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Postpartum intrauterine contraception device, a method of contraception: A study from rural north India

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Abstract
Background: PPIUCD is not commonly used in developing countries because of lack of awareness, social taboos and fear of complications of IUCD devices. Low acceptance of immediate PPIUCD usage results in high unmet needs and low utilization of the contraceptive method. Therefore we planned this study to see the acceptability and safety of PPIUCD in our local population.
Material & Methods: A cross sectional, prospective study was conducted on 2540 women attending antenatal clinic at District hospital Samba, Jammu; Jammu and Kashmir from March 2016 to February 2018. All women attending antenatal clinic and in labour room were counseled for immediate PPIUCD and after written consent were included in the study. All these women were called for follow up visit after 6 weeks of insertion of PPIUCD.
Results: A total of 2540 women were counseled for PPIUCD during their antenatal visits in third trimester and in early labour. Out of which 811 (31.9%) PP IUCD insertions were done. Most common age group was 26 – 30 year. Most of PPIUCD insertions were done in vaginal deliveries i.e. 678(83.6%) out of 811 and intracesarean PPIUCD insertions were only 133(16.40%) out of 811. Most of the women were either Para 2 or Para 1. 396 (48.82%) women came for follow-up after 6 weeks. There was no case of uterine perforation or any unplanned pregnancy. Unusual vaginal discharge were reported by 76(19.19%) women at follow-up. In 32 women IUCD was removed because of heavy menstrual loss, PID and personal reasons. IUCD strings were not seen on per vaginum examination in 40(10.10%) cases. All women with undescended strings underwent ultrasonographic confirmation of intrauterine placement of the device and women were assured for continuation of PPIUCD.
Conclusion: To achieve the goal of Health Services for all, all women should have access to family planning services. If family planning services are provided to all women then only we will be able to decrease maternal and infant mortality. Acceptance of PPIUCD as method of contraception is low, though PPIUCD is an effective, safe, rapidly reversible and convenient contraceptive method. PPIUCD should be encouraged considering the advantages that come along, although there is a relatively higher incidence of expulsions.

Keywords: PPIUCD, north India, IUCD

Introduction
India's population of over 1.2 billion is stated to overtake China as the world's most populous country in less than one and a half decade. This population size is more than the population size of USA, Brazil, Bangladesh, Pakistan, Indonesia and Japan put together. Family planning is important not only for population stabilization, but it has been increasingly realised that family planning is central to improve maternal and newborn survival and health. Even though India has made considerable progress in reducing maternal mortality ratio, it still contributes 20% of maternal deaths worldwide according to 2012 report of World Bank, UNFPA and WHO. Family planning can avert more than 30% maternal deaths 10% child mortality if couples spaced their pregnancies more than 2 years apart [1].
India was world's first nation to start Family Planning Programme in 1952. Most women do not desire a pregnancy immediately after delivery but are unclear about contraceptive usage in postpartum period. In recent study of postpartum unintended pregnancies 86% resulted from nonuse of contraceptive and 88% ended in abortion [2]. In India 65% of women in first year of postpartum have an unmet need of family planning [3]. Hence providing contraception in this sensitive period is very important. Post partum period is one of the critical time when women need an integrated package of health services including contraceptive devices. At this time women are highly motivated and receptive to accept Family Planning methods [3].

Postpartum intrauterine contraceptive device (PPIUCD) is the only family planning method which is highly effective, reliable, inexpensive, non-hormonal, immediately reversible and long acting contraceptive that can be initiated during the immediate postpartum period and it has no negative effect on lactation [4, 5, 6]. It does not require repeated healthcare visits for contraceptive refills [7] and it can be initiated by a mid- level skilled birth attendant [8]. This period is a great opportunity for PPIUCD service provider to introduce the method especially in settings where women have cultural and social limitations[9]. Despite the many benefits of PPIUCD, still this method is not commonly used in developing countries because of lack of awareness, social taboos and fear of complications of IUCD devices. Low acceptability of immediate PPIUCD usage result in high unmet need and low utilization of the contraceptive methods [10]. Therefore we planned this study to see the acceptability and safety of PPIUCD in our local population.

