



Original Article

Comparison of Complication of Postpartum Intrauterine Contraceptive Device with Interval Placed IUCD

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ABSTRACT

For prevention of unintended and closed interval pregnancies through the first year following childbirth, postpartum family planning is required. A wide range of reliable and cost-effective contraceptive methods are available for postpartum women. **Objective:** To compare the frequency of complications of postpartum intrauterine contraceptive device (PPIUCD) versus interval placed intrauterine contraceptive device (IUCD). **Methods:** It was a randomized control clinical trial which was conducted in Unit 3, Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore. The time period of this study was 6 months extending from January 2018 to June 2018. After fulfilling the inclusion criteria, 160 patients were enrolled in the study. These patients were followed up for time period of 6 months in both groups. The complications named perforation, pelvic infection and expulsion were noted. All the gathered information regarding variables was analyzed on SPSS version 20.0. **Results:** The mean age and gestational age of females of the PPIUCD group was 26.50±5.05 years and 38.94±1.42 weeks and interval IUCD group was 28.25±4.40 years and 39.08±1.29 weeks respectively. In this study the pelvic infection was noted in 8 females in which 2 were from PPIUCD group and 6 were from interval IUCD group. Statistically insignificant difference was found between the study groups with pelvic infection i.e. p-value=0.147. Expulsion was noted in 1 female from PPIUCD group and 3 females from interval IUCD group. The difference was insignificant (p>0.05). **Conclusions:** There was no statistical difference found in frequency of complications with PPIUCD versus interval placed IUCD.

INTRODUCTION

After the delivery of baby, women do not desire a pregnancy immediately in the postpartum period but mostly they are not aware about contraceptive usage due to lack of knowledge [1]. A 30% reduction in maternal deaths and 10% reduction in child deaths was observed in females who used family planning methods with the intention to create interval of at least 3 years apart between births [2]. For this purpose of prevention of unplanned, unwanted and closed interval pregnancies through the first twelve months

following childbirth, postpartum family planning is required. A wide range of reliable and cost-effective contraceptive methods are available for postpartum women, just for the prevention of an unplanned pregnancy, within a short time period [3, 4]. The intrauterine contraceptive devices, along with contraceptive implants are the best choices among different birth control methods, which result in the highest satisfaction among family planning users. Literature based evidence favors the

effectiveness and safety of these methods. Once the method is reversed, even after long-term use, the benefit is that the fertility returns to normal easily and rapidly. By using these methods of contraception for one year, their first-year failure rate is about 0.8% with copper containing devices and 0.2% with hormone containing (levonorgestrel) devices [5, 6]. One of the easiest and commonest type of long-acting reversible birth control contraceptive method is IUCD [7, 8]. Now a days, mostly women like the PPIUCD because its role has been established and it is very convenient to use as it requires small and little action as soon as it is inserted in its actual place. It also has numerous benefits. A family planning method which delivers reversible and cost-effective contraceptive need in the hospital delivery setting is the immediate PPIUCD [1, 4]. The usage has also shown strong approval to avoid risk of early pregnancy of recently delivering women as it may pose risk of many complications [3]. There are different timings to place IUCD in postpartum period. One study has shown that the pelvic infection was present in 0% with PPIUCD while in 4% in interval group, expulsion was found in 14% with PPIUCD while 2% in interval groups and perforation was present in none of the patients in any group. The difference was found significant ($p < 0.05$) [9]. Another study showed that pelvic infection was present in 0% with PPIUCD while 4.5% in interval group, expulsion was absent in both groups. The difference was significant ($p < 0.05$) for pelvic infection while insignificant for expulsion [10]. But one study showed that pelvic infection was present in 1.9% with PPIUCD while in 1.6% in interval group, expulsion was found in 1.9% PPIUCD while 0.4% in interval groups, and perforation was present in none of the cases in any group. The difference was insignificant ($p > 0.05$) [11]. So, there are various results about the complications of PPIUCD and this study is designed to compare the frequency of complications of PPIUCD versus interval placed IUCD. In our country where demand of family planning is on peak and woman lack awareness about IUCD, this study will help to make strategies that provide woman awareness about IUCD. Literature has reported variable results and it develops a confusion whether to go for PPIUCD or interval IUCD placement. So, we want to conduct this study to get reliable results to be applicable in local setting in future. The objective of this study was to compare the frequency of complications of PPIUCD versus interval placed intrauterine contraceptive device.

