



Original Article

Safety of Long Acting Reversible Contraception (LARC) during 3 Months of Follow up at Civil Hospital, Karachi

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ABSTRACT

Contraception counseling is an essential component of family planning services. It provides the foundation for delivering correct information on contraceptive methods and eliminating myths regarding risks and negative effects. **Objectives:** To determine the Safety of Long-Acting Reversible Contraception (LARC) for postpartum contraception during 3 months of follow-up. **Methods:** A cross sectional descriptive study comprised on total of 108 women aged 25-35 years who accepted LARC in the postpartum period at Department of Obstetrics and Gynaecology, Civil Hospital, Karachi from 22nd February 2021 to 21st August 2021, were included. Females with uterine abnormalities and severe anemia were excluded. The demographic information (name, age, registration number) was taken. The women were counseled regarding postpartum contraception LARC such as IUD or Jedelle (implant) during the antenatal period and LARC was placed within 30 minutes of placental delivery. Those women who selected LARC were called for follow-up for 3 months in OPD and at follow-up visits, patients were assessed for their safety of this method. **Results:** The age range in this study was from 25 to 35 years with a mean age of 28.81 ± 3.27 years. The majority of the patients 80 (74.07%) were between 25 to 30 years of age. The mean parity was 3.10 ± 0.72 . In this study, the safety of Long Acting Reversible Contraception (LARC) for postpartum contraception during 3 months of follow-up was found in 91 (84.26%) women. **Conclusions:** This study concluded that long acting reversible contraceptives in the immediate postpartum period are very safe.

INTRODUCTION

According to the 2023 Census (as per WHO), Pakistan ranks fifth in the world with a population of 245 million people [1]. This necessitates action to stabilize Pakistan's population. Pakistan is still lagging behind in terms of contraceptive use and family size limits. Pregnancies that are spaced too closely offer health concerns to both mothers and babies. Poorly spaced pregnancies have been linked to poor mother and child health outcomes across the globe. Pakistan has a high fertility rate of 3.8 children per woman and a low contraceptive prevalence rate of 35% [2, 3]. The unmet demand for contraception is around 65%. Lack of understanding, a lack of accessible family planning clinics

and cultural and socioeconomic issues that restrict women's mobility are all causes of poor contraceptive usage [4]. If the birth takes place in a hospital setting, the moment of delivery gives the ideal chance to address their need for contraception [5]. Contraception counseling provides the foundation for delivering correct information on contraceptive methods and eliminating myths regarding risks and negative effects [4]. Furthermore, it offers suitable contraceptive recommendations to meet family planning needs and optimize pregnancy spacing [5]. In a cluster randomized trial carried out in 40 reproductive health clinics across the United States from 2011 to 2013,

the proportion of women who received contraceptive counseling in the intervention group was higher than the proportion of women who received standard contraceptive care in the control group (2.3% vs. 2.0%) and the pregnancy rate was lower in the intervention group (7.9 vs. 15.4 per 100 person-years) [6]. In one research, 56.9% of patients accepted one of the contraceptive techniques exclusively during their hospital stay. The most popular contraceptive technique was an intrauterine device (45.0%), followed by injectables (15%), tablets (10%), and condoms (8%) [7]. Kumar S et al., revealed that pregnancy of continuation of LARC is 62.8% owing to the lack of any problem [8]. The complication rate of immediate after placental IUCD implantation was 40.4% in prior research. In this investigation, IUCD was shown to be safe in 59.6% of cases [9]. Another research showed that IUCD is safe in 83.57% of cases [10].

The study's goal was to assess the safety of LARC in the local community. There is practically little literature on this issue in Pakistan. International research on this issue is available, although they indicate heterogeneity in LARC safety [9-11]. As a result, this study was designed to determine the Safety of Long-Acting Reversible Contraception (LARC) for postpartum contraception during 3 months of follow-up.

