ORIGINAL ARTICLE

Outcome of immediate postpartum insertion of intrauterine contraceptive device: Experience at tertiary care hospital

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Abstract

Objective: To determine the outcome of immediate post-placental intrauterine contraceptive device insertion in women.

Methods: This quasi-experimental study was conducted at Services Hospital Lahore, Pakistan, from August 2015 to January 2017.Postpartum intrauterine contraceptive device was inserted within 10 minutes of the delivery of the placenta in patients who gave informed consent. They were followed up at 6 weeks and 6 months and those who completed the follow-up were enrolled as study subjects. Data regarding safety, efficacy and continuation was collected at 6 months. Primary outcome measures were safety in terms of associated complications and secondary outcome measure was continuation rates. Efficacy was measured in terms of prevention of pregnancy. SPSS 23 was used for data analysis.

Results: A total of 8,000 eligible patients were counselled, out of whom 3,012(37.6%) exhibited a positive response and had postpartum intrauterine contraceptive device inserted. Of them, 1,250(41.5%) were followed up at 6 months and 833(66.6%) had no complications. Mean age was 30.2±11.4 years. Menstrual disturbances, vaginal discharge, lost string, misplaced device and expulsion were seen in 238(19%), 193(15.4%), 268(21.4%), 14(1.8%) and 75(6%) of the patients respectively. These complications except lost strings were comparable in vaginal and caesarean section insertions ($p<0.05$). Lost strings were more frequently observed in caesarean section group ($p=0.001$). Besides, 1,058(84.3%) patients wanted to continue this method of contraception.

Conclusion: Postpartum intrauterine contraceptive device was found to be an effective, acceptable contraception with fewer complications for the patients.

Keywords: Postpartum IUCD, Safety, Continuation, Efficacy. (JPMA 68: 519; 2018)

Introduction

Spacing births at least 36 months apart can avoid 30% of maternal and10% of child deaths.[1] In resource-poor countries, child-bearing begins at an early age. This, combined with short inter-pregnancy interval and high fertility rate, contributes to high maternal and neonatal mortality and morbidity.[2] Demographic health survey from 57 countries for 2005-13 indicated that more than 62% women have unmet need for family planning in first year postpartum.[3] Pakistan is the sixth most populous country in the world with current population of 196 million and growth rate of 2.1%.[4] According to Pakistan demographic health survey (PDHS 2013), contraceptive prevalence rate (CPR) is 35% in which modern methods are only 26% and 20% of patients have an unmet need for family planning with 9% having unmet need for spacing and 11% having unmet need for limiting their family.[5] The reported prevalence of unintended pregnancies in Pakistan is 38-46%.[6] The family planning programme was started in Pakistan in 1950 but its success rate has been limited because of multiple unresolved issues. In most of the hospitals, family planning units are separate from maternity units making it unfeasible for pregnant women to visit. Unsatisfactory supply of contraceptives, illiteracy, myths, fear of side effects and lack of counselling during antepartum care of the patient are important constraints in acceptance of modern family planning methods in Pakistan.[7] The immediate postpartum period is an ideal time to insert intrauterine contraceptive device (IUCD) as the women are very receptive for contraception at this time. They have passed through exhaustive period of pregnancy and labour, and are motivated for any method. They have limited access to healthcare and seldom return to the facility for follow-up because of various reasons. The only time when they visit hospital is during antenatal period or labour. Some of them are already pregnant when they plan for interval IUCD insertion after 6 weeks. The choice of reliable contraceptive methods is limited in early postpartum period especially when the woman is breastfeeding, as hormonal methods are not suitable for her.[8] IUCD insertion immediately after delivery can be considered an effective intervention which has the advantages of being safe, long-acting, cost-effective,

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coitus-independent, rapidly reversible and has no effect on breastfeeding. It is convenient for the service provider as well as additional cost of a follow-up visit is avoided. Another advantage is that continuity of care is exercised as the person involved in intra-partum care also provides contraception with whom the woman is familiar and is more relaxed and comfortable.[9]

