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Original Research Article

Evaluation of acceptability, safety and expulsion rate of PPIUCD

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ABSTRACT

Background: The modern intrauterine contraceptive device (IUCD) is highly effective, safe, private, long acting, coitus independent, rapidly reversible, cost effective and can be used by women who are breastfeeding. This study was conducted to evaluate factors associated with acceptability, safety and expulsion rates of PPIUCD among clients in the Department of Obstetrics and Gynecology, N. S. C. B Medical College, Jabalpur.

Methods: A questionnaire based prospective study was conducted between March 2016 -17 on all the clients who were counseled for PPIUCD and who fulfilled the WHO Medical Eligibility criteria. Proforma included follow up at 6 weeks post-delivery.

Results: In our study 961 women accepted PPIUCD (53.3%). Majority of the cases belonged to low socioeconomic group with low literacy rates. Most acceptors counseled in antenatal period (53.1%). Majority (67.3%) of insertions were post placental and instrumental (89%). At the time of insertion most clients experienced mild pain (49.7%) & anxiety (42.5%). Amongst clients who followed up (51.1%), the most common complaint was pain (16.7%) and most common reason for removal was heavy bleeding. Continuation rate was 77.7%, spontaneous expulsion in 9.75% while voluntarily removal was done in 12.6%. At follow up 91.3% clients were satisfied with PPIUCD.

Conclusions: Antenatal counseling has a very important role. Demographic factors influencing acceptance are education, socioeconomic status and family structure. PPIUCD is demonstrably safe and effective method of contraception with low expulsion rate. Awareness about the safety and efficacy of PPIUCD should be emphasized during antenatal visits.

Keywords: Awareness, Contraception, Intrauterine contraceptive device, PPIUCD, Postpartum period

INTRODUCTION

India, with a population of over 1.2 billion is slated to overtake China as the world's most populous country, in less than one and a half decade. Family planning is important not only for population stabilization, but is also central to improve maternal and child health in our country.¹

According to a 2012 report of World Bank, UNFPA, WHO. India contributes to 20% of maternal deaths worldwide.² Family planning can avert more than 30% of

maternal deaths and 10% of child mortality if couples spaced their pregnancies at least 2 years apart.³

Over the years, India's Family Planning Programme has evolved with the shift in focus from mere population control to more critical issues like reducing maternal mortality and improving the health of mother and newborn. Ensuring healthy timing and spacing of pregnancies is now considered the most important intervention for reproductive, maternal, neonatal, child and adolescent health (RMNCH+A).⁴ Another shift is the

renewed emphasis on spacing methods of family planning.¹

Significantly increased institutional deliveries after introduction of JSY (Janani Suraksha Yojana) in India provides an opportunity for offering family planning services to the women, who have just delivered at health centers and want to prevent unintended pregnancies or delay having more children. Moreover, the unmet need for family planning is very high in the postpartum period. Utilizing this immediate postpartum period for counseling on family planning and IUCD insertion will overcome multiple barriers to service provision.

Despite the many advantages of the IUCD as a method of family planning, it generally suffers from unpopularity in India. Use of modern contraceptive methods in the country is limited to 47.8 % and that of IUCD to only 1.5 % (NFHS 2015-16). Recently, however, the MOHFW (Ministry Of Health and Family Welfare) has been trying to increase the use of spacing methods.⁵

METHODS

A prospective, questionnaire based observational study was conducted between 1st March 2016 to 31st March 2017 in the Department of Obstetrics and Gynecology, Netaji Subhash Chandra Bose Medical College and Hospital, Jabalpur (MP).

WHO Medical Eligibility criteria was followed. It has four categories.⁵

- No restriction for the use.
- Advantages of using method outweigh the risks.
- Risks outweigh the advantages of using method.
- Unacceptable health risk if method used.

Inclusion criteria

All antenatal patients admitted for delivery and post partum patients in our hospital were counseled for PPIUCD. Consent was obtained from those, who opted for insertion.

Those who fulfilled the following criteria were considered for inclusion

- 18-45 years old.
- Desire to have IUCD after counselling, before insertion.
- No local infections.
- Hb>10gm%.

Exclusion criteria

- Fever during labor and delivery.
- Having active STD (Sexually Transmitted Disease) or other lower genital tract infection or high risk for STD.

