

Comparison of Complications of Postpartum IUCD (PPIUCD) Insertion with Interval IUCD Insertion

MUNAZZAH BASHIR¹, SHAZIA ASHRAF², MEHREEN KHALIL QURESHI³, SYEDA SANA ALI⁴, MAHVESH MAHMUD⁵, LAMIA YUSUF⁶

¹Assistant Professor, Gynae and Obstetrics M. Islam medical college Gujranwala

²Associate Professor Gynae & Obs, AIMC/Jinnah Hospital Lahore

³Gynecologist Department of Gynecology and Obstetrics, Sindh Government Hospital Malir.

⁴Assistant professor and Head of Gynae and Obs Department, Murshid Hospital and Health Care Center Karachi(MHCC)

⁵Associate Professor Nephrology, Watim Medical College Rawalpindi

⁶Associate Professor Department of Gynecology and obstetrics, Khawaja Muhammad Safdar Medical college Sialkot

Correspondence to: Shazia Ashraf, Email:shaziaashraf786@hotmail.com, Cell: 0322-792221

ABSTRACT

Aim: Present study was aimed to compare complications of postpartum IUCD insertion with interval IUCD insertion.

Study design: Retrospective study

Place and duration: Conducted at Gynae & Obs, AIMC/Jinnah Hospital Lahore during from August 2021 to March 2022.

Methods: 110 women who used IUCDs were enrolled in this study. They all were equally divided into two groups (PPIUCD group and Interval IUCD group). Women ages were ranging from 20 to 35years. Patients detailed medical history including age, residence, socioeconomic status were examined after taking written consent. Outcomes were examined at follow-up and compared between both groups. Patients with Chorioamnionitis, Puerperal sepsis, PROM > 18 hrs, Potentially infected dai handling cases, Unresolved PPH were excluded from the study. Data was analyzed by SPSS 20.0. P-value <0.05 was considered as significant.

Results: Out of 110 patients of accepted IUCD, most of the patients were aged between 20 to 30 years who had used intrauterine contraceptive device and comprised 77.3%. Women with PPIUCDs had low complication rate as it was reported in 13 cases (23.47%) while (27.19%) was reported in 15 cases of Interval IUCDs group. Pregnancy and perforation was 0%. 48 (87.3%) women were satisfied with their PPIUCDs whereas 45 (81.8%) were satisfied with their Interval IUCDs. Continuation rate with PPIUCD was high 49 (89.1%). Bleeding problem was significantly higher in women with Interval IUCD (9.09%). Women with PPIUCD had more expulsion rate (7.27%). Rate of removal of IUCD in both the groups had minimum difference (9.09% and 10.9%).

Conclusion: It is concluded that the insertion of immediate postpartum intrauterine contraceptive devices was effective and safe method with low complications rate.

Keywords: PPIUCD, Interval IUCD, complications

INTRODUCTION

Family planning can avert nearly one-third of maternal deaths and 10% of child mortality when couples space their pregnancies more than two years apart [1]. Short intervals between births are linked with higher maternal and child mortality and morbidity [2].

During this pandemic, long-term family planning methods are preferred because the schedule for visiting health facilities is not as frequent as short-term family planning methods. In this case, Intrauterine device (IUD) is one of the long-term contraceptive methods besides implants. Intrauterine devices and implants, as long-term contraceptive methods, show lower pregnancy rates than short-term methods [3]. The advantages of IUD insertion and postpartum implants are that they have both high efficacy and reversibility, also easy to insert by trained health personnel [4]. Postpartum IUD (PPIUD) insertion is performed ten minutes after the placenta is born until 48 hours postpartum, while the interval insertion method is not associated with delivery. What is meant by the interval period is the insertion of the IUD after four weeks after delivery. Insertion of the IUD after 4 weeks postpartum or usually 6 weeks postpartum is considered a traditional IUD insertion. In India, postpartum IUD insertion is gaining popularity [5]. Currently 68% women are using contraception in developed world higher than in developing world in which it is 55%. A woman, who becomes pregnant too quickly following a previous birth, faces risks of anaemia, abortion, premature rupture of membranes and maternal mortality. A baby born after short birth interval has increased chances of being born preterm, small for gestational age, death during neonatal period etc.