Material & methods

A cross sectional, prospective study was conducted on 2540 women attending antenatal clinic at District hospital Samba, Jammu; Jammu and Kashmir from March 2016 to February 2018. All women attending antenatal clinic and in labour room were counseled for immediate PPIUCD. Women who gave consent for immediate PPIUCD were included in the study. A written informed consent was taken prior to insertion of intrauterine device in all women included in the study. Information regarding educational status of women, profession and permanent residence was also taken. All these women were called for follow up visit after 6 weeks of insertion of PPIUCD. Therefore women delivering either vaginally or by caesarean section, counseled for IUCD insertion in pre-natal period or in labour and willing to participate in the study were included in the study. Criteria used for exclusion of women from study were hemoglobin less than 8 gm%, rupture of membranes more than 18 hours, postpartum hemorrhage, coagulation disorders, fever, or clinical symptoms of infection during labour, obstructed labour, fibroid, congenital malformation of uterus, active STD and allergy to copper. We used IUCD CuT-380 A which was available free of cost in the hospital. Postplacental insertion of the IUCD is done immediately following delivery of the placenta, typically within 10 minutes. Placental forecep or PPIUCD insertion forecep which is long and curved forecep without lock is used for vaginal insertions of PPIUCD. The IUCD is held in the placental forecep, inserted up to the fundus of the uterus and the IUCD is released. Intracesarean PPIUCD insertion is done through the uterine incision during cesarean section and PPIUCD is placed manually at the uterine fundus and lower uterine segment closed subsequently as routine. All IPPIUCD insertions were done by doctors who had been trained for this purpose. The IUCD strings were not trimmed and left in the uterine cavity. Third stage of labour was managed as a usual routine. All women who were given PPIUCD contraception were advised to come for follow-up after 6 weeks.

On follow-up these women were evaluated for evidence of menstrual abnormalities, pelvic or lower genital tract infection and explusion of IUCD. Pelvic examination was done to look for signs of bleeding per vaginum, lower genital tract infection and descent of strings of IUCD. If the strings of IUCD were not visible then the patients were evaluated for presence of IUCD by ultrasound of lower abdomen and pelvis. If the strings of IUCD were visible, then they were trimmed 2cm beyond the external os. The IUCD was removed if there was medical indication or for personal reason. These women were counseled and alternative methods of contraception were also offered.

Statistical analysis was performed using SPSS 10.0 for windows student version (SPSS Inc. 233 South Wacker Drive, 11th Floor, Chicago, IL 60606-6412). Descriptives were calculated for various clinical outcomes.

Results

A total of 2540 women were counseled for PPIUCD during their antenatal visits in third trimester and in early labour. Out of which 811 (31.9%) PP IUCD insertions were done. Most common age group (38.4%) was 26 – 30 year as shown in table 1, next common age group (30.8 %) was 21 – 25.

Table 1: Age profile PPIUCD patients.

Age of women (Years)	Number	Percentage
Below or equal to 20	68	08.38
21 - 25	249	30.7
26 – 30	314	38.7
31 - 35	146	18.0
36 – 40	34	04.19

Most of PPIUCD insertions were done in vaginal deliveries i.e. 678 (83.6%) out of 811 and intracesarean PPIUCD insertions were only 133(16.40%) out of 811as depicted in table 2.

Table 2: Shows type of PPIUCD insertion

Mode of Insertion of PPIUCD	Number	Percentage
Vaginal	678	83.6%
Intracesarean	133	16.40%

Most of the women were either Para 2 or Para 1, table 3 demonstrates the parity of study group.

