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Original article

Comparison of continuation of postplacental CuT 380A insertion after caesarean section and normal vaginal delivery

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ABSTRACT

Background: Use of intrauterine contraceptive device is simpler, less expensive and immediately reversible. An interval of 3 years is advocated between 2 consecutive pregnancies more so in women undergoing caesarean section. Short inter conception period after Caesarean section is associated with increased morbidity, mortality and repeat caesarean section that can be avoided by post placental CuT 380A insertion during caesarean section.

Aims and Objectives: To compare clinical outcome of post placental Intra uterine contraceptive device insertion in women undergoing caesarean section with that of insertion in women after normal vaginal delivery.

Material and Methods: Study was conducted in the Department of Obstetrics & Gynaecology in Lady Hardinge Medical College and Smt. Sucheta Kriplani Hospital, New Delhi. Eighty subjects who met the selection criteria were included out of which study group 1 included 40 women who underwent post placental IUCD insertion after Caesarean section and Group 2 included 40 women who underwent post placental IUCD insertion after normal vaginal delivery.

Results: Upto 3 months follow up expulsion rate in vaginal delivery group was higher as compared to LSCS group. Overall the expulsion rate was 7.5% at 3 months Continuation rate was higher in LSCS group as compared to vaginal delivery group at 6 weeks. Continuation rate was also higher in LSCS group as compared to vaginal delivery group up 3 month follow up. Most common complication was excessive vaginal bleeding, about 22.5% of subjects had complain of excessive vaginal bleeding at 6 weeks follow up and about 24.3%. At 3 months follow up more patients in Vaginal delivery group (15%) had complain of excessive vaginal bleeding as compared to LSCS group (10.5%) (P=0.39). Overall 18.8% of subjects had excessive bleeding at 3 months follow up Complication like expulsion, pain, bleeding were higher in vaginal deliveryas compared to LSCS. Continuation was lower in vaginal delivery as compared to LSCS. Most common cause for removal was excessive bleeding and pain. Nocase of perforation or pregnancy occurred in LSCS or NVD group. The possible reason forlow perforation rate in post placental insertion is due to thick uterine wall.

Conclusion: PPIUCD insertion is an effective, safe, convenient, low cost and long term method of post-partum contraception. We recommend that, it should be routinely offered to all eligible post-partum women undergoing institutional deliveries.

Keywords: Postplacental CuT 380A, Caesarean Section, Normal Vaginal Delivery

INTRODUCTION

An interval of 3 years is advocated between 2 consecutive pregnancies more so in women undergoing caesarean section. Often patients conceive soon after delivery. Short inter conception period after Caesarean section (CS) and associated increased morbidity, mortality and repeat caesarean section can be avoided by post placental CuT 380A insertion during caesarean section.

Post placental Intra uterine contraceptive device (IUCD) is a good method for long acting reversible contraception (LARC). CuT 380A is provided free of cost by Government of India.Post placental IUCD after Caesarean section is likely to have lower rates of expulsion. The modern IUCD is a highly effective, safe, private, long-acting, coitus independent, and rapidly reversible method of contraception with fewer side effects.

Intrauterine contraception is the most cost-effective method of contraception today. Many women also find the IUCD to be very convenient, because it requires little attention once it is inserted. Increasing numbers of women in India are having their babies born in hospitals afterintroduction of JSY and JSSK. It allows opportunity for the state to provide PPIUD in a big way. IUCD can be inserted safely at any time during the first 48h after delivery, can also be inserted after 6 weeks postpartum

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(Extended PP) and after Caesarean section.[1]

The IUCD is a long-acting reversible method of contraception with expulsion rates of 5–15 per 100 woman-years of use when used as a post-placental method immediately after cesarean section. As an interval procedure (6 or more weeks after cesarean section) it appears to have a high expulsion rate (5% or higher) notably in older devices. The IUCD does not affect breastfeeding and is easy to insert in these women, but appears to be associated with a higher perforation rate (>1 per 100).[2]

India is the second most populated country in the world after China with an estimated total population of 140.76 crores (2021). India's maternal mortality ratio stays at an alarming figure of 97/200000 live births (2018), which cause 1,17000 women to die from pregnancy and child birth complications every year. This contributes to 20% of global maternal deaths.