- Known to have ruptured membranes for more than 18hrs prior to delivery.
- Known uterine abnormalities e.g., Bicornuate/septate, uterine myomas.

Post partum IUD (PPIUCD) insertion

It is the insertion of IUD within 48 hours after delivery. It is of 3 types on the basis of insertion time.¹

Post placental insertion

Insertion within 10 minutes following delivery of the placenta following a vaginal delivery.

Intra cesarean insertion

Insertion that take place during a cesarean delivery, after removal of the placenta and before closure of the uterine incision.

Post partum before discharge

Insertion of IUD within 48 hours after delivery and before the women leaves the facility where she delivered.

Steps of IUCD insertion¹

An informed consent was taken and woman's records were checked to ensure that she is an appropriate client, ruling out conditions which prevent IUCD insertion. Client was explained about the procedure and queries were answered. Under all aseptic precautions IUCD was inserted with aid of PPIUCD inserting forceps using a no-touch technique. Confirmation of proper PPIUCD insertion was done when the forceps reached the fundus as felt by the resistance offered and the thrust of the instrument felt per abdomen. PPIUCD insertion forceps after releasing IUCD at fundus is swept to the right along the side wall of the uterus ensuring they are away from the IUCD and removed from uterine cavity, keeping it slightly open. Particular care was taken not to dislodge the IUCD as PPIUCD insertion forceps are removed. Cervix was examined to ensure there is no trauma. Women were provided with post insertion instructions. Information regarding the PPIUCD insertion was recorded with the patient as well as in the PPIUCD register.

At discharge women were informed about the side effects, warning signs and follow up schedule and advised to report immediately in case of untoward signs. At follow up examination, patient's satisfaction was assessed and complications like bleeding, pain and infection were treated appropriately.

In case of discomfort due to long thread, cutting short of thread was done. The women in whom the procedure was uneventful were requested to follow up at 6 months.

RESULTS

This study was conducted to evaluate PPIUCD as a family planning method and the observations were analyzed as shown below.

After post partum family counselling of 1800 clients total 961 women accepted PPIUCD as a method of contraception (53.3%). Acceptance of PPIUCD was highest in Hindu women, women from rural areas and those belonging to joint families. The lower and middle socioeconomic class had good acceptance. The acceptance rose with the level of education of the patients and their partners. Majority of the women who accepted were homemakers and their partners were mostly laborers (Table 1).

Table 1: Distribution of cases according to socio-demographic characteristics.

| Characteristics | | No. of cases (n= 961) | % |
|-----------------------|---------------------|-----------------------|------|
| Religion | Hindu | 894 | 93 |
| | Muslim | 53 | 5.5 |
| | Others | 14 | 1.5 |
| Locality | Rural | 602 | 62.6 |
| | Urban | 359 | 37.4 |
| Type of family | Nuclear | 410 | 42.7 |
| | Joint | 551 | 57.3 |
| Socio-economic status | Lower | 479 | 49.8 |
| | Middle | 437 | 45.5 |
| | Upper | 45 | 4.7 |
| Education of client | No formal education | 186 | 19.4 |
| | Primary | 254 | 26.4 |
| | High school | 476 | 49.5 |
| | Graduate | 45 | 4.7 |
| Education of partner | No formal education | 74 | 7.7 |
| | Primary | 204 | 21.2 |
| | High school | 532 | 55.4 |
| | Graduate | 151 | 15.7 |
| Occupation of client | Home maker | 751 | 78.1 |
| | Farmer | 14 | 1.5 |
| | Labourer | 133 | 13.8 |
| | Govt Servent | 17 | 1.8 |
| | Business | 46 | 4.8 |
| Occupation of partner | Unemployeed | 15 | 1.6 |
| | Farmer | 53 | 5.5 |
| | Labourer | 593 | 61.7 |
| | Govt Servent | 82 | 8.5 |
| | Business | 218 | 22.7 |

As depicted in Table 2, the maximum number of cases were counseled for PPIUCD insertion antenatally, during early labor/ preparation for LSCS.

As shown in the Table 3, majority of the insertion were post placental (67.3%).

As depicted in the Table 4, most clients had mild pain (49.7%) and little anxiety (42.5%) at the time of PPIUCD insertion.