METHODS

In this descriptive study, conducted from February 22, 2021, to August 21, 2021, a sample size of 108 was determined based on a 95% confidence level, 7% margin of error and a prior study's reported safety proportion of 83.57% for Intrauterine Contraceptive Devices (IUCD) [10]. Non-probability consecutive sampling was employed. Inclusion criteria involved women aged 25 to 35 years with willing partners for LARC, while primigravida, those with uterine abnormalities and severe anemia (Hb less than 7.0g/dl) were excluded. After obtaining ethical approval, 108 eligible women from the Gynaecology Department at Civil Hospital, Karachi were enrolled and informed consent was obtained. Demographic information was collected and patients were counseled on LARC options during the antenatal period. LARC placement occurred within 30 minutes of placental delivery and a three-month follow-up in the outpatient department assessed the method's safety, looking for complications such as pain at the implant site, abdominal pain and heavy menstrual bleeding. Data, including age, parity, socio-economic status, education, contraceptive method and complications, were recorded. Statistical analysis was performed using SPSS version 25.0. The data were normally distributed (assessed via Shapiro-Wilks test). Quantitative data were presented as Mean \pm S.D. and qualitative variables were presented as frequencies and percentages. Post-stratification chi-square tests were used to account for effect modifiers with a significance level taken at $p \leq 0.05$.

RESULTS

The age of participants varies from 25 to 35 years with a mean age of 28.81 ± 3.27 years. The majority of the patients 80 (74.07%) were between 25 to 30 years of age. The mean parity was 3.10 ± 0.72 . The distribution of patients according to socioeconomic status, place of residency occupation, education, and contraceptive as shown in table 1.

Table 1: Descriptive Statistic

Variables	Frequency (%)
Socioeconomic Status	
<20000	10 (9.26%)
20000-50000	41 (37.96%)
>50000	57 (52.78%)
Place of Residency	
Rural	38 (35.19%)
Urban	70 (64.81%)
Occupation	
Non-Working	74 (68.52%)
Working	34 (31.48%)
Education	
Illiterate	19 (17.59%)
Matric	24 (22.22%)
Intermediate	18 (16.67%)
Graduate	47 (43.52%)
Contraceptive Methods	
IUD	73 (67.59%)
Implants	35 (32.41%)
Parity	
Mean Parity	3.10 ± 0.72

In this study, the safety of Long-Acting Reversible Contraception (LARC) for postpartum contraception during 3 months of follow-up was found in 91 (84.26%) women. Out of 17 patients, 11 patients have heavy menstrual bleeding, 05 have abdominal pain and 01 have pain at the implant site, as shown in table 2.

Table 2: Safety of Long Acting Reversible Contraception (LARC) For Postpartum Contraception during 3 Months of Follow-Up

Safety	Frequency (%)
Present	91 (84.26%)
Absent	17 (15.74%)
Complications	
Heavy Menstrual Bleeding	11 (64.71%)
Abdominal Pain	5 (29.41%)
Pain at the Implant Site	1 (5.88%)

Stratification of safety with respect to age, parity, socioeconomic status, place of residency, occupation, education, and contraceptive method are shown in table 3.

Table 3: Stratification of Safety with Respect to Various Factors

Variables	Safety Frequency (%)		P-Value
	Safe	Not Safe	
Age (Years)			
25-30	67 (83.75%)	13 (16.25%)	0.806
31-35	24 (85.71%)	4 (14.29%)	
Parity			
≤3	61 (80.26%)	15 (19.74%)	0.079
>3	30 (93.75%)	2 (6.25%)	
Socioeconomic Status (SES)			
<20000	8 (80.00%)	2 (20.00%)	0.916
20000-50000	35 (85.37%)	6 (14.63%)	
>50000	48 (84.21%)	9 (15.79%)	
Place Of Residency			
Rural	32 (84.21%)	6 (15.79%)	0.992
Urban	59 (84.29%)	11 (15.71%)	
Occupation			
Non-Working	65 (87.84%)	9 (12.16%)	0.132
Working	26 (76.47%)	8 (23.53%)	
Education			
Illiterate	16 (88.89%)	2 (11.11%)	0.853
Matric	19 (79.17%)	5 (20.83%)	
Intermediate	16 (84.21%)	3 (15.79%)	
Graduate	40 (85.11%)	7 (14.89%)	
Contraceptive Method			
IUD	60 (82.19%)	13 (17.81%)	0.394
Implant	31 (88.57%)	4 (11.43%)	