Despite IUD complications, it remains the most accepted method, as it has many advantages like being non-coital related, had no systemic complications, of long duration and reversible with rapid return of fertility after its removal [6].

The complications of IUD include heavy menstrual bleedings, menstrual irregularities and infection complications which could be minimized by using strict aseptic techniques during insertion [7]. The most distressing complication is the displacement

of IUD, especially if this displacement was extra-uterine, as the patient needs a surgical maneuver (endoscopic usually) for extraction of this IUD. Displacement of IUDs puts a financial and psychological burden to the patient also increases the risk of unwanted pregnancies and its related risks [8].

Displacement of IUD occurs mainly during its insertion, and occurs mainly due to rough or wrong technique; also IUD insertion at a wrong timing may increase risk of IUD displacement. So it is very important to insert IUDs at the proper time with the proper technique [8].

Timing of insertion of IUD after cesarean section is a matter of debate, some gynecologists insert IUDs during cesarean section after placental removal, while other gynecologists prefer insertion of IUDs after an interval either immediately after puerperium (42 days), or after 6 months post-cesarean section, but the majority inserts IUDs after 3 months from cesarean section [9].

PPIUCD insertion can be done postplacental that is within 10 mins of placental expulsion, intra caesarean at the time of caesarean section or within 48 hrs of delivery. Inserting IUCD after placental delivery is safe. However, there is a continuing debate about the safety and efficacy of post placental IUCD insertion as there is theoretically higher risk of expulsion associated with involution of uterus and higher risk of infection due to lochia. Acceptance and continuation of IUCD can be increased by education and counselling.

Hence, the present study was aimed to compare the safety, efficacy and complications of postpartum IUCD and interval IUCD.

MATERIAL AND METHODS

This retrospective study was conducted at conducted at Gynae & Obs, AIMC/Jinnah Hospital Lahore during from August 2021 to March 2022. In this study total 110 patients were included. Patient's ages were ranging from 20 to 35 years. Patient's detailed medical history including age, habitat, socioeconomic status was examined after taking written consent. Women with acute purulent discharge, high individual likelihood of exposure to gonorrhoea or

chlamydia, malignant or benign trophoblastic disease, suffering from AIDS and not clinically well or on antiretroviral therapy, between 48 hours and 6 weeks postpartum, chorioamnionitis, prolonged rupture of membranes >18 hours, postpartum endometritis/metritis and un-resolving post-partum haemorrhage were excluded from this study.

All the patients were equally divided into two groups, 55 patients in each group. Group A PPIUCD, Group B Interval IUCD. Intrauterine contraceptive device CuT-80A was inserted in all the patients. Outcomes such as perforation, satisfaction, menstrual bleeding, discharge P/V, pregnancy, expulsion, removal and continuation rate was analyzed after follow-up and compare findings between both groups. Follow up was taken at 6 months post insertion of IUCD

All the data was analyzed by SPSS 20.0. Frequency and percentages was recorded. P.value <0.05 was significantly considered.

RESULTS

Out of 110 accepted IUCD patients, patients < 20years of age were 2 (1.8%), patients ranging from 20 to 25 years of age were 55 (50%), from 26 to 30 years of age there were 30 (27.3%) patients, from 31 to 35 years of age there were 18 (16.4%) patients and 5 (4.5%) patients were above 35years of age. In order to know the education status of the participants, 28 (25.5%) patients had no formal schooling. 25 (22.7%) patients had primary, 29 (26.4%) patients had secondary, 16 (14.5%) women had intermediate while 12 (10.9%) had graduated and above. In view of residence, 77(70%) women had urban habitat while 33(30%) had rural habitat. (Table 1)