Table 3: Parity profile of PPIUCD cases

Parity	Number	Percentage
Para1	292	36%
Para 2	378	46.6%
Para 3	128	15.78%
Para 4	18	02.2%

396 (48.82%) women came for follow-up after 6 weeks. Table 4 summarizes the Findings at follow-up visits of these women. There was no case of uterine perforation or any unplanned pregnancy

Table 4: Findings of PPIUCD cases at follow-up visits

	Frequency (396)	Percentage (48.82%)
Safety		
1. Perforation	00	00.00%
2. Unusual vaginal discharge	76	19.19%
3. Infection		
a. Vaginitis	20	5.05%
b. PID	14	3.53%

4. Irregular bleeding	46	11.61
Efficacy:		
1. Pregnancy	00	00%
2. Explusion	48	12.12%
3. Discontinuation	32	8.08%
Undescended IUCD strings	106	26.76%

Unusual vaginal discharge were reported by 76(19.19%) women at follow-up and this complaint was significantly higher after caesarean IUCD insertions. On clinical examination, 14cases were of pelvic inflammatory disease and 20 cases of bacterial vaginosis were detected. In the remaining 35 cases the "discharge" was normal leucorrhoea. In 32 women IUCD was removed because of heavy menstrual loss, PID and personal reasons. IUCD strings were not seen on per vaginum examination in 40(10.10%) cases. All women with undescended strings underwent ultrasonographic confirmation of intrauterine placement of the device and women were assured for continuation of PPIUCD.

Discussion

To achieve the goal of Health Services for all, all women should have access to family planning services [11]. If family planning services are provided to all women then only we will be able to decrease maternal and infant mortality [12]. Maternal and infant mortality can only be decreased if women have access to Family Welfare Programme so that birth of first baby is delayed and later on for spacing and finally when family is complete. Lack of knowledge about contraception and beliefs are the main reasons why Indian couples do not accept various contraceptive methods [13, 14]. National Family Health Survey (NFHS) 2005 – 2006 reported that 61% of births were spaced less than three years [15] and that 22% married women had an unmet need for family planning. Stratified analysis subsequently suggested that 65% of women in the first year postpartum period had an unmet need of family planning [16]. In postpartum period couples are highly motivated and more receptive to contraceptive choices. If couples do not accept any family planning method during this postpartum period that will result in unwanted/unintended or untimed pregnancies [4, 5]. IUCD is convenient, long acting and rapidly reversible method of contraception. IUCD is usually inserted after 6 weeks of postpartum period and along with induced abortion. Initial studies of insertion of IUCD within 10 minutes of delivery of placenta showed good result and this has resulted in its widespread use [17, 18]. Keeping this in mind we planned this study to see the acceptability and safety of PPIUCD.

In our study the acceptance rate of PPIUCD is 31.9%. On search it has been found that acceptance rate of PPIUCD is quite variable this may be due to different study settings, locality and diversity in socio-demographic characteristics. Mishra S *et al*., conducted a study in Odisha District Head quarter Hospital and found 17.17% acceptance rate and 82.42% did not accept PPIUCD [19], Kanhere *et al*., found 36% acceptance rate [20], Gunjan Goswami *et al*., found 66.6% acceptance [21], Vidyaramana *et al*., found 8.55% acceptance [22]. This variation of acceptance rate might be due to the difference in the level of awareness, educational level of respondents, religious beliefs and various misconceptions about PPIUCD insertion in the study settings.

Only 396(48.82%) women out 811 came for follow-up after 6 weeks. Although all the women who underwent immediate postpartum IUCD insertions (vaginal or caesarean) were counseled and advised to come for a follow-up examination at our hospital, only 48.82%, actually reported for a follow-up clinic visit. The possible explanation could be that for follow-up examination they prefer visiting their local health centre (Subcentres, Primary Health Centre and Community Health Centre) due to large distances and transportation problems. In a recent prospective study of follow-up of PPIUCD from a peripheral health centre of India, scheduled follow-up was observed in 65.2% cases [23]. Shukla *et al*. reported a follow-up of 78.7% in a prospective longitudinal study [24].

There was no case of uterine perforation, amongst the women studied at follow-up. Literature search, also reveals that there is no report of uterine perforation after PPIUCD insertion.