DISCUSSION

This study reported the use of Long-Acting Reversible Contraception (LARC) for postpartum contraception as highly safe during 3 months of follow-up. Safe and effective contraceptive options, including Intrauterine Devices (IUDs) and contraceptive implants, should be routinely available to nulliparous women and adolescents. In the United States, the Medical Eligibility Criteria (MEC) classify IUD use among nulliparous women and adolescents as Category 2, indicating that the benefits outweigh the risks. Both the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists (ACOG) recommend Long-Acting Reversible Contraception (LARC) methods, such as IUDs, for adolescents [12-14]. Despite the fact that there is no statistically significant difference between the rates of adolescent and adult LARC discontinuation due to depression, national data show that adolescent LARC use is much lower than that of other age groups [15]. The Contraceptive CHOICE study found that 62% of 1,054 young people (age: 14-20 years) who participated were satisfied with and continued using LARC. The percentage of single women who used a LARC increased considerably between 2009 and 2012, from 2.1% to 5.9% [15]. The purpose of this study was to evaluate the security of three months of postpartum contraception with Long-Acting Reversible Contraception (LARC). This

study indicated that among the women who used LARC after giving birth, 91 (84.26%) had no adverse reactions. Kumar S. found that 62.8% of pregnancies continued after LARC treatment since there were no complications [8]. Previous studies found a complication risk of 40.4% just after placental IUCD implantation. This study found that IUCD was safe in 59.6% of cases [9]. In another study, IUCD was shown to be risk-free in 83.5% of users. A Cochrane Database Systematic Review on the efficacy and feasibility of IUD insertion after delivery was published in 2010 [16]. This research looked at all randomised controlled trials that used IUD insertions within 10 minutes of placental ejection. It looks safe and effective to implant an IUD just after giving birth, according to the research. However, this research suggested that the rate of expulsion was higher after delivery than it was during interval insertion. Nathalie Kappa et al., also showed that immediate IUD implantation was safe compared to later postpartum time periods and interval insertion in their extensive investigation of intrauterine device insertion during the postpartum period. Expulsion rates were lower for immediate postpartum IUD insertion than for delayed postpartum insertion, but higher than for interval insertion [17]. Immediate IUD insertion after childbirth is standard procedure in countries like India and China. Expulsion rates were lower than expected in two large multicenter research (one including 300 women and the other containing 2,733 women). Infection, perforations, and unexpected pregnancies were just as common in the studies from India and China as they were in the other studies we looked at [18-19]. Expulsion rates more accurately reflected the available literature after a more thorough study with several follow-up evaluations and acknowledgment of persons lost to follow-up [20]. An Indian study found that 23.5% of the 434 women who received a copper IUD had bleeding, 9.0% experienced expulsion and 11.3% experienced trouble seeing the strings [21]. Although not limited to the postpartum period, recent research out of Uganda indicated that women who opted for short-acting techniques over long-acting ones did so because they were concerned about the potential negative effects of LARC [22]. Side effects such as heavy or absent bleeding or the lack of periods have been reported [22]. More than a quarter of more than 1200 Pakistani women who used LARC devices for contraception reported unpleasant symptoms, most often bleeding and pain, according to the study's authors [23]. Thirty percent of patients required further care throughout the 12-month follow-up period due to discomfort caused by side effects [23]. Insertion of an IUD within 10 minutes of placental birth, early postpartum (10 minutes to 48 hours) and interval/delayed insertion (4-6 weeks postpartum) have all been shown to be safe and effective in four separate clinical investigations. The risk of expulsion was greatest in the first several days following implantation surgery. There was