Table 1: Demographic characteristics of IUCD accepted women

Characteristics	Frequency (n=110)	Percentage (100%)
Age groups (years)		
<20	2	1.8
20-25	55	50
26-30	30	27.3
31-35	18	16.4
>35	5	4.5
Education		
No schooling	28	25.5
Primary	25	22.7
Secondary	29	26.4
Intermediate	16	14.5
Graduate and above	12	10.9
Habitat		
Urban	77	70
Rural	33	30

According to the type of insertion, the cases were divided into two groups. Group A PPIUCD and group B Interval IUCD and both groups had equally divided into 55 patients each. No perforation and pregnancy was recorded either in postpartum or in interval IUCD cases. Maximum number of women 48(87.3%) in postpartum and 45(81.8%) women in interval group were satisfied with the IUCD at six months of follow up. Rate of continuation in PPIUCD group was 89.1% while 83.63% in interval IUCD group. Rate of removal of IUCD in both the groups had minimum difference (9.09% and 10.9%). (Table 2)

Table 2: Outcomes at follow-up

Clinical presentations	PPIUCD Group	%	Interval IUCD Group	%
Perforation	0/55	0	0/55	0
Pregnancy	0/55	0	0/55	0
Satisfaction	48/55	87.3	45/55	81.8
Continuation	49/55	89.1	46/55	83.6
Removal	5/55	9.09	6/55	10.9

In order to identify the complications in both the groups, 27.19% complications occurred in 15 cases of interval IUCD and 23.47% complications were occurred in 13 cases of postpartum IUCD. Bleeding problem regarding to menstrual abnormality was recorded high in interval IUCD cases in 5 (9.09%) and (5.4%) in 3 cases of postpartum. Discharge P/V in 2 (3.6%) PPIUCD cases and in 3 (5.4%) interval cases. No PID was found in postpartum group while only 1 (1.8%) case of interval IUCD was found with PID. Expulsion rate was higher 7.27% (4 cases) in postpartum IUCD group and 3.63% (2 cases) in interval IUCD group. Cramps/abdominal pain was more associated with interval IUCD group 7.27% (4 cases) and 5.4% (3 cases) in PPIUCD group. Missing thread 1.8% (1 case) was found in PPIUCD group. (Table 3)

Table 3: Comparison between PPIUCD and Interval IUCD complications

Complications	PPIUCD (n=55)	%	Interval IUCD (n=55)	%
Bleeding problem	3	5.4	5	9.09
Discharge P/V	2	3.6	3	5.4
PID	0	0	1	1.8
Expulsion	4	7.27	2	3.63
Cramps/abdominal pain	3	5.4	4	7.27
Missing thread	1	1.8	0	0
Total	13	23.47	15	27.19

DISCUSSION

Unwanted pregnancy is still a major concern in our country. Family planning methods need to be strengthened to achieve limited family size to improve overall maternal and child health. The risk of maternal mortality can be reduced by the high use of contraception in the community. The use of contraception, in addition to preventing unwanted pregnancies, is also an effort to achieve the 5th goal of the Millennium Development Goals, namely improving maternal health [10].

Intrauterine contraceptive device (IUD) is considered the most acceptable and widely used methods of contraception, being safe, cheap, long acting and reversible. More over IUDs related complications could be avoided by aseptic technique during its insertion, and proper method for its insertion [11].

