



GLOBAL JOURNAL OF MEDICAL RESEARCH: E
GYNECOLOGY AND OBSTETRICS
Volume 21 Issue 3 Version 1.0 Year 2021
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Immediate Postpartum Insertion of Intrauterine Contraceptive Device after Vaginal Delivery: It's Safety, Efficacy and Expulsion

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GJMR-E Classification: NLMC Code: WP 640



Strictly as per the compliance and regulations of:



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Aims and Objectives: To evaluate the safety, efficacy and expulsion rate of immediate postpartum intrauterine contraceptive devices (PPIUCD).

Materials and Methods: This is a prospective observational study to assess the safety and efficacy of PPIUCD use in women inserted immediately (within 48 hours) after vaginal delivery. The study was conducted at Department of Obstetrics & Gynaecology, Jhalawar Medical College, Jhalawar over a period of one year from November 2018 to October 2019. Ethical approval for the study was obtained from hospital ethical committee prior to the commencement of the study. 203 women delivering in the hospital fulfilling the inclusion criteria were included in the study. Postpartum insertion of IUCD Cu T 380A was done under sterile conditions and antibiotic coverage to ensure asepsis in the mother. Informed written consent was taken from mother before insertion after elaborating the possible complaints following insertion and reassurance.

Result: In this study, acceptance of PPIUCD was more in educated and multipara women with having at least one male child. The gross cumulative removal, expulsion and continuation rates were 7.9%, 12.8% and 68.9%. There was one case of pregnancy with IUCD in situ and no cases of perforation or other major complications were noted.

Conclusion: PPIUCD is a safe because there were only few complications and no case of perforation. It is also effective because there was only one case of IUCD failure which results

in pregnancy. Although the expulsion rates are high, it provides an effective contraception in countries with limited access to health care personnel.

Keywords: postpartum intrauterine contraceptive device (PPIUCD), contraception, expulsion.

I. INTRODUCTION

India is the second most populated country in the world with 1.32 billion people. It contributes 17.5% of the world's population by adding 25 million births annually. Family planning with adequate spacing between the pregnancies can prevent about 32% of maternal deaths and 10% of child mortality.¹ Postpartum period is the ideal time for family planning. Pregnancies with less than the recommended spacing can lead to obstetric complications like spontaneous abortion, preterm labour, postpartum haemorrhage and maternal mortality and fetal complications like SGA babies and fetal deaths.²⁻⁸ Hence practice of contraception is mandatory. In countries like India, the only time a healthy woman contacts a health care provider is during delivery. With the increased number of institutional deliveries, due to provision of Janani Suraksha Yojana- a cash transfer scheme there is increased access to the pregnant women for promoting family planning services. In the immediate postpartum period, the insertion of intrauterine device is convenient and these women are highly motivated. The postpartum IUCD insertion is particularly suitable for our country where even para medical personnel can insert the Cu T and delivery is the only time these patients come in contact with the hospital. The intra uterine device is highly effective, safe, long acting, coitus independent and cost effective⁹ method of contraception with relatively few side effects and fertility returns quickly as soon as it is removed.¹⁰⁻¹⁴ This study helps to determine the socio economic and demographic factors associated with immediate postpartum insertion of copper T and it also helps to determine the complications.

II. MATERIAL AND METHODS

This is a prospective observational study to assess the acceptability, safety, efficacy and outcome of PPIUCD use in women inserted immediately after vaginal delivery. The study was conducted at

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Department of Obstetrics & Gynecology, Jhalawar Medical College, Jhalawar over a period of one year from November 2018 to October 2019. Ethical approval for the study was obtained from hospital ethical committee. 203 women delivering in the hospital fulfilling the inclusion criteria were included in the study. Post placental insertion of IUCD CuT 380A was done under sterile conditions and antibiotic coverage to ensure asepsis in the mother. Informed written consent was taken from mother before insertion.

Inclusion criteria: All the women with singleton or multiple pregnancy delivering vaginally at Jhalawar medical college were included in the study.