Although large number of women reported unusual vaginal discharge, actual infection was present in only 8.58% cases on clinical examination. Women with IUCD have increased incidence of vaginal discharge, which is usually normal leucorrhoea and not a sign of infection [25]. Postcesarean women delivering are more apprehensive regarding symptoms of discharge, having undergone a surgical procedure. A multicentric follow-up study from India reported an overall infection rate of 4.5% among PPIUCD insertions [26]. Welkovic *et al*. compared infection rates among women with postplacental IUD and women without IUD and found no difference [27]. Some studies have found no incidence of infection after PPIUCD insertion [24, 28, 29].

In our study 11.61% of women had symptoms of irregular bleeding per vaginum at 6 week follow- up visit. They mainly complained of menorrhagia and were treated adequately with Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and haematinics. Shukla *et al*. indicated a higher incidence of menorrhagia (27.2%) with use of Cu T - 200 in postpartum women [24]. Gupta *et al*. observed bleeding in 4.3% PPIUCD cases using CuT-380-A [29]. Other studies have reported that PPIUCD have to removed in 6% to 8% of cases because of pain and bleeding per vaginum [23, 28]. Difference in types of IUCD could possibly explain the different rates of bleeding problems.

Rate of spontaneous IUCD explusion in our study is 12.12%. Çelen *et al*. reported 1-year cumulative expulsion rates of 12.6% and 17.6% in two different studies of PPIUCD insertions [28, 30]. In a recent study by Kittur and Kabadi, using similar technique and timing (within 10 minutes of placental delivery) of PPIUCD (CuT-380 A), as in our study, and also by trained providers resulted in lower rate expulsions (5.23%) as compared to present study [23]. Higher explusion rate in our study is because in our study 83.6% of PPIUCD insertions were done in vaginal deliveries. The expulsions were significantly higher in post placental IUCD insertions after vaginal deliveries as compared to intracesarean insertions. This difference was also observed in a recent systematic review of PPIUCD insertions [31]. Gupta *et al*. also reported lower expulsions after intracesarean insertions [29]. Letti Müller *et al*. studied expulsion rate of immediate postplacental CuT-380 A insertion by transvaginal sonography and found statistically significant higher expulsions in vaginal insertions than caesarean insertions[32]. In another study by Hooda *et al* there was significantly higher rate of spontaneous explusion of PPIUCD in women who had IUCD inserted after vaginal delivery (9.1%) than intracesarean IUCD insertion (2.1%) [33].

Timing of IUCD insertion is an important determinant of expulsions. UN-POPIN report stated that 6-month cumulative expulsion rate was 9% for immediate postplacental insertions (within 10 minutes) compared with 37% for insertions between 24 and 48 hours after delivery [34].

PPIUCD discontinuation rate in our study is 8.08%. PPIUCD continuation rate in our study is 80.18% even if we combine the IUCD discontinuation cases with explusion cases, we have a very good commendable IUCD continuation rate. In the absence of PPIUCD insertions, these women would have left the hospital premises without effective postpartum contraception. Similar rates of removal of PPIUCD have been reported in recent studies, ranging 3–8% [23, 26, 28, 30].

Undescended IUCD strings at follow-up in our study were 26.76%. The practice of leaving the full length of IUCD string in uterine cavity during caesarean section and not passing it through the cervix, unlike study by Çelen *et al*., may have had a role in the significant difference in the incidence of undescended strings. Confirmation of IUCD in uterine cavity by ultrasound and counseling the women are important to reassure the women and encourage them to continue with the device.

Conclusion

Acceptance of PPIUCD as method of contraception is low, though PPIUCD is an effective, safe, rapidly reversible and convenient contraceptive intervention. PPIUCD should be encouraged considering the advantages that come along, although there is a relatively higher incidence of expulsions. There should be proper training of the staff including paramedical staff this will further promote PPIUCD use and aid in the reduction of explusion rate. Government needs to develop strategies to increase the public awareness of PPIUCD through different media sources. Awareness among people and proper counselling of the family is required.

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