There is still a debate about the best timing of IUD insertion after cesarean delivery. Some gynecologists prefer its insertion during cesarean section [17] [12] [13], while others prefer interval insertion, 3 months after cesarean section [14] [15] [16]. In the current study, post-placental insertion of IUCDs had insignificant differences to interval IUCDs as regard complications like bleeding, discharge P/V, expulsion, abdominal pain, perforation, missing string. Present study was aimed to compare the complications of postpartum IUCDs with Interval IUCDs. In our study total 110 accepted IUCDs patients were included. They were equally divided into two groups, 55 patients of postpartum IUCD and 55 patients of interval IUCD. We found that most of the patients with IUCDs 77.3% were aged from 20 to 30 years. As there were 55 (50%) patients aged from 20 to 25 years and 30 (27.3%) patients were aged from 26 to 30 years. 18 (16.4%) were aged from 31 to 35 years and 5(4.5%) were above 35 years of age. Maximum number of women belonged to ages 20 to 30 years suggesting that women of younger age group are more willing to use an effective method of contraception after child birth. Other studies also showed similar results like the mean age of women in post placental copper T insertion group was 24.5 years in the study done by Xu et al and 23.4 years in the study conducted by Morrison et al, 24.7 years in the study conducted by Celen et al and 23.12±2.42 years in the study by Singal S et al in, all of them being a young age group [18, 19].

In the given study, there was no case of perforation and pregnancy was found either in postpartum IUCD group or in interval IUCD group. Maybe the reason for this was thick uterine wall or inserter's expertise. In accordance to our study, no perforations were reported in post placental IUD insertion in the

studies done by Kapp et al and Gupta G et al which matches our study.[20, 21]

The present study showed the maximum number of satisfaction with both PPIUCD and Interval IUCD cases as it was found 87.3% women with PPIUCD and 81.8% women with interval IUCD were satisfied with their IUDs. A previous study from Orissa among interval IUD users found that about three-quarters of women were satisfied with this mode of contraception after one year [22].

In our study the expulsion rate was significantly lower 3.63% in interval IUCD (p<0.05) as compared to postpartum IUCD group (7.27%). Bonilla Rosales F et al (2005)[23] in their study found expulsion rate of 16% and 2% for PPIUCD and interval IUCD respectively. Expulsion was the most common complication in the PPIUCD group, 7.27% cases (3.63% in interval group). However, bleeding was the most common complication in the interval IUCD group, 9.09% (5.4% in PPIUCD group).

The rate of continuation in our study was slightly higher 89.1% for PPIUCD users over a period of 6 months follow-up. Celen et al (2004) also showed continuation rates of 87.6% for PPIUCD at 6 months interval. On comparing the continuation rates between PPIUCD and Interval IUCD, slightly lower continuation rates were obtained for Interval IUCD group (83.6%) than PPIUCD group (89.1%) in this study.

The rate of removal over 6 months follow-up in interval IUCD group was slightly higher 10.9% (6 cases) than PPIUCD group 9.09% (5 cases), whereas it was statistically insignificant. The results of studies carried out by Thiery et al, Tatum et al and Celen et al are similar to the result of present study.[25,26,27] Most common medical reason for interval IUCD removal in our study was bleeding and for PPIUCD removal, no medical reason but the social reasons.

While comparing PPIUCD with interval IUCD, the aggregate of complications was 23.47% and 27.19% in PPIUCD group and interval IUCD group respectively and although complications were less in PPIUCD group but the difference was statistically insignificant. This was in accordance with the study Eroglu et al where the rates of complications did not differ significantly between the two groups.[27] No case of PID was reported in our study. EL Beltagy et al (2010)[28] also reported no increase in the incidence of PID after immediate postpartum IUCD insertion. No failure reported from both the groups.

CONCLUSION

From the study results we came to conclude that Intrauterine device is widely popular and accepted long acting contraceptive method. Post-placental IUCD insertion is found to be safe, effective, feasible, low cost and reversible method with few complications compared to interval IUCD insertion.

Compared with interval insertions, postpartum insertions do not increase the risk of infection or PID, bleeding, uterine perforation. Nor do they affect the return of uterus to normal size. No case of perforation and pregnancy occurred in the whole study. The incidence of missing threads was found in PPIUCD group which was probably due to coiling of long threads of copper T inside the uterine cavity. The 6 months' continuation rate was quite good in PPIUCD group. As there is an increased risk of expulsion, by which questions regarding its efficacy are made. But, its benefits outweigh the risks. So this method should be popularized across the country as an option to all women especially to those who have limited access to health care facilities and infrequent post partum care, this method can be considered as the best for them.