Exclusion criteria: Women who did not provide informed consent, history of antepartum hemorrhage, PROM > 18 hours, postpartum hemorrhage, Fever during labour and delivery, anomalous uterus, chorioamnionitis, HIV positive mothers taking ART, patients with previous allergic reaction to IUCD, history of lower genital tract infections or active STD.

A questionnaire was used to collect data from the patients, which included socio demographic data, previous contraceptive history and awareness about PPIUCD. All women were advised to come for follow up

at 15 days, 6 weeks and 3 months following IUCD insertion. A follow up card was given to all the women containing information regarding type of PPIUCD inserted, insertion date, date of expiry, date of follow up visits, patient's phone no. During follow up visits, data was collected regarding complaints, willingness to continue Cu T, request for removal, willingness for reinsertion if expelled. Speculum examination was done to see the strings of IUCD and to rule out any local infection of cervix and vagina.

III. RESULT

In this study, majority of the women were aged between 21-25 years (53.7%), most of the women (48.3%) had completed their primary education, 95.1% of women were housewives. Most of the women (69.5%) belonged to rural area. Majority of the women (53.7%) were multipara and most of the women (50.3%) had one living child. Majority of the women (61.6%) had one living male child. The gross cumulative removal, expulsion and continuation rates were 7.9%, 12.8% and 68.9%. There was one case of pregnancy with IUCD in situ and no cases of perforation or other major complications were noted.

Table 1: Patient's particulars

Particulars		Number	Percentage
Age	Up to 20 yrs.	29	13.8
	21-35 yrs.	171	84.7
	>35 yrs.	3	1.5
Education	Illiterate	42	20.7
	Primary	98	48.3
	Secondary	48	23.6
	Degree/Diploma	15	7.4
Occupation	Housewife	193	95.1
	Employed	10	4.9
Living area	Rural	141	69.5
	Urban	62	30.5
Parity	Primipara	94	46.3
	Multipara	109	53.7
No. of living children	1	101	50.3
	>1	102	50.7
Religion	Hindu	187	92.1
	Muslim	16	7.9
Awareness of IUCD	Yes	90	44.3
	No	113	55.7

Table 2: Awareness of PPIUCD and Literacy

Education	Awareness of PPIUCD			
	YES (Number)	YES (%)	NO (Number)	NO (%)
Illiterate	2	2.22	40	35.39
Primary	29	32.22	69	61.06
Secondary	45	50	3	2.65
Degree /Diploma	14	15.55	1	0.88

Table 3: Reason for acceptance

Reason	Number	Percent
Long term	50	24.6
Safe	6	2.9
Reversible	138	67.9
Fewer clinical visits	9	4.4

Table 4: PPIUCD acceptance in relation with sex of child

	Number	Percent
Women having male child	125	61.6
Women having no male child	78	38.4

Table 5: Reason for Removal of Cu T

Reason	15 Days	6 Weeks	3 Months
Abdominal pain	2	5	0
Heavy menstrual bleeding	0	1	1
Psychosocial causes	2	1	2
For permanent sterilization	0	1	1

Table 6: Complications during follow up

Complications	15 Days n= 182	6 weeks n=155	3 months n=144
No complaints	162 (89.0%)	135 (87.1%)	129 (89.6%)
Heavy menstrual bleeding	0	6 (3.9%)	13 (9.0%)
Abdominal pain	4 (2.2%)	9 (5.8%)	3 (2.1%)
Missing strings	0	7 (4.5%)	2 (1.4%)
Expulsion	Complete	23 (12.6%)	3 (1.9%)
	Partial	0	0
White discharge	0	0	1 (0.7%)
Pregnancy	0	0	1 (0.7%)

Table 7: Continuation rates with/without complications

Problem	Total cases	Removal of Cu T	Continuation of Cu T
Heavy menstrual bleeding	19	2	17
Abdominal Pain	16	7	9
Missing strings	9	0	9
Expulsion	26	26	
White discharge	1	0	1
Pregnancy	1	1	
No complication	110	6	104

