Abstract

Context: Intrauterine contraceptive device (IUCD) has been recommended for insertion within 10 min of placental delivery or within 48 h of delivery (postpartum IUCD [PPIUCD]) by the WHO. However, the acceptance across our country has been low. Aims: To determine the level of knowledge and the factors affecting it and the likely adoption of PPIUCD. Settings and Design: This cross-sectional study was carried out in the antenatal clinic and postnatal ward of a large tertiary care center in South India. Subjects and Methods: A total of 339 women were studied with the help of a validated structured pro forma. Proportions were expressed in percentage. Chi-square test was applied to compare proportions and univariate analysis for the factors affecting knowledge and likely acceptance. Results: Among the 339 women, 152 (44.8%) were aware of the method. Of the 152 women, 56 had a negative attitude about the method. Multiparity of the women was a significant factor affecting knowledge ($\chi^2 = 8.068, P = 0.045$). Women who were not exposed to formal health counseling were significantly associated with a lack of knowledge ($\chi^2 = 23.332, P = 0.0001$). Primiparity ($\chi^2 = 14.683, P = 0.0001$), husbands with skilled jobs ($\chi^2 = 8.272, P = 0.0407$), having shared information with their husband regarding the method ($\chi^2 = 38.1, P < 0.001$), and family support ($\chi^2 = 58.25, P < 0.001$) were the major factors associated with willingness to adopt the method. Conclusion: The level of knowledge about PPIUCD of our study population is 44.8%. Exposure to formal health counseling classes and prior discussion with husbands and family members could improve the knowledge and likelihood of acceptance of PPIUCD.

Keywords: Attitude, awareness, CuT380A, postpartum contraception, postpartum intrauterine contraceptive device

Introduction

The World Health Organization (WHO) revised the use of intrauterine contraceptive device (IUCD) from the 6th week postpartum to within 10 min of delivery (Post placental) to up to 48 h of delivery. IUCD has established itself as an effective, reliable, and safe method of contraception with minimal complications. However, its acceptance remains low. There are many studies assessing the acceptability and safety of postpartum IUCD (PPIUCD), but very few studies have determined the awareness level regarding this method. This study was therefore conducted to determine the level of awareness, attitude, and factors affecting awareness and acceptance of PPIUCD.

Subjects and Methods

This descriptive cross-sectional study was conducted among pregnant women above 18 years of age attending antenatal clinic (in late third trimester)/in labor (early stage)/just delivered at our hospital (tertiary care teaching institution) from June to July 2016, after the study was approved by the Institute Ethics Committee (No. JIP/IEC/2016/26/840). Ours is a large tertiary care hospital with 1200 deliveries every month and an attendance of 300 or so antenatal women in the outpatient department every day. Women whose labor was complicated by...
prolonged rupture of membranes, severe anemia, heart disease, intrapartum fever, postpartum hemorrhage, and stillbirth were excluded from the study.

Informed consent was obtained from the participants. A pretested, language-validated structured questionnaire (Annexure 1) was used to collect information on age, parity, education, etc., through open interview method. Awareness of PPIUCD as a method of contraception, their views about it, and any negative attitude or myth toward the method were noted down. Other information such as any exposure to health counseling classes and their likelihood to accept the method was also noted. Presuming acceptance level of PPIUCD to be 17%,[9] alpha error of 5% (95% confidence level), and an absolute precision of 4%, the sample size was calculated as 339. It was a convenience sampling method.

At the end of the interview, participants were informed about all methods and briefed about the method, and a handout which was in the vernacular language was given to them enumerating the mechanism of action, effectiveness, possible risks, and other aspects regarding this method.

**Statistical analysis**

Data were entered into Microsoft Excel spreadsheet and analysis was done using SPSS software package (IBM corp. Armonk, New York version 21). Knowledge and attitude of the women were summarized as proportion. Association of parity and exposure to health worker talk with knowledge on PPIUCD was assessed using Chi-square test, and univariate logistic regression analysis was done to calculate unadjusted odds ratio. Similarly, to assess the factors associated with likelihood of PPIUCD adoption, we used Chi-square test and univariate logistic regression analysis. \( P < 0.05 \) was considered statistically significant.