In India, total unmet need of family planning is 9.4 (NFHS-5).2 Intrauterine devices (IUDs) have been used by women in India for decades for spacing pregnancy. Copper IUDs are the most commonly used type of IUD and the Cu T 380A has been found to be most effective IUD available in govt. sector free of charge.

Appropriate times for IUCD insertion in the postpartum periods include the postplacental IUCD insertion, the immediate postpartum IUCD insertion and the transcaesarean IUCD insertion. Taking advantage of the immediate postpartum period for counselling on familyplanning, IUCD is a good option as a contraceptive method. The increased institutional deliveries provide the opportunity to provide women easy access to immediate PPIUCD services. The National Family Health Survey (2005-2006) reported that 61% of births werespaced less than 3 years in India. Unmet need is greater in 1st year postpartum. Only 3-5% of post-partum women wants another child within two years. To address the unmet need during the post-partum period the Ministry of Health and Family Welfare, Government of India developed a national strategy to expand PostPartum Intrauterine Device (PPIUD) services among public sector facilities.

The efficacy of intra caesarean IUCD insertion without any added risk of infectious morbidity has also been reported by various studies. This technique offers the obstetrician anopportunity to insert the IUCD into the uterus under vision, thus obviating the fear of perforating the uterus during the procedure. However, despite the reported safety and efficacy, obstetricians are still hesitant to implement the advantages of Copper T 380A IUCD to women undergoing operative delivery. Initiating IUCD use during caesarean has the added advantage of eliminating a six weeks postpartum waiting period and an additional hospital visit.[3]

Immediate postpartum insertion of Intrauterine Contraceptive Device (IUCD) means insertion of IUCD within 48 hours after vaginal or intra caesarian section including postplacental insertion. Pregnancies taking place within 24 months of a previous birth have a higher risk of adverseoutcome like abortions, premature labour, postpartum hemorrhage, low birth weight babies, fetal loss and maternal death. In view of high rate of unintended pregnancy in our country particularly in postpartum women, there is a need for reliable effective long term contraception like IUD in postpartum women. Postpartum period is one of the critical times when both woman and newborn need a special and integrated package of health service as morbidity and mortality rate are quite high during this period. In India 65% of women in first year postpartum have a unmet need for family planning. As in immediate postpartum period women is known not to be pregnant and setting may be convenient for both provider and women. It is the best method of spacing. If they are made to wait for 6 weeks for initiating any effective contraception they may conceive accidentally and may not come for Contraception. Hence this method is more applicable in our country where delivery may be the only time when a healthy women come in contact with health care personnel.[4-22]

Comparison of Newer IUD

	Skyla	Mirena	Paragard	Liletta	Kyleena
Size	28 mm x 30 mm	32 mm x 32 mm	32 mm x 36 mm	32 mm x 32 mm	28 mm x 30 mm
Type	progestin hormone	progestin hormone	copper	progestin hormone	progestin hormone
Effective for up to	3 years	7 years	10 years	6 years	5 years
Notable side effect	may cause changes in your period	may cause changes in your period	may cause bleeding and discomfort	may cause painful or irregular periods	may cause irregular periods and bleeding
Dose total	13.5 mg (LNG)	52 mg Levener gestrel	Vertical each stem 176 mg copper	52 mg LNG	19.5 mg LNG
Release per day	14µg/day after 24 days	20 µg/day	Horizontal stem 68.7 mg copper	20 µg/day → after 6 years 6.5 mg/day	17.5 mg/day after 24 days

Since, not much work has been done in assessing the complications and side effects of PPIUCD in caesarean and vaginal deliveries, present study was conducted.