According to World Health Organisation (WHO), "postpartum family planning(PPFP) is focussing on prevention of unintended and closely spaced pregnancies through the first 12 months following child birth".[10] PPFP was first introduced in Pakistan in 2012 in collaboration with Jhpiego. In Pakistan, facility-based births are 52% so this programme has huge potential of success in reducing the population burden of the country.[7] PPFP is a firmly placed programme in many countries like Egypt, India, Nigeria, Paraguay and Turkey for almost a decade now. Studies from these countries report reassuring results regarding safety, efficacy and acceptance of postpartum IUCD (PPIUCD) as a method of contraception.[9,11-14] Expulsion rates of 3.8-12% have been reported in these studies. Cochrane reviews also provide evidence regarding safety and feasibility of PPIUD insertion.[15,16]

In Pakistan, the millennium development goal (MDG) 5 could not be achieved despite many efforts. The CPR is lagging behind and unmet need for family planning is on a rise. Hence this study intended to explore the feasibility of using IUCD insertion in immediate postpartum period. IUCD being a method of long-acting reversible contraceptives (LARC) is a good choice to overcome the low compliance.

Patients and Methods

This quasi-experimental study was conducted at the Department of Obstetrics and Gynaecology, Services Hospital, Lahore, Pakistan, from August 2015 to January 2017. After getting ethical approval from the review board of Services Institute of Medical Sciences, temporal sampling was done and all the patients attending the antenatal clinic and those who came in early labour were counselled regarding different methods of contraception, including PPIUCD. Those who opted for PPIUCD were explained the method of insertion, advantages, mode of action, potential complications, the need for follow-up. Those who subsequently furnished written informed consent were enrolled in the study and their antenatal cards were stamped for willingness. Patients with anaemia (haemoglobin [HB]< 10g/dl), premature rupture of membranes more than 18 hours, postpartum haemorrhage (PPH), congenital malformation of the uterus and active infection of genital tract were excluded.

After vaginal delivery, IUCD (CuT 380) was placed high in the uterine fundus with the help of Kelly's Forceps within 10 minutes of removal of placenta. During caesarean sections, the IUCD was placed directly into the uterine fundus with fingers and the incision was closed. PPIUCD insertion was done by residents who had been trained for this purpose. Post-insertion, the subjects were explained the possible complications, how to feel the thread of IUCD and when to report to the hospital. They were given a card showing type and date of IUD insertion with date of her follow-up. Hospital record was also maintained and follow-up was scheduled at 6 weeks and then at 6 months.

At the follow-up visit, women were asked about any menstrual abnormalities (irregular bleeding, menorrhagia), vaginal discharge or expulsion. At each visit, pelvic examination was performed to check for signs of infection (foul smelling greenish yellow discharge) and see the strings which were trimmed about 2cm beyond the external orifice of the uterus. In case of complications, the women were given required treatment and reassured regarding continuation of the method. If strings were not visible, effort was made to pull them out with retriever. If unsuccessful, ultrasound was done to check the status of IUCD. In case of presence in situ, she was reassured and advised to continue with the device. Misplaced IUCD was defined as the one when it was not found in its place; either embedded in the wall of uterus or perforated the uterus into the pelvic or abdominal cavity. If IUCD was misplaced, hysteroscopy was done and it was removed. The reason was asked from women who requested removal and was noted. If the patient did not come for follow-up personally, all information was collected telephonically. If the patients did not appear for follow-up and did not even reply to telephonic inquiry, they were excluded from the study. In this way data of 6-month follow-up was recorded and only those patients who completed the follow-up were included.