METHODS

This Randomized Controlled Clinical Trial was conducted in Unit 3, Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore, extending from January 2018

to June 2018. The sampling method used was non probability consecutive sampling. A Sample size of 160 patients (80 patients in each group) was calculated with 80% power of test, 5% level of significance and taking expected percentage of expulsion rate i.e. 14% with PPIUCD while 2% with interval placed IUCD [5]. All women of 18-35 years of age who are coming to labour room for vaginal delivery with singleton pregnancy and choose for the contraceptive method were included in the study after written consent. The women with ruptured membranes for >24 hours prior to delivery, with diagnosed uterine anomalies, antepartum, intrapartum or postpartum hemorrhage and having allergy to copper were excluded from the study. After getting approval from hospital ethical committee, 160 patients (80 subjects in both study groups) fulfilling selection criteria was enrolled in this study through labour room of Unit 3, Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore. Informed written consent was obtained. Their demographic data details (name, age, gestational age, parity) were obtained. Then subjects were randomly divided into two groups by using lottery method. In group A, IUCD was placed within 15 minutes of delivery of placenta. In group B, IUCD was delayed after 24 hours of delivery. In all the cases who accept this method, after placental removal in vaginal delivery, placental forceps was used to keep intrauterine contraceptive device in fundal area. These cases were followed for 6 months. If female were complaining of abdominal pain or excessive bleeding, then she was screened by using USG for perforation and expulsion. Pelvic infection was noted if female had fever and abdominal tenderness along with pus discharge through vagina (on clinical examination). All this information was gathered and noted through proforma. All the data were put on sheets and analyzed using SPSS 20.0 version. Quantitative variables like age, gestational age, duration of marriage was presented in form mean \pm S.D. Qualitative variables like perforation, expulsion and infection was presented in form of frequency and percentages. Discrete variable like parity was presented in form of frequency. Chi-square test was applied to compare the complications in both study groups. P -value ≤ 0.05 was consider as significant.

RESULTS

In this study total 160 females were enrolled. The mean age of the PPIUCD group was 26.50 ± 5.05 years and in interval IUCD group was 28.25 ± 4.40 years. The mean gestational age of the PPIUCD group was 38.94 ± 1.42 weeks and in interval IUCD group was 39.08 ± 1.29 weeks. The mean duration of marriage of the PPIUCD group was 4.48 ± 3.79 years and in interval IUCD group was 5.59 ± 3.415 years (Table 1). The 54 (33.75%) females were with primary parity,

49(30.63%) females were with secondary parity and 57(35.63%) females were with tertiary parity.

Table 1: Demographics of participants

Variables		Study Groups	
		PPIUCD	Interval IUCD
Age (years)	N	80	80
	Mean ± SD	26.50±5.05	28.25±4.40
Gestational Age (weeks)	N	80	80
	Mean ± SD	38.94±1.42	39.08±1.29
Mean duration of marriage (years)	N	80	80
	Mean ± SD	4.48±3.79	5.59±3.415

According to results, the pelvic infection was noted in 8 females in which 2 were from PPIUCD group and 6 were from interval IUCD group. Statistically insignificant difference was found between the study groups with pelvic infection of the females i.e. p-value=0.147. The expulsion was noted in 4 females in which 1 was from PPIUCD group and 3 were from interval IUCD group. Statistically insignificant difference was found between the study groups with expulsion of the females i.e. p-value=0.311 (Table 2).

Table 2: Pelvic function and expulsion in females of both study groups

Variables		Study Groups		Total
		PPIUCD	Interval IUCD	
Pelvic infection	Yes	2	6	8
	No	78	74	152
Total		80	80	160
Chi value=2.105		p-value=0.147 NS		
Expulsion	Yes	1	3	4
	No	79	77	156
Total		80	80	160
Chi value=1.026		p-value=0.311 NS		

DISCUSSION

A 30% reduction in maternal deaths and 10% reduction in child deaths was observed in females who used family planning methods with the intention to create interval of at least 3 years apart between births [1]. Short intervals among births are associated with greater mother and child morbidity as well as mortality [2]. Despite of these facts, only 26% of postpartum women are using contraceptive methods and more than 60% of births follow a track with an interval of less than 3 years. In the last decade, the percentage of women giving birth in government hospitals and different health facilities is increasing. This step leads to increase in proportion of deliveries taking place at health facilities. The range lasted from 41% in to 86.9% [12-15]. The intrauterine contraceptive devices (IUCD) are one of the commonest methods for contraception. This IUCD is a little coil, usually in the form of T-shape letter that is placed into a womb to prevent pregnancy [6, 8]. In our study, the