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AIMS & OBJECTIVES

To compare clinical outcome of post placental Intra uterine contraceptive device (IUCD) insertion in women undergoing caesarean section with that of insertion in women after normal vaginal delivery.

MATERIALS AND METHODS

The present prospective observational and comparative study was conducted in the department of Obstetrics and Gynaecology, Lady Hardinge Medical College and Associated hospitals, New Delhi. Study population consists of women who desired post placental insertion of CuT 380A during Caesarean section or after normal vaginal delivery as contraceptive method.

Inclusion Criteria

Women willing for post placental CuT 380A during Caesarean section or after normal vaginal delivery and follow up at 6 weeks and 3 months.

Exclusion Criteria

Severe thrombocytopenia; Antepartum haemorrhage (APH), Post partum haemorrhage (PPH); Leaking more than 18 hours and Evidence of chorioamnionitis.

All the women were further sub-divided into two groups i.e. Group 1 included 40 women who underwent post placental IUCD insertion after Caesarean section and Group 2 included 40 women who underwent post placental IUCD insertion after normal vaginal delivery

Methodology

An informed consent was taken prior to delivery for insertion of CuT. In group 1, during caesarean section after delivery of baby placenta and membrane IUCD was inserted through the incision in uterus and placed at the fundus manually. In group 2, CuT was inserted by kellys forceps after delivery of placenta. The details of two group were recorded on proforma. The Patients was followed at interval of 6 weeks and 3 months. Each women were assessed clinically for any complaints of pain, bleeding, discharge on history. Women were asked for any history of expulsion of IUCD. Her menstrual history was elicited and date of last menstrual period were recorded. A per speculum examination was done to visualize thread of IUCD and any abnormal discharge. A USG was performed for proper placement at 3 months without cost. In case women fails to follow up at specified period they were contacted through telephone.

OUTCOME MEASURES

Primary outcome:

Continuation rate of postplacental IUCD at 6 weeks and 3 months

Secondary outcome:

(i) Expulsion rate of postplacental IUCD at 6 weeks and 3 months; (ii) Displacement rate of postplacental IUCD at 6 weeks and 3 months and (iii) Complication rate: pregnancy rate, perforation, infection, AUB

STATISTICAL ANALYSIS

At the end of the study, data was collected and analysed statistically by using SPSS v. 16.0. For qualitative variables, Student t-test was used to evaluate the significance of differences between mean values of continuous variables. Chi-square analysis was performed to test for differences in proportions of categoricalvariables between two or more groups. The p value of <0.05 was considered statistically significant.

RESULTS

In the present study, it was observed that the mean age in NVD group was 26 ± 4 years was slightly more as compared to the LSCS group 25 ± 4 years. Majority of the women in NVD were 20-35 years while in the LSCS group they were 19-30 years ($p >0.05$, NS). The difference in the distribution of women as per age group was statistically not significant. As per modified Kuppuswamy's socioeconomic status scale, in NVD group, maximum number of women (40%) were in lower middle class socio economic status followed by lower socio economic status (25%) while in LSCS group, maximum number of women (50%) were in lower middle class socio economic status followed by upper middle socio economic status (20%) ($p=0.348$NS). Amongst the total study population, nearly 17.5% had education till middle school in NVDand 7.5% LSCS. Higher secondary education were more in LSCS as compared to NVD patients ($p >0.05$ NS).

Table 1: Distribution of women according to obstetrics score in the NVD and LSCS group.