Data was collected regarding demographic features. Safety in terms of all the complications of menstrual irregularities, vaginal discharge, perforation, expulsion, lost strings, misplaced IUCD were noted on a pre-designed proforma. They were also compared between vaginal and caesarean section insertions. Individual data of each patient was maintained during the study period. Efficacy in terms of prevention of pregnancy and willingness to continue the method beyond six months were recorded. Factors affecting decision of continuation were also studied for future implications. Data was entered and analysed using SPSS 23. Qualitative variables were expressed as proportions and its 95% confidence

interval (CI) were calculated. The comparison between qualitative variables was done by using chi square test or fisher Exact test, where appropriate. All P-values were two tailed and p<0.05 was considered significant.

Results

Out of the 8,000 eligible patients, who were counselled during antenatal period or in early labour, 3,012(37.6%) accepted and PPIUD was inserted in them (Figure). Among them 1,250(41.5%) could be followed up till 6 months, and of them, 532(42.5%) came physically, while 718(57.4%) had telephonic follow-up. Mean age of the patients was 30.2±11.4 years. Besides, 1,077(86%) patients were multipara, 918(73.4%) did not have high school education, 1,106(88.4%) belonged to lower socio-economic class and 822(65.7%) were residents of urban slums. Moreover, 985(78.8%) of the patients had antenatal counselling and the others in early labour. Furthermore, 900(72%) insertions were done vaginally and rest during caesarean section, while 896(71.7%) of patients were not using any contraception previously (Table-1).

Table-1: Patient Characteristics.

Variables		Number (n=1250)	%age	95% CI
Age (years)	18-25	275	22%	19.7-24.2
	26-35	758	60.4%	57.9-63.3
	>36	217	17.3%	15.2-19.4
Parity	P1-p3	173	14%	11.9-15.7
	P4-p6	866	69%	66.7-71.8
	>6	211	17%	14.8-18.9
Education	>High School	332	26.5%	24.1-29.0
	< High School	918	73.5%	70.9-75.8
Socioeconomic				
Status	Lower class	1106	88.4%	86.7-90.2
	Middle class	144	12.6%	9.75-13.2
Address	Urban	211	16.8%	14.8-18.9
	Urban slum	822	65.7%	63.1-68.3
	Rural	217	17.3%	15.2-19.4
Occupation	Working	134	10.7%	9.0-12.4
	Housewife	1116	89.3%	87.5-90.9
Counselling	Antenatal	985	78.8%	76.5-81.1
	Intrapartum	265	21.2%	18.9-23.4
Previous Contraception	Yes	354	28.3%	25.8-30.8
	No	896	71.7%	69.2-74.2
Follow Up	Physical	532	42.5%	39.1-46.0
	Verbal	718	57.4%	53.8-60.9

There were no complications in 833(66.6%) of patients. Complications such as menstrual disturbances, vaginal discharge, lost strings, misplaced IUCD and expulsions were noted in 238(19%), 193(15.4%), 268(21.4%), 14(1.1%) and 75(6%) of the women respectively. All complications were seen more in vaginal insertions as compared to insertion during caesarean section but was not statistically significant (p>0.05) except that there were significantly more cases of lost strings in caesarean section compared to vaginal insertions — 219(62.6%) compared to49(5.4%) (p=0.001) (Table-2).

All patients with menstrual disturbance were reassured and prescribed mefenemic acid and tranexamic acid with the counselling that it will settle in 2-3 months. Still 40(16.8%) patients didn't respond to medical treatment and got it removed. The rest continued with PPIUCD. Besides, 193(15.4%) patients complaining of vaginal discharge had excessive normal discharge on examination; none of them had infective discharge or any pelvic infection. Pregnancy or perforation did not occur in any of the patients.

Besides, 1058(84.3%) were willing to continue this method beyond six months. Continuation among those having high school education was 297(28.1%), with previous contraception was 309(29.3%), exposed to

Table-2: Complications according to mode of delivery.