**RESULTS**

Three hundred and thirty-nine pregnant women consented and completed the study. Three hundred and twenty-seven individuals from antenatal clinics and 12 individuals from postnatal ward were interviewed.

The mean age of participants was 25.52 years with a standard deviation (SD) of 4.34 years. Majority of women (147) were in the age group of 20–24 years. There were 8 (2.4%) teenage pregnancies.

The demographic and social characteristics of the study sample are shown in Table 1. None of participants gave a history of voluntary termination of pregnancy in the past. Seven of them gave a history of previous IUCD use (Copper T). The present pregnancy was wanted in all the 339 individuals. Majority of couples used coitus interruptus. Among the 185 primigravidae, they accepted the conception and continued with pregnancy even though it might not have been planned.

All the 154 women who already had one child wanted to delay or limit next childbirth. Twenty-three women had decided to adopt permanent methods. Four of these women already had two children and the other 19 had one previous child. The remaining women wanted it delayed by at least 3 years. The 185 primigravidae wanted to delay pregnancies for 1–3 years.

Regarding knowledge of PPIUCD, 152 women out of 339 (44.8%) women had heard of PPIUCD as a method of contraception. However, only 34 (22.4%) of 152 women were aware of the method in detail. Awareness was defined as having heard about the method. Whereas, those who knew more details about the method regarding what IUCD, possible timing of insertion, and follow-up were considered to have correct knowledge.

The source of information (pertains to first source of information only) about PPIUCD among the individuals who were aware of PPIUCD \((n = 152)\) is shown in Figure 1. The majority got the information around 16–24 weeks of pregnancy.

Regarding attitude towards PPIUCD, 56 of the 152 (37%) women who were aware had a negative attitude toward the method. Forty (26%) women had neutral or no attitude. And, another 56 (37%) women had positive attitude. Negative views about the method among the 152 women who were aware were that it is painful (34, 22.4%), causes excessive bleeding and discharge (7, 4.6%), not safe (9, 5.9%) or not effective (3, 2%), and not reliable (3, 2%).

Regarding the willingness to adopt the method, out of 152 who were aware of PPIUCD, 56 had negative attitude. Among the rest of the 96 women, only 13 were willing to adopt the method. These 13 women had not used any methods earlier. Among the remaining 83 women, 23 with positive attitude had decided for permanent method of sterilization due to the fact that their family was complete and that they were not keen to

| Table 1: Sociodemographic characteristics of the study participants |
|---------------------------------------------------------------|
| **Characteristic** | **Category** | **Frequency, n (%)** |
|--------------------|-------------|---------------------|
| Education of women | Less than primary school | 57 (16.8) |
|                    | More than primary school | 282 (83.2) |
| Education of husbands | Less than primary school | 14 (4.1) |
|                    | More than primary school | 325 (95.9) |
| Occupation of women | Homemaker | 329 (97.1) |
|                    | Unskilled | 0 |
|                    | Skilled | 10 (2.9) |
| Occupation of husbands | Unemployed | 1 (0.3) |
|                    | Unskilled | 154 (45.4) |
|                    | Skilled | 184 (54.3) |
| Health center in the locality | Yes | 150 (44.2) |
|                    | No | 189 (55.8) |
| Type of family | Nuclear | 192 (42.8) |
|                    | Joint | 197 (57.2) |
| Parity | Uniparous | 189 (54.6) |
|                    | Multiparous | 154 (45.4) |
| Formal health counseling | Yes | 43 (12.7) |
|                    | No | 296 (87.3) |
Figure 1: First source of information about postpartum intrauterine contraceptive device among the knowledgeable participants (n=152)

Figure 2: Reasons for unwillingness to adopt postpartum intrauterine contraceptive device (n = 116)

Figure 3: Pie chart depicting the reasons for refusal among the 116 knowledgeable women

Our study has addressed the level of knowledge about PPIUCD and also the factors affecting the knowledge and the likely adoption of the method.