Obstetrics score	Group	N	Mean	Std. Deviation	P value
G	NVD	40	2.40	.928	.420
	LSCS	40	2.22	1.000	
P	NVD	40	1.30	.883	.021
	LSCS	40	.88	.723	
L	NVD	40	1.20	.823	.011
	LSCS	40	.78	.620	
A	NVD	40	.10	.379	.042
	LSCS	40	.35	.662	

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Table 1 shows of women according to obstetrics score (Gravida) in the NVD and LSCS group. Further, majority of women in gravid 3 in NVD (40%) and gravida 2 in LSCS (35%). Majority of women was in parity 3in NVD (40%) and parity 2 in LSCS (55%). Majority of women had living baby 2in NVD (35%) and living baby 2 in LSCS (57.5%).

Table 2: Distribution of women according to Period of gestation (POG) in the NVD and LSCS group

POG in weeks	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
36-37	0	0%	2	5.0%	2	2.5%
37-38	6	15.0%	14	35.0%	20	25.0%
38-39	30	75.0%	13	32.5%	43	53..8%
>39	4	10.0%	11	27.5%	15	18.8%
TOTAL	40	100%	40	100%	80	100%

Table 2 shows distribution of women according to Period of gestation (POG) in the NVD and LSCS group. Mean POG in NVD is 38.56±0.53 and in LSCS 38.62±1.09. Mean hours of LPV in NVD was 6.35 ± 2.79 hours.Mean hours of LPV in LSCS was 7.52 ± 4.14 hours.

Table 3: Distribution of women according to rupture of membrane in the NVD and LSCS group

Rupture of Membrane	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
Spontaneous	33	82.5%	33	82.5%	66	82.5%
ARN	7	17.5%	2	5.0%	9	11.2%
No rupture	0	0%	5	12.5%	5	6.2%
TOTAL	40	100%	40	100%	80	100%

Chi-square=7.778, df=2, p=0.02 significant

In this study, almost equal number of patients had spontaneous rupture of membrane in both group NVD (82.50%) and LSCS (82.5%). ARM is more in NVD (17.5%) patients as compared to LSCS (5%) patients. 12.5% LSCS patients didn't have rupture of membrane (elective LSCS).

Table 4: Distribution of women according to complaining of pain at 6 weeks and 3 months in the NVD and LSCS group

Pain at 6 weeks*	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
Yes	8	20.0%	7	17.5%	15	18.8%
No	32	80.0%	33	82.5%	65	81.2%
TOTAL	40	100%	40	100%	80	100%
Pain at 3 months**						
Yes	7	18.9%	5	13.2%	12	16 %
No	30	81.1%	33	86.8%	63	84 %
TOTAL	37	100%	38	100%	75	100%

*Chi-square=0.463, df=1, p=0.496 not significant; **Chi-square=0.463, df=1, p=0.496 not significant

The two groups did not differ significantly in relation to complaint at 6 weeks and 3 months follow up. About 20% of subjects in vaginal delivery group and 17.5% of patients in LSCS group developed Pelvic pain at 6 week follow up difference not significant. Similarly at 3 months follow up only 18.9% and 13.2% subjects in vaginal delivery group and LSCS group respectively had Pelvic pain. (Table 4).

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Table 5: Distribution of women according to complaining of bleeding per vaginal at 6 weeks and 3 months in the NVD and LSCS group

Bleeding at 6weeks*	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
Yes	9	22.5%	6	15.0%	15	18.8%
No	31	77.5%	34	85.0%	65	81.2%
TOTAL	40	100%	40	100%	80	100%
Bleeding at 3 months**						
Yes	9	24.3%	4	10.5%	13	17.3 %
No	28	75.7%	34	85.0%	62	82.7%
TOTAL	37	100%	38	100%	75	100%

*Chi-square=0.738, df=1, p=0.39 not significant; **Chi-square=2.491, df=1, p=0.115 not significant