	SVD No.	%age	C/Section No.	%age	Statistical Analysis P value for Chi-square /Fisher's Exact test
Menstrual disturbances	168	18.70%	70	20%	0.291(Chi-Square) p-value 0.590
Vaginal discharge	148	16.40%	45	12.90%	2.484(chi-Square) p-value 0.115
Lost String	49	5.40%	219	62.60%	488.2(Chi-Square) p-value 0.001
Expulsion of IUCD	60	6.70%	15	4.30%	2.533(Chi-Square) p-value 0.111
Misplaced IUCD	8	0.90%	6	1.70%	1.550(Chi-Square) Fisher Exact test 0.232

IUCD: Intrauterine contraceptive device.

Table-3: Factors affecting continuation.

	Continued N=1058		Discontinued N=192		Statistical Analysis
	No.	%age	No.	%age	P value for Chi-square /Fisher's Exact test
Education					
>High school	297	28.10%	35	18.20%	8.051(chi-square) p-value0 .004
Previous Contraception					
Yes	309	29.30%	45	23.40%	2.66(chi-square) p-value 0.103
Antenatal Counselling					
Yes	824	77.90%	161	83.90%	3.469(chi-square) p-value 0.063
P1-P3	125	11.80%	48	25%	53.843(chi-square)
>P3	933	88.20%	144	75%	p-value 0.001