Table 2: Distribution of cases according to timing of counselling.

| Timing of counselling | No. of cases (n= 961) | % |
|-------------------------------------|-----------------------|-------|
| ANC period | 510 | 53.10 |
| Early labor or Preparation for LSCS | 349 | 36.30 |
| After delivery | 94 | 9.80 |
| Postpartum stay | 8 | 0.80 |

Table 3: Distribution of cases according to type of IUCD insertion.

| Type of insertion | No. of cases (n= 961) | % |
|-------------------|-----------------------|--------|
| Post placental | 647 | 67.30 |
| Post partum | 8 | 0.80 |
| Intra caesarean | 306 | 31.80 |
| Total | 961 | 100.00 |

Out of the 961 cases who opted for IUCD insertion as a preferred contraceptive method, 492 (51.1%) reported for follow up. At follow up 26.2% clients reported problems while others enrolled for routine check-up.

Table 4: Distribution of cases according to perception of symptoms on PPIUCD insertion.

| Perception | Satisfactory level | No. of cases (n=961) | % |
|------------|------------------------|----------------------|------|
| Pain | Mild pain (1-3) | 478 | 49.7 |
| | Moderate pain (4-6) | 416 | 43.2 |
| | Severe pain (7-10) | 67 | 6.9 |
| Anxiety | No anxiety (0-3) | 342 | 35.6 |
| | Little anxiety (4-5) | 408 | 42.5 |
| | Somewhat anxious (6-7) | 137 | 14.3 |
| | Very anxious (8-10) | 74 | 7.7 |

Table 5: Symptoms at follow up.

| Symptoms | No. of cases (n=492) | % |
|-------------------------|----------------------|-------|
| Pain | 82 | 16.70 |
| Hanging Tail | 28 | 5.70 |
| Heavy Bleeding | 12 | 2.40 |
| Foul Smelling Discharge | 6 | 1.20 |
| No Symptoms | 364 | 74 |

As shown in Table 5, pain (16.7%) and hanging tails (5.7%) were the most common symptoms reported, while heavy bleeding was the most important reason for IUCD removal. Out of 12 cases who complained of heavy

bleeding at follow up, 10 patients opted for removal (83.3%).

Table 6: Distribution of cases according to examination findings.

| Examination Findings | No. of cases (n=492) | % |
|-------------------------------|----------------------|-------|
| Expulsion Partial or Complete | 31 | 6.30 |
| Local Infection | 33 | 6.70 |
| Missing Strings | 62 | 12.60 |
| Menstrual Problem or Bleeding | 41 | 8.30 |
| None | 325 | 66.10 |

As shown in Table 6, On follow up examination, there was missing strings in 12.6% cases, local infection in 6.7% cases, partial /complete expulsion in 6.3% cases, bleeding per vaginum in 8.3% cases while in 66.1% of cases there were no abnormal findings.

On further investigating the 62 cases with missing string with help of uterine-sound and ultrasonography, we found that 24 cases had IUCD in situ, in 38 cases IUCD was expelled out but none of the cases reported displaced IUCD.

Table 7: Follow up study for reason of desire for removal of IUCD.

| Reason | No. of cases (n=62) | % |
|---------------------------|---------------------|-------|
| Lack of satisfaction | 43 | 69.40 |
| Want to use other methods | 8 | 12.90 |
| Wants Pregnancy | 5 | 8.10 |
| Other | 6 | 9.70 |

As depicted in Table 7, lack of satisfaction was the prime reason amongst the 62 cases who desired removal of IUCD.

At follow up 91.3% clients replied favorably about their satisfaction for PPIUCD.

Table 8: Continuation rate in the study after first follow up (6 weeks).

| Total insertions | 961 | % |
|-------------------|-----|------|
| Total followed-up | 492 | |
| Expulsion | 48 | 9.75 |
| Removal | 62 | 12.6 |
| Continuation | 382 | 77.7 |

As shown in Table 8, total no. of IUCD insertion in the study was 961, of which 492 cases reported for follow up. Among the cases followed up, 9.75% had spontaneous expulsion of IUCD and 12.6% cases sought voluntary removal, while 77.7% of the cases continued using IUCD as an acceptable method of contraception at follow up.