Table 5 shows distribution of women according to complaining of bleeding per vaginal at 6 weeks and 3 months in the NVD and LSCS group. In this study, at over all up to 3 months bleeding was 17.3%. 22.5% of subjects had complains of excessive vaginal bleeding in vaginal delivery and 15 % in LSCS at 6 weeks follow up. At 3 months follow up more patients in vaginal delivery group (24.3%) had complain of excessive vaginal bleeding as compared to LSCS group (10.5%) (p=0.39). So there is difference in bleeding in both group at 6 weeks (LSCS 15%, NVD 22.5%) and at 3 months (LSCS 10.5%, NVD 24.3%). The two groups did not differ significantly in relation to complaint of discharge patient at 6 weeks and 3 months follow up. About 2.5% of subjects in vaginal delivery group and 2.5% of patients in LSCS group developed vaginal discharge at 6 week follow up and at 3 monthsfollow up only 5.4% and 2.6% subjects in vaginal delivery group and LSCS group respectively had vaginal discharge. Application of Chi square test revealed that the two groups did not differ significantly in occurrence of vaginal discharge at 6 week and 3 months follow up. In this study, we found that 2.5% of subjects had displacement in vaginal delivery and 2.5 %in LSCS at 6 weeks follow up(same%). At 3 months follow up almost equal patients in vaginal delivery group (2.7%) had displacement as compared to LSCS group (2.6%) (p=0.305).It means each group was same in displacement of CuT in USG.

Table 6: Distribution of women according to expulsion at 6 weeks and up to 3 months in the NVD and LSCS group

Expulsion at 6weeks*	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
Yes	3	7.5%	1	2.5%	4	5%
No	37	92.5%	39	97.5%	76	95%
TOTAL	40	100%	40	100%	80	100%
Expulsion at 3 months**						
Yes	1	2.7%	1	2.6%	2	2.7%
No	36	92.3%	37	97.4%	73	97.3%
TOTAL	37	100%	38	100%	75	100%
Expulsion up to 3 months						
Yes	4	10.0%	2	5.0%	6	7.5%
No	36	90.0%	38	95.0%	74	92.5%
TOTAL	40	100%	40	100%	80	100%

*Chi-square=1.053, df=1, p=0.305 not significant; **Chi-square=0, df=1, p=0.985 not significant

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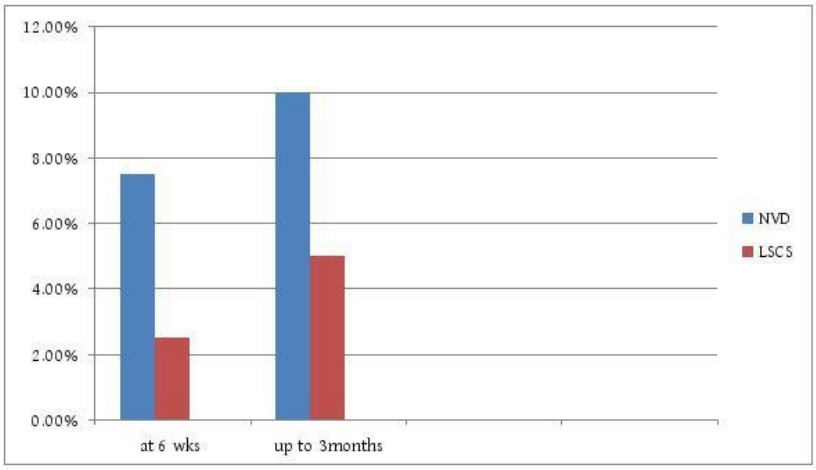
FIGURE 1: EXPULSION RATE



Expulsion of IUCD is very important and well known complication of IUCD. In present study, it was found that at 6 weeks follow up expulsion rate in vaginal delivery group was significantly higher (7.5%) as compared to LSCS group (2.5%); P value=0.037. Overall theexpulsion rate was 7.5% up to 3 months (Figure 1).

