper lower socio-economic status.

The women who participated in this study after detailed counselling, were informed in details regarding PPIUCD. When they fully agreed to participate in this study, the questionnaire were asked to them regarding the acceptance.

Table 2 shows 26 women (47.2%) accepted PPIUCD as it is long acting and reversible.

Table 3 shows the outcome of this procedure at 6th, 12th& 18th month. Expulsion of PPIUCD was the common complication and was noted in 5 (9.1%) women at 6th and 18th months of follow up. Bleeding per vagina was noted in 3 (5.5%) women at 12th month follow up. Infection was noted only in one (1.8%) woman at 18th month follow up. Though majority of women had no complications, but 24 (43.6%) women were lost to follow up.

In this study, 44 (79.2%) women were not aware of this contraceptive method.

Table 4 shows- in our study, 22 (40%) women were satisfied with this procedure. In contrast, 4 (7.3%) women removed the PPIUCD, each for bleeding per vagina and vaginal discharge with pruritus. 8 (14.5%) women had the spontaneous expulsion of PPIUCD. Only one woman each, removed PPIUCD for pelvic pain & string related problem. Two women each, removed PPIUCD for pelvic infection & death of husband or child. Inspite of less complication, 11 (20%) of women did not turn up for follow up.

In our study, almost half (49.1%) the women gave the history of some thread like things coming out per vagina. It is the usual symptoms of maximum women who used PPIUCD.

Table 5 shows the continuation rate of PPIUCD, which was 42.6% in our study.

Table 1. Demographic variables in vaginal delivery group. Here, N = 55.

Socio-demographic factors	N (%)
Age	
<20	5 (9.10)
21–25	30 (54.50)
26–30	15 (27.3)
31–35	5 (9.10)
>35	0
Parity	
1	38 (70.40)
2	12 (22.2)
>2	4 (7.40)

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Socio-demographic factors	N (%)
Religion	
Hindu	49 (89.10)
Muslim	5 (9.10)
Christian	1 (1.80)
Education	
No formal education	2 (3.60)
Primary stage	2 (3.60)
Middle stage	6 (10.90)
Secondary stage	32 (58.20)
Senior secondary stage	12 (21.80)
Undergraduate	1 (1.80)
Occupation	
Housewife	48 (87.30)
Employed	7 (12.70)
Socioeconomic status	
Upper	0
Upper middle	1 (1.80)
Lower middle	28 (50.90)
Upper lower	23 (41.80)
Lower	**3 (5.50)**

Table 2. Reasons for acceptance of PPIUCD in vaginal delivery.

Reason for acceptance	No. of patients	
Long acting	N	13
	%	23.6
Safe	N	9
	%	16.4
Faith in one's doctor	N	8
	%	14.5
Reversible	N	13
	%	23.6
No remembrance once inserted/less repeatability	N	9
	%	16.4
Non-hormonal	N	3
	%	5.5
Total	N	55
	%	100

Table 3. Outcomes at 6th month, 12th month and 18th month.

Complications	N (%)		
	At 6th month	At 12th month	At 18th month
Pain Abdomen	1 (1.8)	0	0
Bleeding	2 (3.6)	3 (5.5)	0
Expulsion	5 (9.1)	1 (1.8)	5 (9.1)
Infection	0	1 (1.8)	1 (1.8)
No complications	39 (70.9)	33 (60)	28 (50)
Lost to follow up	8 (14.5)	17 (30.9)	24 (43.6)

Table 4. Outcomes of PPIUCD.

Outcomes	No. of patients	
Satisfied	N	22
	%	40
Removed for bleeding	N	4
	%	7.3
Removed for pelvic pain	N	1
	%	1.8
Removed for stringproblems	N	1
	%	1.8
Removed for vaginal discharge andpruritis	N	4
	%	7.3
Removed for pelvicinfection	N	2
	%	3.6
Removed as husband/childexpired	N	2
	%	3.6
Expelled spontaneously	N	8
	%	14.5
Not known/lost tofollow up	N	11
	%	20
Total	N	55
	%	100

Table 5. Continuation & removal of PPIUCD.

Duration of removal & continuation	No. of patients	
Removal at 6 months	N	3
	%	6.40
Removal at one year	N	6
	%	12.80
Removal at one and half year	N	7
	%	14.90
Continued	N	20
	%	42.60
Lost to follow up	N	11
	%	23.40

4. Discussion

In our study PPIUCD was inserted in 55 women. Among the women, majority (82%) were in the age of 21–30 years. 70.4% were primipara & 89.1% of them were from Hindu community. Majority (87.3%) of women were house wives, but 58.2% women had the education of secondary stage. If we consider socio-economic status, 51% & 41.8% of women were from lower middle & upper lower socio-economic group respectively. Expulsion of PPIUCD was the common complication and was noted in 5 (9.1%) women at 6^{th} and 18^{th} months follow up. Bleeding per vagina was noted in 3 (5.5%) women at 12^{th} months follow up. In this study, 44 (79.2%) women were not aware of this contraceptive method. Good number of women (42.6%) continued with the PPIUCD.

For this study, contraception counselling were done for the booked patient at antenatal OPD.

In our study, 55.4% women were in the age of 21–25 years group, which is comparable with the study done by Mishra S [3] and Katheit G et al. [6]. In this study, 70.4% women delivered for the 1^{st} time which is also comparable with the study done by Mishra S [3]. The study done by Grimes DA et al. [7] and Shukla M et al. [8] where acceptance for PPIUCD was more in the women, who delivered for the 2^{nd} time. In our study, maximum multiparous lady underwent bilateral tubal ligation after vaginal delivery.

If we consider education and socio-economic status, both are comparable with our study and the study done by Mishra S [3] and Deshpande et al. [9].

In our study, follow up of the women were done at 6^{th}, 12^{th}& 18^{th} months for evaluation of outcomes. Pain was noted in only one (1.8%) woman at 6^{th} month follow up. Pain was relieved by analgesics only, which was given in the study done by Katheit G et al. [6]. Bleeding per vagina was noted in 3 (5.5%) women at 12^{th} months follow up, which was comparable with the study done by Gupta et al. [10], but it was almost 5 times (27%) more in the study done by Deshpande et al. [9]. Infection was also noted in one (1.8%) woman at 12^{th} month follow up, which was similar with the study done by Ranjana Verma A et al. [11].

In our study, expulsion of PPIUCD was the common complication and was noted in 5 (9.1%) women at 6^{th}& 18^{th} months follow up. Here, high expulsion rate was probably due to the procedure

done by the residents. Expulsion rate was 9.5–12.5% at 4 weeks follow up in the study done by Chi IC et al. [12].

In our study, 42.6% (20) women continued with the PPIUCD. But the study done by Chi IC et al. [11] and Mohamed SA et al. [13], the continuation rate was 62–82%.

In this study, though 79.2% of the women were not aware of PPIUCD, still 55 women were agreed for this procedure. This was definitely a high uptake rate and continuation rate was also quite high (42.6%), when we compare with other short acting methods of contraception.

The outcomes which were noted in our study, were almost similar with the different studies conducted across the country. The difference what we have noticed in our study was regarding the awareness of this contraceptive method and as a result the acceptance was also comparatively low.

5. Conclusion

Major complications are low here, but still outcomes in terms of different parameters are not encouraging. Health workers at different levels can overcome this gap to improve the outcome. All our efforts should be made to enhance the field activities in making people aware about PPIUCD- the benefits & availability. Then, ultimately the acceptance will be much more in general public.

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Conflict of interest

All authors declare no conflicts of interest in this article.

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