

Awareness, Acceptance and Complication Rates of Post-Partum Intrauterine Contraceptive Devices at a Tertiary Care Hospital

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Abstract

Objective: To determine the awareness rate, acceptance rate, and frequency of complications three months after the placement of PPIUCD at Aziz Bhatti Shaheed Teaching Hospital, Gujrat.

Methodology: This descriptive case series was conducted at the Department of Obstetrics & Gynecology, Aziz Bhatti Shaheed Teaching Hospital, Gujrat, from February 2022 to February 2023. A total of 200 pregnant women aged between 18-35 years in their last trimester were included. Awareness regarding PPIUCD was assessed using a structured questionnaire. These patients were offered postpartum placement of an intrauterine contraceptive device, and their acceptance was noted. Follow-ups were conducted over the first three months to observe any complications.

Results: The mean age of the patients was 26.5±4.6 years. Among them, there were 59 (29.5%) primiparas, 78 (39.0%) multiparas, and 63 (31.5%) grand multiparas. Only 32 (16.0%) women were aware of PPIUCD, and PPIUCD was accepted by 23 (11.5%) women. Among the 23 women who accepted PPIUCD, six developed complications, resulting in an overall complication rate of 26.1%. The most frequent complication was the loss of thread observed in four (17.4%) cases, followed by pelvic inflammation/infection in three (13.0%) cases and abdominal pain in two (8.7%) cases. Expulsion was recorded in one (4.3%) woman, while there were no cases of perforation.

Conclusion: The acceptance rate of PPIUCD was found to be extremely low, mainly due to a lack of awareness among women and their families. This highlights the necessity for appropriate counseling of pregnant women during antenatal visits to address their myths and phobias, thus improving the postpartum usage of IUCD and increasing birth spacing.

Keywords: Postpartum Contraception, Intrauterine Contraception Device, Awareness, Acceptance, Complications

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Introduction

Pakistan is the seventh most populous country in the world, with an estimated population exceeding 20.7 million. This alarmingly high population places a burden on the country's economy and highlights deficiencies in our birth control strategies. Furthermore, although the maternal mortality rate in Pakistan has decreased from 431 per 100,000 live births in 1990 to 178 per 100,000 live births in 2015, it remains higher than in many other

countries worldwide. Implementing optimal birth control methods and spacing births effectively can significantly reduce adverse perinatal outcomes for both mothers and neonates.¹

Post-partum period is highly vulnerable period for unplanned conception as there are limited options available for contraception as well as unpredicted ovulation in mothers who are not breastfeeding

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exclusively including motivation is high among mothers for contraception. Intrauterine contraceptive devices (IUCD) are effective way of immediate postpartum contraception and results are equal to tubal sterilization. However, IUCD is simpler to use, cost-effective and reversible method as compared to sterilization.¹

One large recent study showed that acceptance rate of PPIUCD among women was 29.3%, with higher among patients delivered via vaginal delivery and those who were multiparous and young.² Another study showed that awareness regarding PPIUCD was 11.37%, acceptance rate of 25.32% and complication rate of 27.82%.³ Another recent study conducted in Pakistan showed that awareness rate of PPIUCD was 24% while acceptance rate was 12.96%.⁴ Another study conducted in Pakistan showed that awareness regarding PPIUCD was zero, acceptance rate of 15.34%. However, complication rate was higher of 46.66% out of which string not visible were 22.22%, menstrual disturbance 11.11%, pain 6.66%, PV discharge 4.44% and expulsion in 2.22%.⁵

Pakistan is a developing country with a large population and also higher maternal and neonatal mortality rates in the world. Despite ongoing programs for population control and maternal and child health programs the measures seem too ineffective. PPIUCD is a safe and effective way for birth control and birth spacing.⁶ However studies show different acceptance rate, awareness rate and complication rate among different populations. Furthermore, determining acceptance, awareness and complications rate will help to determine the effective strategy to insert PPIUCD leading to decrease in maternal mortality rate.⁷

Postpartum IUD insertion (after placentation and during cesarean section) is advantageous because it does not require additional patient visits and can be performed at the same birth place, thus saving time and resources. Inserting an IUD after birth breaks down potential barriers to its use because doctors and patients are in the same environment and any myths or fears can be dispelled. Second, any complaints of cramping or bleeding associated with placement of the IUCD will be concealed after birth, thus improving absorption. Sultana J et al and Dhanalakshmi KR et al are also highlighted the safety, Efficacy and outcomes of PPIUCD practices.^{8,9}

The rationale of the study was to assess the awareness rate, acceptance rate, and frequency of complications associated with Post-Partum Intrauterine Contraceptive

Devices and contribute to the development of effective strategies for PPIUCD insertion, ultimately leading to a decrease in maternal mortality rates.