IV. DISCUSSION

The postpartum period is potentially an ideal time to begin contraception as women are more strongly motivated to do so at this time, which also has the advantage of being convenient for both women and health-care providers. IUCD insertion in postpartum period provides a good opportunity to achieve long term contraception with minimal discomfort to woman. The intrauterine devices provide reversible long lasting and effective method of birth control.^{15,16,17} In this study,

majority of the women 108 (53.7%) were aged between 21-25 years. This is similar to a study conducted by Singal et al which found mean age of PPIUCD insertion to be 23.12+/-2.42 years.¹⁸ This shows that PPIUCD usage as a method of contraception is more among young females rather than among teenage pregnancies. The education status of the study group was analysed to understand the role of education in PPIUCD acceptors. Majority of women had some form of education. This shows that women who had some formal education were willing to accept PPIUCD.

Educated women understand the risk of close pregnancies and willing to space out pregnancy by using PPIUCD. This was similar to the studies conducted by Safwat et al¹⁹, Anjali et al²⁰, Gunjan et al²¹ and Vidyaraman et al.²² Uneducated women tend to overlook the benefits and their decision making is highly influenced by their family members. Educated women tend to voice out their concerns and this facilitates in removing their misconceptions over PPIUCD. It is easy to convince an educated woman about the benefits of PPIUCD usage. Higher educated women also had lower acceptance of PPIUCD as they have easy access to other methods of contraception like condoms, OCPs and permanent sterilization. Majority of the women in this study were housewives. Most of the women (69.5%) in the study group belong to rural area. The acceptance of PPIUCD was higher among the rural women as compared to urban women. This is because the women of urban areas rely on other methods of contraception like OCPs, injectable hormonal contraceptives, condoms, permanent sterilization. Katheit G et al²³ found that acceptance of PPIUCD was almost equal among rural (47.6%) and urban women (52.4%). This clearly indicates that training to ASHA, ANMs and anganwadi workers and integrating this method in national programmes like National rural health mission has contributed significantly in family planning programme. Majority of the women in this study were multi-parous. This is similar to studies by Grimes et al²⁴, Shukla M et al.²⁵, Borthakur S et al.²⁶, Goswami G et al²¹ and Maluchuru S et al.²⁷ Mishra S,²⁸ Gautam R et al²⁹, Vidyarama R et al²² and Anjali et al found a higher acceptance in primipara. Some studies shows that women with higher parity prefer permanent mode of contraception unlike primiparous women who use PPIUCD to space out their pregnancy. The study group was analysed according to the number of living children. It was found that (50.3%) women had one living child. This shows that majority of women with one living child are willing to use PPIUCD as a method of contraception. This was similar to the studies by Kumar S et al³⁰ and Bhalerao AR et al³¹. Contrary to the present study, Katheit G et al²³ found that 35.76% of total PPIUCD acceptors were having 2 children. According to Patel and Khan,³² men approve use of contraceptive only after having 2 or 3 children.

Awareness of IUCD was 44.3%. In a study conducted by Gujju RLB et al,³³ only 54% of the women were aware of IUCD before they received counselling. Awareness of IUCD has a direct relation with women's education. According to Ullah and Chakraborty,³⁴ women's education was the most important determining factor for contraceptive use.

The reasons for acceptance among women was analysed in the study. Most women preferred PPIUCD for the reversible nature. This was contrary to the studies by Satyawathi et al²⁷ and found that reasons

for IUCD acceptance were long acting nature in 55.28% and 20.73% due to safety. PPIUCD has many advantages including its reversibility, not requiring regular user compliance, lack of systemic side effects, coitus independent, no interference with breast feeding.

In this study it was found that the acceptance of PPIUCD was more in women who had at least one living male child. In a society that values highly a male child, it probably was reassuring to the women that by having a male child a significant milestone has been achieved. Therefore they were more inclined to accept PPIUCD. The study by Bhalerao and Purandare³¹ reported that acceptance was high among women who had at least one male child.