DISCUSSION

In the present study undertaken on 1800 cases who were counseled for PPIUCD insertion, acceptance rate was 53.3% (961 cases) which is higher than the study conducted in Assam by Doley R et al (36.6%), study done by Mishra S et al (17.17%) while Goswamy G et al found 66.6% acceptance.⁶⁻⁸ The variation in acceptance rate may be due to different study settings, locality and diversity in socio-demographic characteristics.

In this study, majority (85.1%) of the PPIUCD acceptors belonged to younger population (age group of 21- 30 yrs) which is comparable with other studies done by Doley R et al, and Katheki G et al whereas in a study by Maluchuru S et al from Guntur, the highest rate of acceptance was among age group of 30-39 years (27.67%).^{6,9,10} 93% of the acceptors were Hindu, 49.8% of the acceptors belonged to lower socioeconomic group and 62.6% from rural localities. 49.5% clients and 55.4% of the partners were educated up to high school. 78.1 % were homemaker and 61.7% of the partners were laborer. Similarly, by Maluchuru S et al, found acceptance was high among low socioeconomic women (67%).¹⁰ In a study done in Belgaum by Rati SA et al comparable results were found.¹¹ With context to the type of family, 83.7% of women were from joint family. Majority (89.9%) of women were housewife, 57.3% of husbands were semiskilled workers. Most of the families (62%) had income less than Rs. 3000 per month. Similar findings were reported by Deshpande S et al while in a similar study done in Telangana by Jairaj S et al majority were from urban area (79.75%) and those who completed their secondary school level education (23.3%).^{12,13}

In current study most of the clients (58.9%) were unbooked (<3 Antenatal visits) and 66.1% were primipara. In study done by Jairaj S et al and Gautam et al acceptance rate was higher in primiparous women.^{13,14} In contrast, in the study by Sudha CP et al 98.3% patients who had PPIUCD inserted were booked and only 1.7% patient were unbooked and acceptance rate was comparable between primigravidae (36.7%) and multigravidae (38.3%) women. Deshpande S et al found a higher acceptance rate among multiparas.^{15,12} These findings suggests that the mothers with a recent first experience of delivery were more receptive to PPIUCD as a semi-permanent method of contraception.

Out of 961 IUCD insertion done in the study, 647 (67.3%) were post placental, 306 (31.8%) were intracasean and 8 (0.8%) were post partum insertion. In the study done by Doley R et al intracasean insertion were 77.07% and post placental in 22.93%. Vidyaramana et al reported similar findings.^{6,16,17}

In the study done by Kumar S et al about half of the IUCDs were post-placental insertions and nearly one-third were inserted during C-section which is comparable.

In the current study among the acceptors most of the cases i.e. 53.1% were counseled for PPIUCD insertion during their antenatal period irrespective of the number of visits per patient. 36.3% cases were counseled during early labor, 9.8% after the delivery and 0.8% cases were counseled during postpartum period which is similar to studies by Zeroi et al, Saliman et al and Duong et al which emphasize the need of counseling in antenatal period.^{18,19,20}

In present study maximum number of PPIUCD insertion were done by instrument (89%). In study conducted by Nidhi Gupta et al it was found that there was no statistically significant difference in the discomfort during insertion or in removal rates by either of techniques which is in line with present study.²¹

Present study shows that maximum number of cases (42.5%) had little anxiety and 7.7% were very anxious at the time of PPIUCD insertion. 49.7% experienced mild pain and 6.9% of the case perceived severe pain at the time of IUCD insertion. Most of the clients were later convinced after their fears and doubts were addressed prior to discharge. In a study by Sudha CP et al it was reported that 8.3% of the patients were anxious, 86.7% of the patients who had vaginal insertion experienced mild pain at the time of insertion (mean pain score- 2.20).¹⁵ Somesh Kumar et al in their study also found only a small proportion of women (1-2%) reported that the insertion was painful or very painful during or after insertion.¹⁷

At follow up majority i.e. 364 (74%) clients had no complain and reported for a regular check up, 16.7% had complain of pain, 5.7 % had hanging tail causing discomfort. On per speculum examination we cut short the string of IUCD if it was unusually long and causing discomfort. 2.4% of the followed up cases had complain of heavy bleeding and 1.2% of cases had foul smelling discharge.