Methodology

This descriptive case series was conducted at the Department of Obstetrics & Gynecology, Aziz Bhatti Shaheed Teaching Hospital, Gujrat, over a six-month period following approval of the synopsis by the hospital's ethical committee from December 8th, 2022, to February 11th, 2023. A sample size of 200 patients was calculated, with a confidence interval of 95% and a 5% margin of error, based on an anticipated complication rate of 12.95%.⁴ Patients were selected through non-probability consecutive sampling, and informed consent was obtained. All antenatal patients in their last trimester with hemoglobin levels >9 g/dl and platelet counts >150x10⁶/µl were included, while those with certain conditions such as premature rupture of membranes for >24 hours, uterine abnormalities, active lower genital tract infections, and allergies to copper were excluded. Postpartum intrauterine contraceptive devices of Copper T type were used (PPIUCD).

Awareness was assessed using a pre-designed questionnaire comprising 10 questions, with patients scoring positively on at least 7 questions considered as aware. Acceptance was determined by patients expressing willingness for PPIUCD placement. Complications were categorized as follows: perforation (confirmed via abdominal X-ray), expulsion (passing out of the PPIUCD through the birth canal), loss of thread (when thread was not felt by self-examination or found by per speculum examination), pelvic inflammation/infection (infection due to the presence of PPIUCD), and abdominal pain (rated >1/10 on a numerical pain scale).

Patients admitted for delivery in the labor room of the Gynecology & Obstetrics Department at Aziz Bhatti Shaheed Teaching Hospital, Gujrat, who met the inclusion criteria were included after informed consent. Follow-up was conducted three months after PPIUCD placement. Data on complications were collected and recorded using a proforma, and statistical analysis was performed using SPSS version 20. Quantitative data such as age were presented as mean and standard deviation (SD), while qualitative variables including awareness, acceptance, and complications were presented as frequency and percentage. Parity was also presented as frequency and data were stratified

accordingly. Chi-square tests were applied with a significance level set at $p \leq 0.05$ after post-stratification.

Results

The age of the patients ranged from 18 years to 35 years with a mean of 26.5 ± 4.6 years while the parity ranged from 1 to 6 with a mean of 3.2 ± 1.9 . Majority ($n=106$, 53.0%) of the women were aged between 27-35 years. 59 (29.5%) women were primiparas, 78 (39.0%) women were multiparas and 63 (31.5%) women were grand multiparas as shown in Table I.

Table I: Baseline Characteristics of Study Sample (n=200)

Characteristics	Participants
Age (years)	26.5±4.6
• 18-26 years	94 (47.0%)
• 27-35 years	106 (53.0%)
Parity	3.2±1.9
• Primiparas	59 (29.5%)
• Multiparas	78 (39.0%)
• Grand Multiparas	63 (31.5%)

Only 32 (16.0%) women were aware of PPIUCD as shown in Table II. There was no statistically significant difference in the frequency of awareness regarding PPIUCD across various subgroups of women based on parity; primiparas vs. multiparas vs. grand multiparas (13.6% vs. 16.7% vs. 17.5%; p -value=0.824).

PPIUCD was accepted by 23 (11.5%) women. There was no statistically significant difference in the frequency of PPIUCD acceptance across various subgroups based on parity; primiparas vs. multiparas vs. grand multiparas (10.2% vs. 11.5% vs. 12.7%; p -value=0.909)

Table II: Frequency of Awareness Regarding PPIUCD in the Studied Sample (n=200)

Awareness Regarding PPIUCD	Frequency (n)	Percent (%)
Yes	32	16.0
No	168	84.0
Total	200	100.0

Table III. Frequency of Various Complications after PPIUCD.

Complication	Frequency (n)	Percent (%)
Expulsion	1	4.3
Perforation	0	0.0
Pelvic Inflammation/ Infection	3	13.0
Abdominal Pain	2	8.7
Loss of Thread	4	17.4

Among the 23 women who accepted PPIUCD, 6 women developed complications with overall complication rate of 26.1%. There was no statistically significant difference in the frequency of complications after PPIUCD across various subgroups based on parity; primiparas vs. multiparas vs. grand multiparas (33.3% vs. 22.2% vs. 25.0%; p -value=0.888).

Among the various complications, loss of thread was the most frequent and was observed in 4 (17.4%) cases followed by pelvic inflammation/infection in 3 (13.0%) cases and abdominal pain in 2 (8.7%) cases. Expulsion was recorded in 1 (4.3%) woman while there was no case of perforation as shown in Table III. There were no statistically significant differences in the frequency of various complications following PPIUCD across different subgroups based on parity.

Discussion

Women in low- and middle-income countries have more pregnancies than women in high-income countries, increasing their lifetime risk of death from pregnancy-related problems.¹⁰ Approximately 303,000 women lost their lives in pregnancy and childbirth in 2015; of them, one-third happened in South Asia.^{10,11} The present population of Pakistan is 184.5 million, and it is predicted to reach 2050 at a 2% annual growth rate. Pakistan will rank as the fifth most populous country in the world.¹² Despite six decades of government and private sector Reproductive Health Care (RHC) initiatives, Pakistan continues to exhibit one of the highest fertility rates and lowest contraceptive use rates among its neighbors. The average Contraceptive Prevalence Rate (CPR) in South Asian countries is 53% (2013), with Pakistan recording the lowest rate at 35%.^{11,12} Initiating long-acting reversible contraception, such as the implantation of an intrauterine device, during the postpartum period is crucial for access to contraception.¹ With few contraindications and numerous advantages, using postpartum IUDs is a safe procedure.¹⁻³ Postpartum women's understanding and acceptance of PPIUCD have significantly decreased, according to recent studies, which have prompted calls for public health interventions in this area.³⁻⁵ But this study is necessary because the evidence that is now available is conflicting and limited.