REFERENCES

1. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J. Family planning: the unfinished agenda. *Lancet*. 2006;368:1810–1827. doi: 10.1016/S0140-6736(06)69480-4.
2. Rutstein S. Further Evidence of the Effects of Preceding Birth Intervals on Neonatal, Infant, and Under-Five-Years Mortality and

Nutritional Status in Developing Countries: Evidence from the Demographic and Health Surveys. DHS Worki

3. Tocce KM, Sheeder JL, Teal SB. Rapid repeat pregnancy in adolescents: Do immediate postpartum contraceptive implants make a difference? *Am J Obstet Gynecol*. 2012;206(6):481.e1-7. <https://doi.org/10.1016/j.ajog.2012.04.015> PMID:22631865
4. Mwalwanda CS, Black KI. Immediate post-partum initiation of intrauterine contraception and implants: A review of the safety and guidelines for use. *Aust N Z J Obstet Gynaecol*. 2013;53(4):331-7. <https://doi.org/10.1111/ajo.12095> PMID:23635040
5. Chhari A, Zutshi V, Sharma R, Batra S. Comparison of post placental IUD with interval IUD. *Int J Reprod Contracept Obstet Gynecol*. 2015;4(4):1090-3. <https://doi.org/10.18203/2320-1770.ijrcog20150433ng> Papers No. 41. *Macro International*; 2008.
6. Cleland, J., Ali, M., Benova, L. and Daniele, M. (2017) The Promotion of Intrauterine Contraception in Low- and Middle-Income Countries: A Narrative Review. *Contraception*, 95, 519-528. <https://doi.org/10.1016/j.contraception.2017.03.009>
7. Aoun, J., Virginia, A., Stovall, D.W., Casey, B. and Gomez-Lobo, V. (2014) Effects of Age, Parity, and Device Type on Complications and Discontinuation of Intrauterine Devices. *Obstetrics & Gynecology*, 123, 585-592. <https://doi.org/10.1097/AOG.0000000000000144>
8. Sunder, G. and Snigdha, G. (2016) Displaced Intrauterine Device: A Retrospective Study. *The Journal of Medical Research*, 2, 41-43.
9. Goldstuck, N.D. and Steyn, P.S. (2017) Insertion of Intrauterine Devices after Cesarean Section: A Systematic Review Update. *International Journal of Women's Health*, 9, 205-212. <https://doi.org/10.2147/IJWH.S132391>
10. Wildemeersch D, Goldstuck ND, Hasskamp T. Current status of frameless anchored iud for immediate intracesarean insertion. *Dev Period Med*. 2016;20(1):7-15. PMID:27416620
11. Dawood, A.S. and Dawood, A.S. (2017) Awareness, Attitude and Preference of Long-Acting Reversible Contraceptives by Tanta University Contraceptive Clinic Attendants. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6, 3725-3730. <https://doi.org/10.18203/2320-1770.ijrcog20174015>
12. Shanavas, A., Jacob, S. and Chellamma, N. (2017) Outcome of Immediate Postpartum Intrauterine Contraceptive Device in Caesarean versus Vaginal Insertion: A Comparative Study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6, 694-699. <https://doi.org/10.18203/2320-1770.ijrcog20170407>
13. Singh, U., Sonkar, S., Yadav, P., Dayal, M., Gupta, V. and Saxena, S. (2017) Comparative Evaluation of Postpartum IUCD versus Interval IUCD at a Tertiary Care Centre in Allahabad, India. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6, 1534-1538. <https://doi.org/10.18203/2320-1770.ijrcog20171423>
14. Kavitha, G., Renukadevi, B. and Ramamoorthy Rathna, S. (2014) A Case Report of Two Unusual Complications Following Intracesarean Insertion of IUD.
15. Gupta, S., Malik, S., Sinha, R., Shyamsunder, S. and Mittal, M.K. (2014) Association of the Position of the Copper T 380A as Determined by the Ultrasonography Following Its Insertion in the Immediate Postpartum Period with the Subsequent Complications: An Observational Study. *Journal of Obstetrics and Gynaecology of India*, 64, 349-353. <https://doi.org/10.1007/s13224-014-0532-5>
16. Xu, J.X., Reusche, C. and Burdan, A. (1994) Immediate Postplacental Insertion of the Intrauterine Device: A Review of Chinese and the World's Experiences. *Advances in Contraception*, 10, 71-82. <https://doi.org/10.1007/BF01986532>
17. Washington, C.I., Jamshidi, R., Thung, S.F., Nayeri, U.A., Caughey, A.B. and Werner, E.F. (2015) Timing of Postpartum Intrauterine Device Placement: A Cost-Effectiveness Analysis. *Fertility and Sterility*, 103, 131-137. <https://doi.org/10.1016/j.fertnstert.2014.09.032>
18. Xu JX, Rivera R, Dunson TR, Zhuang LQ, Yang XL and Ma GT. A comparative study of two techniques used in immediate post placental insertion (IPPI) of the Copper T 380A IUD in Shanghai, People's Republic of China. *Contraception* 1996;54(1):33-8.
19. Singal S, Bharti R, Dewan R, Divya, Dabral A, Batra A, Sharma M, Mittal P: Clinical Outcome of Postplacental Copper T 380A Insertion in Women Delivering by Caesarean: *J Clin Diagn Res*. 2014;8(9):OC01-4.
20. Kapp N, Curtis KM. Intrauterine device insertion during the postpartum period: a systematic review. *Contraception*. 2009;80(4):327-36.
21. Gupta G, Goyal R, Kadam VK, Sharma P1. The Clinical Outcome of Post Placental Copper-T-380A Insertion with Long Placental Forceps