Table 7: Distribution of women according to continuation at 6 weeks and up to 3months in the NVD and LSCS group

Continuation at 6weeks*	Group				TOTAL	
	NVD		LSCS			
	N	%	N	%	N	%
Yes	37	92.5%	38	95.0%	75	93.8%
No	3	7.5%	2	5.0%	5	6.2%
TOTAL	40	100%	38	100%	80	100%
Continuation at 3 months**						
Yes	33	89.2%	35	92.1%	68	90.7%
No	4	10.8%	3	7.9%	7	9.3%
TOTAL	37	100%	38	100%	75	100%
Continuation upto 3 months						
Yes	33	82.5%	35	87.5%	68	85.0%
No	7	17.5%	5	12.5%	12	15.0%
TOTAL	40	100%	40	100%	80	100%

*Chi-square=0.213, df=1, p=0.644 not significant; **Chi-square=0.188, df=1, p=0.644 not significant

In this present study, over all continuation rate for PPIUCD was good (85%) up to 3 months follow up. Continuation rate was higher in LSCS group (95%) as compared to vaginal delivery group (92.5%) at 6 weeks p=0.644. Continuation rate was also higher in LSCS group (87.5%) as compared to vaginal delivery group (82.5%) up 3 month follow up.

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DISCUSSION

Use of IUCD is simpler, less expensive and immediately reversible. Insertion after delivery may avoid discomfort related to interval insertion. There are 0.6 to 0.8pregnancies per 100 women in first year of use. The CuT-380A is effective for 10 years of continuous use. It can, however, be used for whatever time period the woman wants, up to 10 years. CUT 375 – multiload can also be used.

Present study of PPIUCD use in India showed that most women were satisfied with their choice of immediate insertion of an IUCD and that the rates of problems and complications were relatively low. Though post-partum IUCD insertion immediately after delivery is an upcoming topic, its efficacy and safety is tobe determined.

On comparing the age of the women in both the groups, it was observed that the mean age in NVD group (26±4years) was slightly more as compared to the LSCS group (25±4 years). Majority of the women in NVD were 20-35 years while in the LSCS group they were 19-30 years. The difference in the distribution of women as per age group was statistically not significant. The mean age of women included in the study of Singal et al was 23.12±2.42 years. 20-30 years women were there in that study which is similar to our study.[3]

In this study, majority of CuT insertion in LSCS group was taken in parity 2 (55%) and NVD in parity 3 (35%). In this present study, 27.5% of the study subjects (42% of Vaginal Delivery group and 12% of the LSCS group) had parity 3 or more. 32.5% of study subjects had only one living child (30% in vaginal delivery and 35% in LSCS group) one which indicates early acceptability of long term contraceptive. Similar results of earlier acceptance of intrauterine contraceptive device was found in another study of Maluchuru et al, they found that acceptance is most common among primigravida women (31.46%).[5] In case of multiparous it was (12.5%) and these finding are contrary to that of the study by Grimes et al with higher acceptance in multiparous clients (65.1%). About 20% of subjects in vaginal delivery group and 17.5% of patients in LSCS group developed Pelvic pain at 6 week follow up and at 3 months follow up only 18.9% and 13.2% subjects in vaginal delivery group and LSCS group respectively had Pelvic pain. Applicationof Chi square test revealed that the two groups did not differ significantly in occurrence of Pelvic pain at 6 week and 3 months follow up. Almost same result in Singal et al study.[3]

About 2.5% of subjects in vaginal delivery group and 2.5% of patients in LSCS group developed vaginal discharge at 6 week follow up and at 3 months follow up only 5.4% and 2.6% subjects in vaginal delivery group and LSCS group respectively had vaginal discharge. Almost Same result in Singal et al study.[3]

In this study, we found that 2.5% of subjects had complains of fever in vaginal delivery and 7.5 % in LSCS at 6 weeks follow up. At 3 months follow up almost equal patients in vaginal delivery group (2.7%) had complain of fever as compared to LSCS group (2.6%) (p=0.305). Almost Same result in Singal et al.[3] Fever in post partum period was due to urinary tractinfection, wound infection or a component of pelvic infection.[23]