On examination 31 cases (6.3%) had expulsion of IUCD of which 21 cases had partial expulsion and 6.7% cases had local infection, 12.6% had missing CuT string, 8.3% cases had bleeding per vaginum while 66.1% cases had no abnormal finding on examination. According to PPIUCD reference manual spontaneous expulsion occurs in about 2-8% clients and is mostly during first 3 months of insertion and during menstrual periods.¹

Present study shows that during follow up examination in 62 cases (i.e. 12.6%) string were not visualized on per speculum examination (missing string). As per management protocol for missing string, we further investigated these cases with uterine sound and ultrasound examination and found that of these, 24 cases (38.7%) had IUCD in proper position while none of the IUCD was found to be displaced. In 38 cases (61.3%) IUCD had expelled spontaneously. Study done by O' Hanley et al showed the expulsion rate of about 7-15% at

six month.²² Another study done by Eroglu et al showed the expulsion rates in immediate and early post-partum insertion groups are higher than in the interval group.²³ In the study conducted by Deshpande S et al 62.17% women had an uneventful course of after PPIUCD, menstrual disturbances in 27%, abdominal pain in 9.29%, and infection in 2% women.¹² In the study done by Doley R et al out of 1217 patients (Total accepted), 939 turned for follow up, of these 314 had complications/complaints.⁶ It was observed that 12.35% had irregular bleeding, 15.12% had missed thread, 3.09% and 0.75% had expulsion and infection respectively and 2.13% had pain abdomen which is comparable to our study.

In the present study reason for removal of IUCD was evaluated. Total 62 cases desired for IUCD removal at their follow up visit, commonly (69.4%) due to complications. 12.9% wanted to use other method of contraception, 8.1% cases wanted pregnancy and in 9.7% cases other causes like family pressure, non-acceptance by partner, religious beliefs etc were there.

In this study 51.19% cases followed up, 48.9% cases were lost to follow up after discharge which is comparable with study done by Doley R al.⁶ In our study rate of spontaneous expulsion is 9.75% and voluntary removal in 12.6% i.e. 77.7% was the continuation rate after first follow up (6 weeks). Mishra S et al, found expulsion rate 6.4% at 6 weeks.⁷ 23.05% participants were lost follow up. Gunjan Goswamy et al found expulsion rate was 10% and 30% lost follow up.⁸ In their study bleeding/discharge (30%), abdominal pain (20%), family pressure (20%), just did not want to continue (5%) were the reasons they found for removal of IUCD in the follow up. Maluchuru S et al found bleeding (27.27%), menstrual disturbances (18.18%), pressure from family (27.27%) pain (9%) and other problem (18.18%) as reasons for removal.¹⁰ Majority of the studies including current study observed pain and bleeding as the main problems for removal of IUCD.

Although pain was the commonest complaint at follow up but excessive bleeding was the leading cause where clients sought removal of IUCD (83.3%) These finding is quite similar to the finding by ESHRE copri workshop Group in Milan in which bleeding and pain are the most common reasons for removal rate of 10% in the first year and up to 50% within 5 years.²⁴ Doley R et al reported that in 42.11% recipients, PPIUCD were removed due to bleeding followed by pressure from family (17.54%) The continuation rate was 90.84% and failure rate was 0.11%.⁶

The proportion of cases seeking medical attention for problems was 26.2% of which 46.5% opted for removal of IUCD. Out of the 492 cases followed up 91.3% cases were found to be satisfied with the decision of using PPIUCD. This is in line with the study conducted by Kumar S et al where nearly all women were satisfied at the time of insertion and over 90% reported that they

were happy with the IUCD at six weeks following insertion.¹⁷

CONCLUSION

To conclude, we found average acceptance rate, good continuation rate and no major complication with PPIUCD. Inserting IUCD within 10 minutes after placental delivery and during cesarean section is a one time, long term, coitus independent, reversible, demonstrably safe and effective method of contraception having low expulsion rate and has no effect on breast feeding.

The government needs to develop strategies to increase public awareness for PPIUCD as a safe and effective contraceptive method along with continuous training and enhancement of the knowledge and skills of the health care providers. Incentives to the acceptors, motivators and of course providers will play a key role in expanding the scope of PPIUCD in the near future.

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