- (Kelly's Forceps) After Normal Vaginal Delivery and Caesarean Section: *J Obstet Gynaecol India*. 2015;65(6):386-8.
- 22 Patnaik UK, Mishra TK. User satisfaction and retention of Cu-T (IUD) amongst rural women in Orissa. *Health Popul Perspect Issues*. 2003;26:52-58.
- 23 Bonilla Rosales F, Aguilar Zamudio ME, Cazares Montero ML, Hernandez Ortiz ME, Luna Ruiz MA. Factors for expulsion of intrauterine device TCu380A applied immediately postpartum and after a delayed period. *Rev Méd Inst Mex Seguro Soc* 2005;43:5-10
- 24 Celen S, Moroy P, Sucak A, Aktulay A, Danisman N. Clinical outcomes of early post placental insertion of intrauterine contraceptive devices. *Contraception*. 2004;69:279-82
- 25 Tatum HJ, Beltran RS, Ramos R, Van KH, Sivin I, Schmidt FH. Immediate post placental insertion of GYNE-T 380 and GYNE-T 380 Postpartum intrauterine contraceptive devices: Randomized study. *Am J Obstet and Gynecol*. 1996;175(5):1231- 5.
- 26 Thiery M, Van DPH, Delbeke L, Van KH. Comparative performance of two copper-wired IUDs (ML Cu 250 and T Cu 200). Immediate postpartum and interval insertion. *Contracept Deliv Sys*. 1980;1(1):27-35.
- 27 Eroglu K, Akkuzu G, Vural G, Dilbaz B, Akin A, Taskin L, et al. Comparison of efficacy and complications of IUD insertion in immediate postplacental/early postpartum period with interval period: 1 year follow-up. *Contraception* 2006;74:376-81
- 28 El Beltagy NS, Darwish EA, Kasem MS, Hefila NM.(2010) Comparison Between Copper T380 IUD and Multiload 375 IUD in Early Post-Partum Insertion. *Middle East Fertility Society J* 2010;16:143-8