Mean age in our study was found to be 25.52 years with a SD of 4.34 years. Anguzu et al. found a similar mean age of 26.3 years (SD of 5.34 years) in the respondents in their study done in Uganda. In our study, majority (43.4%) of individuals belonged to the age group of 20–24 years. In the study by Katheit and Agarwal also, the majority (50.8%) of the study population belonged to the age group of 20–25 years. Thus, the age distribution of our study population is similar to the other populations studied.

In our study, most (91.2%) of the women and all the husbands were literate and had received at least primary level of scholastic education. This is in agreement with the study by Sunanda and Sudha where 85% of the study population had exposure to formal education, and in contrast to the study done by Katheit and Agarwal wherein 65% of the study population was illiterate. The later study was conducted in Bhopal.

In our study, we found that 44.8% of women had knowledge of PPIUCD. The comparative data of the various studies by various authors are shown in Table 4.

Low level of knowledge in the study by Katheit and Agarwal is possibly due to lack of exposure to formal education in most of the women.
The level of knowledge observed in the study by Rekha and Amruta[11] is comparable with our study. This study was done in one of the private hospitals of Maharashtra, India.

Multiparity and exposure to any formal health counseling classes were found to be predictors of knowledge about PPIUCD in our study. Katheit and Agarwal found that besides multiparity, education of the women was also a predictor of knowledge.[3]

In comparison with the other studies, our study population had a higher level of awareness regarding PPIUCD. This difference could probably be due to the fact that our tertiary center located in a state in South India with a high literacy level.

In our study, the negative views about the method were pain, excessive bleeding and discharge, not safe or effective, and not reliable, which are comparable to the results found in the study done by Sunanda and Sudha[9] wherein the most common negative views were fear of pain and bleeding (41%), fear of cancer, and some religious belief. In our study, only 8.6% of those who were aware of PPIUCD were willing to adopt it.

We observed that skilled occupation of the husband, prior discussion with spouse, family support for the decision, and primiparity were strongly associated with a willingness to adopt the method. In the study by Mishra[5] also, partner and family refusal and need to discuss with the partner besides lack of knowledge about PPIUCD were the leading reasons for refusal of PPIUCD. Other authors also observed higher acceptance of the PPIUCD among primiparous women.[9,12] Factors such as urban residence, education of the women and partner, and family involvement in decision-making were found to be associated with likely adoption of PPIUCD by various authors in their study.[3,9,12]

In our study participants, none of the pregnancies were unplanned, and the number of women into their third pregnancy or more was only around 10% and also none of the women had ever had a termination of unwanted pregnancy in the past, thereby reflecting that the higher education level might be a favorable factor in using alternate methods of contraception, such as natural methods, successfully in avoiding pregnancy.

The limitation of our study was that most of the women were interviewed in the antenatal period. Information on their place of delivery and exactly how many of those who were willing to adopt the method actually accepted the method was not available. Among the postnatal women who participated, none were willing to immediately accept the method. Even though we gave handouts and explained the method to all the women in the study group, probably it was in isolation without their spouses or other family members due to logistic problems. Most of these women wanted more time to think and discuss. Thus, we recommend that there should be continued health counseling to the pregnant women, especially in the last trimester and in every visit to reinforce about contraception and PPIUCD. The study by Janwadkar and Shekhawat[13] showed a near doubling in acceptance rate by proper counseling. The study by Kannani et al.[14] brings out the need to train, motivate, and counsel the health providers also. Ours is a tertiary care hospital with high attendance of 300 or so pregnant women every day. However, the acceptance rate has been low at 5%–8%. Although there are social workers, one-on-one counseling is not happening due to logistics. Only group counseling of the pregnant women is being done in our hospital at present. Sessions attended by the couple and the elder family members than in isolation by the woman might be a better strategy for improving acceptance of PPIUCD. It would not only raise their knowledge but also give them ample