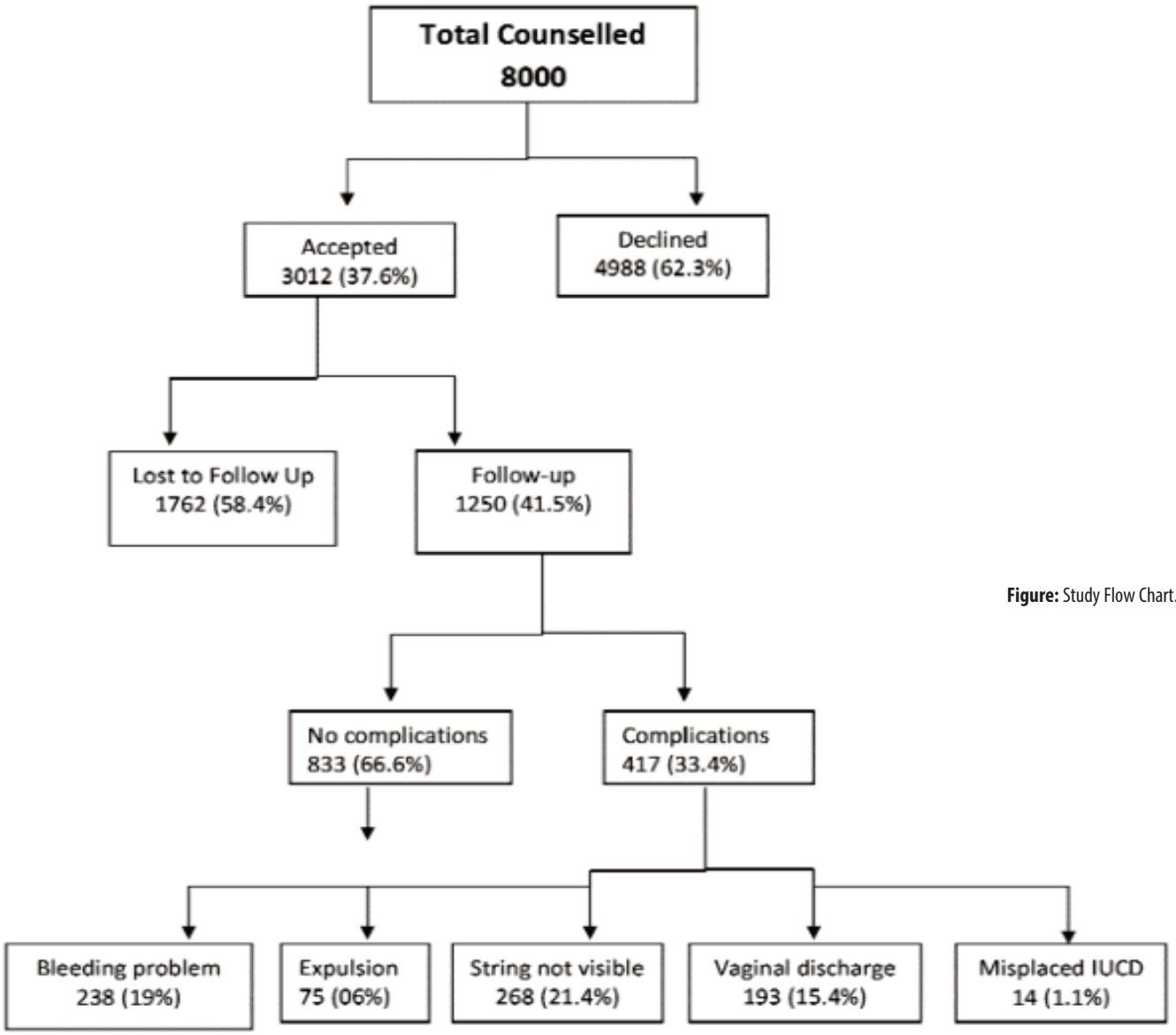

Figure: Study Flow Chart.

antenatal counselling was 824(77.9%) and with multiparty (>3 children) was 933(88.2%). Patients who had high school education and who had more than three children were statistically more significantly willing to continue the method (p=0.004 and p=0.001, respectively) (Table-3).

Discussion

This large tertiary care study has shown encouraging results. Postpartum period is an ideal opportunity for PPIUCD insertion in women of developing countries like Pakistan. They are very receptive at this time with high acceptance rate. The women who came for follow-up over 6 months were included in the study which was possible in 1,250(41.5%) patients. All the patients were reminded of their appointment for follow-up and those who were not able to come to hospital were inquired on telephone. Verbal follow-up in 57.4% of patients was a limitation in our study. This is a dilemma of studies from the developing world. Verbal follow-up of 40%-70% has been reported from almost all other studies.[11-13,17,18] One Karachi-based study in fact had a 90% verbal follow-up.[19] Majority of patients do not come back for follow-up in developing countries because of various constraints of economy, distance, illiteracy and busy households. Moreover, they come to tertiary care hospitals from far flung rural areas and coming back just for routine follow-up is wilfully omitted.

In our study, majority of the patients were poor, did not have high school education and were multipara. Most of our women with 1-3 children were reluctant for insertion. The reason may be myths about side effect of infertility. Similar proportion were reported from studies of other resource poor countries.[11-13,19] These are the women who suffer from large family size, have more chances of unintended pregnancies and who have the unmet need for spacing their family. So, PPIUCD is an ideal solution to their family planning needs. In our study, 896(71.7%) patients were not using any contraception previously. Indian study comprising 1,730 women also reported non-usage of contraception in two-third of patients.[11] Women who have never used any contraception are more easily counselled for contraception compared to the ones who have used any contraception and experienced its side effects.

In this study, counselling during the antenatal period had an impact on acceptance of PPIUCD as 985(78.8%) of the patients had received antenatal counselling as compared to 265(21.2%) who were counselled during early labour. During antenatal period clinicians have more time to discuss the procedure, convenience and advantages of LARC, myths related to PPIUCD and win confidence of the patient. Women can discuss the offer with their husbands and make decision regarding acceptance in a better way. The queries of the couple can be answered by the health care provider. In case of a labouring patient, doctor does not have ample time to counsel the couple effectively and the patient is also not able to decide in a society where she can't make her own decisions. A study also reported higher acceptance rate among patients counselled during antenatal period.[20] It is suggested to include counselling of contraceptive methods as a part of antenatal care rather than waiting for patient to return to facility after 6 weeks of postpartum, which often doesn't happen. This will help her leave the facility with the confidence of LARC and will improve our contraceptive prevalence rate.