no statistically significant difference in the low incidence of infection, uterine perforation, or unwanted pregnancy across the groups [24–27]. Two of the four studies that looked at the three different postpartum insertion timings found a significantly higher expulsion rate in the first few days after delivery and the first few weeks after delivery compared to interval insertion. Results from two randomized controlled trials that looked at just the postpartum and the interval periods [25, 26]. The rate of ejection was higher with vaginal deliveries in all of the included trials [26]. Immediate insertion is safe and effective following either caesarean or vaginal birth, according to the results of six prospective observational studies on IUD implantation during the immediate postpartum period (within 10 minutes post placenta) [27–29]. Menorrhagia was less common in the immediate implantation group because of the varying durations of lactational amenorrhea in the postpartum period. Therefore, overcoming the prejudice of lactational amenorrhea takes more time. One year after having CuT380A implanted within 10 minutes, Khurshid N *et al.*, found that 9 out of every 100 patients had menorrhagia [30]. Spotting was found to be 6% in the post placental group after 1 year of follow-up by Khurshid N *et al.*, in 2000, although studies comparing rapid insertion to extended insertion are few [30]. The effectiveness, safety and subsequent benefits and drawbacks of early post-placental Intrauterine Device (IUD) insertion were studied, including 235 women (74% vaginal births, 26% caesarean sections) [31]. There were checkups at the six-week, six-month, and one-year marks. Continued use was high, with 87.6% and 76.3% at 6 and 12 months following post-placental IUD insertion, respectively. In this study, the Cu-T 380A device had a 12.3% cumulative expulsion rate after 1 year [31].

CONCLUSIONS

This study concluded that long acting reversible contraceptives in the immediate postpartum period are very safe, which can be used in the immediate postpartum period as a reliable and safe method for contraception in order to decrease the complications.

Authors Contribution

Conceptualization: ST

Methodology: ST, AF, MT, SM, DK, SS

Formal analysis: ST

Writing, review and editing: AF, MT, SM, DK, SS

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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REFERENCES

- [1] Worldometer. Pakistan Population 2023. Worldometer. [Last Cited: 2nd Jun 2024]. Available at: [https://www.worldometers.info/world-population/pakistan-population/#:~:text=Pakistan%202023%20population%20is%20estimated,\(and%20dependencies\)%20by%20population](https://www.worldometers.info/world-population/pakistan-population/#:~:text=Pakistan%202023%20population%20is%20estimated,(and%20dependencies)%20by%20population).
- [2] Statista. Fertility rate in Pakistan 2021. Statista. [Last Cited: 28th Jun 2024]. Available at: <https://www.statista.com/statistics/383207/fertility-rate-in-pakistan/>.
- [3] Meherali S, Ali A, Khaliq A, Lassi ZS. Prevalence and determinants of contraception use in Pakistan: trend analysis from the Pakistan Demographic and Health Surveys Dataset from 1990 to 2018. *F1000Research*. 2021 Aug; 10: 790. doi: 10.12688/f1000research.5520 4.1.
- [4] Nguyen M, Mason HR, Russell R, Fancher T, Chaudhry SI, Desai MM *et al.* Leave of Absence and Medical Student Placement into Graduate Medical Education by Race and Ethnicity. *Journal of the American Medical Association*. 2024 May; 331(18): 1588-1590. doi: 10.1001/jama.2024.4797.
- [5] Zapata LB, Tregear SJ, Curtis KM, Tiller M, Pazol K, Mautone-Smith N *et al.* Impact of contraceptive counseling in clinical settings: a systematic review. *American Journal of Preventive Medicine*. 2015 Aug; 49(2): S31-45. doi: 10.1016/j.amepre.2015.03.023.
- [6] Harper CC, Rocca CH, Thompson KM, Morfesis J, Goodman S, Darney PD *et al.* Reductions in pregnancy rates in the USA with long-acting reversible contraception: a cluster randomised trial. *The Lancet*. 2015 Aug; 386(9993): 562-8. doi: 10.1016/S014 0-6736(14)62460-0.
- [7] Pario S, Raja A, Abbasi S, Naz S. Awareness and Acceptance of Post-Partum Intrauterine Contraceptive Device Insertion (PPIUCD) among Patients Attending a Tertiary Care Hospital Karachi. *Pakistan Journal of Medical & Health Sciences*. 2023 Jun; 17(04): 345-. doi: 10.53350/pjmhs2023174345.
- [8] Kumar S, Srivastava A, Sharma S, Yadav V, Mittal A, Kim YM *et al.* One-year continuation of postpartum intrauterine contraceptive device: findings from a retrospective cohort study in India. *Contraception*. 2019 Apr; 99(4): 212-6. doi: 10.1016/j.contraception.20 18.12.003.
- [9] Eroğlu K, Akkuzu G, Vural G, Dilbaz B, Akın A, Taşkın 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 Nov; 74(5): 376-81. doi:

- 10.1016/j.contraception.2006.07.003.
- [10] Nalini N, Singh B, Jha S, Singh AV. Acceptance, safety and efficacy of postpartum intrauterine contraceptive device. *Journal of Family Medicine and Primary Care*. 2023 May; 12(5): 868-73. doi: 10.4103/jfmpc.jfmpc_1392_22.
- [11] Eggebroten JL, Sanders JN, Turok DK. Immediate postpartum intrauterine device and implant program outcomes: a prospective analysis. *American Journal of Obstetrics and Gynecology*. 2017 Jul; 217(1): 51-e1. doi: 10.1016/j.ajog.2017.03.015.
- [12] Holland AC, Strachan AT, Pair L, Stallworth K, Hodges A. Highlights from the US selected practice recommendations for contraceptive use. *Nursing for Women's Health*. 2018 Apr; 22(2): 181-90. doi: 10.1016/j.nwh.2018.02.006.
- [13] Francis JK and Gold MA. Long-acting reversible contraception for adolescents: a review. *Journal of the American Medical Association Pediatrics*. 2017 Jul; 171(7): 694-701. doi: 10.1001/jamapediatrics.2017.0598.
- [14] Durante JC, Sims J, Jarin J, Gold MA, Messiah SE, Francis JK. Long-acting reversible contraception for adolescents: a review of practices to support Better Communication, Counseling, and adherence. *Adolescent Health, Medicine and Therapeutics*. 2023 Dec; 97-114. doi: 10.2147/AHMT.S374268.
- [15] Fu TC, Herbenick D, Dodge BM, Beckmeyer JJ, Hensel DJ. Long-acting reversible contraceptive users' knowledge, conversations with healthcare providers, and condom use: Findings from a US nationally representative probability survey. *International Journal of Sexual Health*. 2021 Apr; 33(2): 163-74. doi: 10.1080/19317611.2020.1870024.
- [16] Armstrong MA, Raine-Bennett T, Reed SD, Gatz J, Getahun D, Schoendorf J et al. Association of the timing of postpartum intrauterine device insertion and breastfeeding with risks of intrauterine device expulsion. *Journal of the American Medical Association Network Open*. 2022 Feb; 5(2): e2148474-. doi: 10.1001/jamanetworkopen.2021.48474.
- [17] Kassa BG, Ayele AD, Belay HG, Tefera AG, Tiruneh GA, Ayenew NT et al. Postpartum intrauterine contraceptive device use and its associated factors in Ethiopia: systematic review and meta-analysis. *Reproductive Health*. 2021 Dec; 18: 1-2. doi: 10.1186/s12978-021-01273-x.
- [18] Divya RD. Clinical outcome of post placental copper T380A and copper 375 IUCD insertion in women delivering by caesarean section. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2018 Sep; 7(9): 3731-8. doi: 10.18203/2320-1770.ijrcog20183785.
- [19] Sultana R, Badar N, Usmani SS, Hafeez M. Women's Experience with Postpartum Intrauterine Contraceptive Device. *Journal of the Society of Obstetricians and Gynaecologists of Pakistan*. 2022 Sep; 12(3): 267-71.
- [20] Lerma K, Bhamrah R, Singh S, Blumenthal PD, Mittal P, Das V et al. Importance of the delivery-to-insertion interval in immediate postpartum intrauterine device insertion: a secondary analysis. *International Journal of Gynecology & Obstetrics*. 2020 May; 149(2): 154-9. doi: 10.1002/ijgo.13115.