The aim of this study was to explore the awareness, admission and complication frequency three months after PPIUCD placement at Aziz Bhatti Shaheed Teaching Hospital, Gujarat. We note that only 16.0% of women in this survey were aware of PPIUCD. Our

findings are similar to regional studies conducted by Khalid et al. (2019) where 75 pregnant women admitted to Federal Government Hospital (FGH), Islamabad, and found that 14.7% of women were aware of this condition.¹³ Pradeep et al. (2019), 15.3% of Indians are aware of PPIUCD with similar findings.¹⁴ Assessing awareness of PPIUCD among pregnant women in India, Chawla et al and Kathpalia et al reported same prevalence rates of 18.0% and 18.8%, respectively.^{15,16}

In this study, we found a relatively low rate of acceptance for PPIUCD (11.5%). Ghafoor et al. (2020) carried out the same regional research, evaluating 108 pregnant women at Avicenna Hospital in Lahore, finding a similar PPIUCD uptake rate of 12.9%.⁴ Our results are consistent with those of Alukal et al, who determined that the prevalence of PPIUCD among women in India was 10.5%.¹⁷ In another comparable Indian study, Nigam et al found a PPIUCD approval rate of 9.1%.¹⁸ Goni et al. reported an approximate rate of 12.4% obtaining PPIUCD in Ethiopia.¹⁹ PPIUCD uptake is disappointingly low, probably due to a lack of sufficient information in the area, as well as religious views.

Six of the 23 women who decided to have a PPIUCD implant encountered issues, for a total complication rate of 26.1%. The results of a research conducted at Avicenna Hospital in Lahore by Ghafoor et al. (2020) are comparable to these, showing that among 14 women who accepted PPIUCD, the complication rate was 24.0%. Research on Indian women by Paul et al. (2020), Alukal et al. and Nayak et al. similarly revealed complication rates between 27.8% and 29.6%, which is in line with our findings.^{3,20,17} In a different research comprising Indian women, Deshpande et al. (2017) observed a little higher complication rate of 37.0%.²¹

Among the different concerns noticed, the most common was thread loss, which occurred in four cases (17.4%). Pelvic inflammation/infection occurred in three cases (14.0%), followed by stomach discomfort in two cases (8.7%). One female (4.3%) suffered ejection, but no perforation occurred. Unexpectedly, the prevalence of difficulties, acceptance rate, and awareness rate showed no statistically significant variations among different categories based on parity.

Our findings align with those of Butt et al. (2020), indicating comparable rates of expulsion (2.2%), pelvic infection (11.1%), abdominal pain (6.7%), and thread loss (22.2%) among individuals in the local community who underwent PPIUCD insertion.⁵ This consistency in results is corroborated by Garg et al investigation of

Indian women, reported similar frequency rates of expulsion (4.3%), pelvic infection (12.6%), and thread loss (25.8%) following PPIUCD placement.²² Moreover, Vishwakarma et al. recently documented similar frequencies of expulsion, pelvic infection, and suture loss, of 2.2%, 11.3%, and 22.2%, respectively, in a study of Indian subjects.²³ Likewise, Hoda et al obtained similar results, with rates of leakage, pelvic infection, and line loss being 5.3%, 12.3%, and 38.0%, respectively.²⁴

The present study adds to the limited already published local research evidence on the topic. In the present study, the acceptance rate of PPIUCD was found to be extremely low mainly due to lack of awareness among women and their families which warrants appropriate counseling of pregnant women during antenatal visits, addressing their myths and phobias to improve the postpartum usage of IUCD so as to increase birth spacing as well as tackle the alarming increase in population growth rate of Pakistan. The strengths of the present study included its large sample size of 200 cases and the implementation of strict exclusion criteria. Additionally, we stratified the data by parity to account for potential effect modifiers. However, a significant limitation of the study was the omission of an assessment of the effectiveness of PPIUCD in preventing pregnancy and facilitating birth spacing, which are fundamental objectives of contraception. However, it would require a longer follow-up. A study addressing this limitation is imperative and is highly recommended in future clinical research.

Conclusion

In the present study, the acceptance rate of PPIUCD was found to be extremely low mainly due to lack of awareness among women and their families which warrants appropriate counseling of pregnant women during antenatal visits, addressing their myths and phobias to improve the postpartum usage of IUCD so as to increase birth spacing as well as tackle the alarming increase in population growth rate of Pakistan.

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