Regarding safety of PPIUCD, 833(66.6%) of our patients did not have any complications. Study from Paraguay comprising 3,000 patients also did not report any complication in 95% patients.[13] However, menstrual disturbances were seen in 238(19.4%) of our patients. Studies have reported menorrhagia in5.5% to 27.2% of patients.[13-20] Majority (198) of our patients responded well to counselling and symptomatic treatment and continued with IUCD. Besides, 40 patients got it removed due to excessive vaginal bleeding. The other common complaint was of vaginal discharge in 15.4% of patients but none of the patients had infection. On the contrary, a study from India had reported infective discharge in 1.75% of patients.[21] Lots of effort (workshops and onsite training) was done to ensure asepsis during insertion and subsequent handing of instruments. Lost string was seen in 21.4% of the patients, though this problem was more significant in our patients who got insertion during caesarean section. In most of them, string was lying curled up in the cervix and was pulled out with a retriever. Halder Abhijit has reported cases of missing strings in 50% of patients delivering abdominally.[22] The problem of lost thread after caesarean section has been discussed at length in systematic review and various techniques including guiding the thread towards cervix has been suggested.[23] Misplaced IUCD were seen in 14 patients. The reason for this malposition is likely pulling of threads while withdrawing Kelly's forceps during vaginal insertion. Rigorous training can decrease the incidence of this problem.

Expulsion has always been a worrisome issue for PPIUCD insertion. Various determinants are timing of insertion, training and expertise of provider and vaginal versus caesarean section insertion. Studies have reported expulsion rate of 3.8% to 12%.[13-22] Our study showed expulsion rate of 6%; 6.7% with spontaneous vaginal

delivery (SVD) versus 4.3% with caesarean section although not statistically significant. Studies from India have also reported more expulsions associated with SVD, probably because cervical os is widely open after SVD.[11,17,18] Lower expulsion in caesarean deliveries has been documented in systematic review as well.[23] Although expulsion rates are higher for postpartum IUCD compared to interval IUCD, the benefit of effective contraception immediately after delivery outweigh the disadvantage of little increased risk of expulsion. There was no case of uterine perforation or pregnancy in our study. No perforation has been reported in literature so far.[13-23]

In our study, 1,058(84.3%) patients were willing to continue with the device indicating high level of satisfaction and were willing to recommend this method to others as well. This compares favourably with continuation rate reported from Karachi (84%),[19] Paraguay (91%),[13] Turkey(87.6%)[14] and India (81-96%).[11,17,18,20,21,24] Besides, 125 patients(10%) requested removal for variety of reasons, the most common reason for removal was bleeding problems(32%) similar to study at a tertiary care centre by Mishra et al.[18]

In our study, number of children and education status of women had impact on continuation of this method. Multipara were more inclined towards continuation as compared to women with fewer children as is shown in various studies.[11,20,24] They are the ones facing morbidity of repeated pregnancies in terms of ill health with huge unmet need for family planning. The patients who are educated up to high school or more had higher continuation of PPIUCD as compared to uneducated or those with primary school education as is reported from other studies.[17,18,21,24] Education helps in generating self-esteem, greater insight into their future and better response to counselling. Antenatal counselling had significant effect on acceptance but not on continuation. The reason may be that we were more targeted towards counselling for insertion or maybe it was a new intervention in our setup and the team needed more training with counselling skills regarding follow-up of the patient. Arrow Smith et al in a systematic review emphasised the role of antenatal counselling especially in communities to improve IUCD uptake.[25] There is a need for PPFP counselling to be included in curriculum of lady health visitors (LHVs_, lady health workers (LHWs) and community midwives, who are serving in rural areas to address their unmet need for family spacing.

Conclusion

PPIUCD was found to be an effective, acceptable contraception with fewer complications for the patients. Effective training of providers in insertions and counselling skills can go a long way toward increasing PPIUCD's contribution in lessening the population burden of this country. Government should include counselling for postpartum family planning as an essential part of antenatal care services.

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