| Factors                              | Knowledge | OR (95% CI) | P       |
|--------------------------------------|-----------|-------------|---------|
|                                     | Yes       | No          |         |
| Parity                              | 70        | 115         | Ref     | 0.0045  |
| Primipara                           | 1.8 (1.2-2.9) |             |         |
| Multipara                           | 82        | 72          |         | <0.001  |
| Health worker talk received          | Yes       | 34          | 9       | 5.7 (2.6-12.3) | <0.001 |
|                                      | No        | 118         | 178     | Ref     |         |

OR=Odds ratio, CI=Confidence interval

| Factors                              | Likely to adopt PPIUCD | χ²   | P       |
|--------------------------------------|------------------------|------|---------|
|                                     | Yes (n=13)             | No   |         |
| Parity                              | 13                     | 51   | 14.683  | 0.0001  |
| Primipara                           | 0                      | 65   |         |         |
| Multipara                           | 11                     | 68   | 8.272   | 0.0407  |
| Occupation of the husband           | Daily wage laborer     | 0    | 24      | 8.272   | 0.0407  |
| Skilled workers                     | 11                     | 68   |         |         |
| Professional                        | 1                      | 1    |         |         |
| Farmer                              | 1                      | 22   |         |         |
| Family support                      | Yes                    | 13   | 10      | 58.25   | <0.001  |
| Shared information with husband     | Yes                    | 13   | 19      | 38.1    | <0.001  |
| Religious beliefs or myths          | Yes                    | 0    | 17.8    | <0.001  |

PPIUCD=Postpartum intrauterine contraceptive device

Table 2: Univariate logistic regression showing association of parity and exposure to health awareness classes with knowledge regarding postpartum intrauterine contraceptive device

Table 3: Univariate logistic regression showing the association of factors with the likelihood of adoption of postpartum intrauterine contraceptive device
opportunity to clear their apprehensions about the method and discuss and decide well before the delivery.

**Conclusion**

The level of knowledge about PPIUCD of our study population is 44.8%. Our study has shown exposure to formal health counseling classes as the single most important modifiable factor to improve the knowledge about PPIUCD.

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**Conflicts of interest**

There are no conflicts of interest.

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ANNEXURE 1: QUESTIONNAIRE

Sociodemographic details
1. NAME: w/o
2. Age:
3. Education (wife) (husband)
4. Occupation (wife) (husband)
5. Monthly income (wife) (husband)
6. No. of earning members in the family
7. Religion
8. Type of family
9. Address

Health facility
10. Hospital no.
11. Nearest health facility
12. Family welfare centre (if any)

Obstetric details
Parity

Details regarding contraceptive use
13. Place of last delivery
   Type of delivery
14. Any voluntary termination of pregnancy in the past:
15. Did you use any contraceptive earlier? if yes, mention:
16. Did any health worker talk to you during pregnancy about contraception?
17. Did you face any problems while using a method of contraception?

Present pregnancy
18. Was the present pregnancy planned?

Awareness regarding ppiucd
19. Did any health worker talk to you about contraceptive methods during this pregnancy?
20. Have you heard of PPIUCD, as a method of contraception?
21. Source of information on PPIUCD (put a √ mark against your option):
   Read in school
   Friends
   Media
   Health counselor
   Doctor
   Others, mention
   Heard of IUCD but not PPIUCD
22. Have you been informed about this method in detail by the health worker?
23. What are your views regarding this method?
24. Would you like to adopt this method at delivery?
25. If No, Why?; Scared of side effects
   Want time to decide
   I don’t think I need contraception
   Any other reasons
26. Are there any beliefs in your religion that deters you from using this contraceptive method?
27. Have you shared the information regarding this contraception method with your husband?

Does your husband and other family members support your decisions?