- [21] Deo S, Sinha R, Chaurasia L, Deo PP. Awareness and Pattern of Utilizing Family Planning Methods in Married Women visiting at Janaki Medical College Teaching Hospital. *Janaki Medical College Journal of Medical Science*. 2023 Dec; 11(3): 55-62. doi: 10.3126/jmcjms.v11i3.60735.
- [22] Tibaijuka L, Odongo R, Welikhe E, Mukisa W, Kugonza L, Busingye I et al. Factors influencing use of long-acting versus short-acting contraceptive methods among reproductive-age women in a resource-limited setting. *BioMed Central Women's Health*. 2017 Dec; 17: 1-3. doi: 10.1186/s12905-017-0382-2.
- [23] Hameed W, Azmat SK, Ali M, Ishaque M, Abbas G, Munroe E et al. Comparing effectiveness of active and passive client follow-up approaches in sustaining the continued use of long acting reversible contraceptives(LARC)in Rural Punjab: a multicentre, non-inferiority trial. *PLOS One*. 2016 Sep; 11(9): e0160683. doi: 10.1371/journal.pone.0160683.
- [24] Whitaker AK and Chen BA. Society of Family Planning Guidelines: Postplacental insertion of intrauterine devices. *Contraception*. 2018 Jan; 97(1): 2-13. doi: 10.1016/j.contraception.2017.09.014.
- [25] Levi EE, Findley MK, Avila K, Bryant AG. Placement of levonorgestrel intrauterine device at the time of cesarean delivery and the effect on breastfeeding duration. *Breastfeeding Medicine*. 2018 Dec; 13(10): 674-9. doi: 10.1089/bfm.2018.0060.
- [26] Suri V. Post placental insertion of intrauterine contraceptive device. *Indian Journal of Medical Research*. 2012 Sep; 136(3): 370-1.
- [27] Abdel-Ghany A, Khalifa E, El-Din MZ, Ibrahim E, Abdallah A, Abdel-Aziz M et al. Intrapartum versus postpartum insertion of intrauterine device in women delivering by cesarean section. *BMC Pregnancy and Childbirth*. 2022 Apr; 22(1): 365. doi: 10.1186/s12884-022-04681-4.
- [28] Canning D, Shah IH, Pearson E, Pradhan E, Karra M, Senderowicz L, Bärnighausen T, Spiegelman D, Langer A. Institutionalizing postpartum intrauterine device (IUD) services in Sri Lanka, Tanzania, and Nepal: study protocol for a cluster-randomized stepped-wedge trial. *BioMed Central Pregnancy and Childbirth*. 2016 Dec; 16: 1-1. doi: 10.1186/s12884-016-1160-0.

- [29] Herculano TB, Surita FG, Juliato CR, Rehder PM. Comparison between two methods of the immediate post-placental insertion of copper intrauterine device in vaginal birth—a protocol for a randomized clinical trial. *Trials*. 2022 Dec; 23(1): 1053. doi: 10.1186/s13063-022-07041-x.
- [30] Khurshid N, Taing S, Qureshi A, Jan Khanyari I. Post-placental intrauterine device insertion versus delayed intrauterine device insertion: an observational study. *The Journal of Obstetrics and Gynecology of India*. 2020 Apr; 70: 145–51. doi: 10.1007/s13224-019-01299-z.
- [31] Muganyizi PS, Kimario G, Ponsian P, Howard K, Sethi M, Makins A. Clinical outcomes of postpartum intrauterine devices inserted by midwives in Tanzania. *International Journal of Gynecology & Obstetrics*. 2018 Sep; 143: 38–42. doi: 10.1002/ijgo.12603.