pelvic infection was noted in 8 females, and out of these patients, 2 cases belonged to PPIUCD group and 6 cases were from interval IUCD group. The p-value=0.147 was found between both groups as far as pelvic infection was concerned. So the difference was found statistically insignificant. The expulsion was noted in 4 females, and out of these patients, 1 was from PPIUCD group and 3 belonged to interval IUCD group. The p-value=0.311 was found among both groups as far as expulsion of IUCD was concerned. So the difference was found statistically insignificant. One study has shown that the pelvic infection was present in 0% with PPIUCD while in 4% in interval group, expulsion was found in 14% with PPIUCD while 2% in interval groups and perforation was present in none of the cases in any group. The statistical difference was found significant as p<0.05 [9]. Another study showed that pelvic infection was present in 0% with PPIUCD while 4.5% in interval group, expulsion was absent in both groups. The difference was found significant as p<0.05 for pelvic infection while insignificant for expulsion [10]. The rate of complications between PPIUCD and interval IUCD groups were similar in this present study and these results had similarity with the study which was conducted by Eroglu and associates where the complication parameters were almost same and did not differ significantly between the two mentioned study groups [16]. One study showed that pelvic infection was present in 1.9% with PPIUCD while in 1.6% in interval group, expulsion was found in 1.9% PPIUCD while 0.4% in interval groups, and perforation was present in none of the cases in any group. The difference was insignificant (p>0.05) [11]. A study conducted by Jamkhandi *et al.*, represented more or less similar results and concluded the safe profile of postpartum insertion of IUCD and declared it as a cost-effective, feasible and easy reversible method of contraception [17]. He compared all three groups of his study and reached at a conclusion that expulsion rate is greater in PPIUCD group as compared to other two groups of intra cesarean and interval placed insertion and made a decision that rate can be lowered down if it is placed by experienced health care provider and inserted at the level of fundus. The correct placement rates of IUCD were comparable in three groups i.e., 94%, 96% and 100% respectively. Initially PPIUCD insertions were done by doctors. Later-on staff nurses and midwives were trained for this purpose and this helps in sharing the burden of doctors [18, 19]. Now evidence from different countries shows us the level of task sharing in family planning services. There are many studies which elaborates that in low resource settings, provision of interval IUCDs by staff nurse and midwives is cost-effective and feasible [19-21]. It is clear by analyzing the literature that postpartum IUD which are placed right after birth of baby and placenta

either in spontaneous vaginal delivery or cesarean section delivery, are usually found feasible, safe and cost-effective. When these placements are compared with interval IUD, it has been observed that the risk of infection, expulsion, bleeding, perforation or endometritis do not increase and these do not affect the return of the uterine size to its normal limits [22]. A study by Hooda *et al.*, analyzed and further concluded that in the family planning contraceptive services, IPPIUCD is considered as a strong option and should be considered in both spontaneous vaginal deliveries and caesarean sections. The rate of expulsion and other complications should be minimized by early and close follow up [1]. One more study by Agarwal *et al.*, concluded that PPIUCD is a long acting, easily reversible, cost-effective method of family planning with good safety profile now a days with little side effects and without major serious complications and its contraindications [23]. A study conducted by Bano *et al.*, in a tertiary care hospital at Karachi reached at a conclusion that post-partum IUCD group had more safety margin and was found more effective i.e., 87.5% when compared to interval IUCD group i.e., 83.9%. Complication profile like pelvic pain and expulsion rate of device were enhanced with interval IUCD group than PPIUCD patients. They found post-partum device have a high safety profile with its simplicity, low cost and long-acting reversible procedure with greater chances of retention on a long-time scale [24]. A study conducted by Kumar *et al.*, in Mumbai demonstrated a difficult placement of IUCD in 2 patients (6.7%) in post-partum period while it was observed in 01(3.3%) patient of interval IUCD insertion. Six weeks expulsion was found in 2 and 1 case of post-partum and interval IUCD insertion. At the end of 1 year it was 10% in post-partum IUCD group and 6.7% in interval IUCD group. This study reached at a conclusion of safe profile and few side effects for post-partum IUCD insertion while complication rates were similar in subjects with postpartum and interval IUCD group [25]. There is a common belief that PPIUCD placement has a greater complication profile than interval IUCD insertion, so our study negates this belief.

CONCLUSIONS

According to this study, statistical difference was not found in frequency of complications with PPIUCD versus interval placed IUCD.

Authors Contribution

Conceptualization: HK, SZS

Methodology: HK, FI

Formal analysis: FW, QM, AK

Writing-review and editing: HK, SZS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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