Most common complication in our study was excessive vaginal bleeding, about 22.5% of subjects had complain of excessive vaginal bleeding at 6 weeks follow up and about 24.3%. At 3 months follow up more patients in Vaginal delivery group (15%) had complain of excessive vaginal bleeding as compared to LSCS group (10.5%) and this difference was found to be statistically significant (P=0.39). Overall 18.8% of subjects had excessive bleeding at 3 months follow up. Welkovic et al[16] studied post-partum bleeding and infection after post placental IUD insertion and found no difference in the incidence of excessive bleeding. In a review by Anita L. Nelson safety, efficacy and patient acceptability of Cu T380A was studied.[17]

Comparison of women according to her at follow up visit the NVD and LSCS with other study

AUTHOR	FOLLOW UP	PAIN	BLEEDING	DISCHARGE FOUL SMELLING	FEVER
Singhal et al	LSCS				
	6 weeks	12%	13%	.33%	2%
	3 months	23.5%	8.8%		
Singh et al	NVD	4/200	11/200	13/200	
	Till 6 months				

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Expulsion of IUCD is very important parameter which has been studied in our present studyand we found that up to 3 months follow up expulsion rate in vaginal delivery group was significantly higher (7.5%) as compared to LSCS group (2.5%). Overall the expulsion rate was 7.5% at 3 months. In a study by Jain et al expulsion rates of the immediate PPIUCD at 4-6 weeks interval were 3.5%.[18] Lower expulsion rate in their study is explainedby fact that follow up duration was just 6 weeks. But similar to our study, multi country study done in Belgium, Chile and Philippines has showed the rate of expulsion at 1 month ranging from 4.6 to 16 %.[19] Expulsion rate of immediate PPIUCD in a study done in China by Chi et al,[19] was 25–37%, while postplacental was 9.5–12.5%. Expulsion of PPIUCD usually occurs in the first few months after insertion. In a multicenter investigations of Tatum et al,[20] the expulsion rates of PPIUCD were similar at 1 and 12 months in Belgium (4%) and Chile (7%), while in the Philippines, expulsion increased from 19% at 1 month to 28% at 12 months follow-up. Similar to our study expulsion rate was higher among vaginal group subjects as compared to caesarean group in study conducted by Jisha et al.[21] In a study by Kumar et al,[22] the expulsion rate was about 3.6%, in various other studies the expulsion rate of 5.6% reported among 210 women in a clinic in Hubli, Karnataka state in India. In a study done by Aruao et al[23] it was 1.6% among 3000 women in a hospital in Paraguay. In present study, Overall the removal rate of IUCD at 3 month follow up was 7.5%. Chi square test shows that the two groups did not differ significantly regarding removal of IUCD in study groups. Most common cause for removal was excessive bleeding. IUD removal rate was 13.54% in study by Sharma et al.[24] Similar to our study the common causes for removal were pelvic pain and menorrhagia. In a study by Kumar et al 3.8% of women had their PPIUCD removed within the first six weeks of insertion.[22] Women most commonly reported expected side effects of IUCDs asthe reasons for the removal, including bleeding and abdominal pain. These findings suggest that there is room for strengthening PPIUCD counselling services, particularly regarding normal side effects and complications that arise from method use.

CONCLUSION

Present study concluded that PPIUCD insertion is an effective, safe, convenient, low cost and long term method of post-partum contraception. Present study recommend that it should be routinely offered to all eligible post-partum women undergoing institutional deliveries. Our study found that up to 3 months follow up expulsion rate in vaginal delivery group was higher as compared to LSCS group. Major limitations of this study were that study conducted in a tertiary care centre, thus findings cannot necessarily be generalized to all of India since the hospital involved is a convenience sample rather than a sample representative of the country. The present study is also limited in that, long-term expulsion rates could not be determined since follow-up was only conducted at 3 months following birth. Further studies could be conducted that involved one or two-year follow-up assessments.

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