In this study, out of 203 women, 21(10.3%) women were lost to follow up. Among the remaining 182 acceptors, 26 women spontaneously expelled PPIUCD. The gross cumulative expulsion rate at the end of 3 months was 12.8%. All the expulsions occur within 6 weeks.

Gunjan et al²¹ reported 10% expulsion rate and 30% lost follow up. Sangeetha et al³⁵ study resulted 6.8% expulsion. Kittur et al.³⁶ reported 5.23% expulsion rate and they also concluded that the expulsion rate could be minimized if the insertion was done by trained person and proper fundal placement was assured.

In this study, expulsion rate was high in primiparous women than multiparous women. This finding was contrary to other studies in which expulsion rate was high in multiparous women which is very significant due to parous cervix in multiparous women. According to Gupta et al³⁷ expulsion rate was significantly higher in multiparous women (4.67%) compared to primiparous women (2%) following vaginal PPIUCD insertions. The higher rate of expulsion in primiparous women can be misleading because it can be due to wrong reporting by the PPIUCD acceptor women. May be these women had voluntarily removed the PPIUCD under family pressure. As education level is low in Jhalawar, uneducated people have many taboos for PPIUCD like it can decrease fertility or it can cause ill effect on health. Due to these psychosocial factors, a woman can remove PPIUCD voluntarily and can misguide the Doctor that it has been expelled spontaneously.

In this study, analyzing the complications following PPIUCD insertions, heavy menstrual bleeding and pain abdomen was the most common complains. This was similar to the studies conducted by by Satyawathi et al²⁷, Farhat Arshad et al⁶¹ and Gunjan et al²¹.

In the present study, one case of failure in the form of pregnancy was observed. Eroglu et al³⁸ found 2/84 pregnancies in post placental Copper-T 380A, 2/43 in early postpartum (10 min-72 hrs) and 4/130 in interval insertion group at 1 year of follow up. Contrary to this, Ricalde et al²⁵ reported no pregnancy after 1 year of

insertion of Cu-T380A or Multiload Cu-375 in post placentally and in early postpartum period. Gupta et al,³⁹ also found no failure at 6 months of follow up in both immediate insertion and delayed insertion group.

In the present study, no case of perforation was seen. The possible reason could be due to thick postpartum uterine wall immediately after delivery. In this respect, this study was consistent with other studies conducted by Shukla et al⁷⁰, KitturS et al⁴⁰.

In this study, 16 (7.9%) women requested removal of PPIUCD for various reasons. Most common reason was pain abdomen. This was contrary to the study by Satayvathi et al²⁷ in which bleeding was the commonest reason for removal.

In the present study, 19 women had heavy menstrual bleeding but only 2 women wanted removal. 16 women had pain abdomen and out of these 7 women wanted removal. Celen et al³⁷ study reported 23.5% incidence of bleeding but only 14.71% wanted removal, while the remaining retained IUCD with reassurance. Positive attitude of the patient plays a significant role in continuation of PPIUCD.

In this study, the continuation rates at 15 days, 6 weeks and 3 months postpartum were 76.4%, 70.9% and 68.9% respectively. Raffat Sultana et al⁴¹ reported continuation rates of 94%, 92% and 82.6% at 1 week, 6 weeks and 6 months postpartum respectively. Anjum Afshan et al⁴² reported continuation rates at 6 weeks and 6 months were 90% and 84% respectively. Sahaja Kittur et al⁵⁰ reported continuation rate of 86.19% at 6 weeks follow up.

V. CONCLUSION

Immediate postpartum intrauterine contraceptive device is a safe, effective and long lasting reversible contraceptive method to women in the delivery setting. Women are highly motivated during the postpartum period and receptive to family planning advice and no additional visit to hospital is required. PPIUCD is very safe with minimal side effects. Majority of the PPIUCD were inserted after proper counseling, but no one underwent reinsertion following spontaneous expulsion which indicates that even more information regarding the advantages and disadvantages of all the available methods and PPIUCD have to be explained to decrease the unmet need of the family planning services.

Funding: No funding sources

Conflict of interest: None declared

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