Early Post-Operative Outcome of Post Placental Intrauterine Contraceptive Device during Caesarean Section: A Prospective Analytical Study

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Abstract

Background: Institutional delivery has been increased all over the country, thereby providing opportunities for quality post-partum family planning services. Intrauterine Immediate post-placental IUCD insertion at the time of Caesarean Section (CS) has been recommended by WHO but is not still well accepted. The aim of this study was to determine the early postoperative outcome of post-placental intrauterine device insertion at the time of CS and reasons for refusal to accept it.

Materials and methods: This was a hospital based prospective analytical study, carried out in the Department of Obstetrics and Gynecology of Chittagong Medical College Hospital (CMCH) Chattogram, Bangladesh for one year. Study comprises of 150 women who accepted post placental insertion of a CuT 380A PPIUD (Post-Placental Intrauterine Contraceptive Device) during CS and another 150 women who did not accept the insertion of the PPIUD during CS. The incidence of excessive bleeding, severe abdominal pain, wound infection and endometritis were compared between two groups.

Results: There was no significant difference in the post-operative complication rates between both the groups. Severe pain was complained by 36.7% case and 34.7% cases respectively of study and control group on 1st POD (p=0.607). Puerperal bleeding was also similar in both groups. The rates for post-operative wound infection being 6% and 7.3% in the study and control groups respectively (p=0.643) and there was no case of genital tract infection in the entire patients.

Conclusion: PPIUD insertion during CS did not significantly increase postoperative pain, hospital stay, the volume or duration of bleeding, or frequency of infection.

Key words: Intrauterine contraceptive device; Intra caesarean; Intrauterine device; Post placental.

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Introduction

PPIUD is one of the long-acting reversible contraception available for women. The effectiveness of the CuT380A has been shown to be comparable to tubal sterilization over the long term with added benefit of regaining fertility immediately after removal.[1] However, delaying initiation of an effective contraception until the post-partum visit puts some women at risk for rapid, repeat and unintended pregnancies. More than 50% of non-breast-feeding women ovulate by 6 weeks post-partum and more than 50% of women are sexually active by 6 weeks post-partum. Many of them are unable to return for post-partum visit due to social and financial barrier. For these reasons, insertion of PPIUD at the time of CS is a good option. It protects them from unintended and early pregnancy after CS and its subsequent complications such as septic abortion and ruptured uterus.[2-7]

The International Federation of Gynecology and Obstetrics (FIGO) PPIUD initiative had been started in Sri Lanka in July 2013 as a pilot project. Following successful implementation, the initiative expanded in 2015 to a further 12 hospitals in Sri Lanka and five additional countries: Tanzania, Kenya, Nepal, Bangladesh and India. Findings from these 48 hospitals of these six countries, the investigators concluded that PPIUD has low complication rates and can be safely inserted by a variety of trained health staff.[8] The aim of the current study is to report the early post-operative outcome of CS with PPIUD insertion at authors' institute, compare them with patients of CS without PPIUD and find out the reasons for refusal of PPIUD in a tertiary level government hospital in Bangladesh.

Materials and methods

This was a prospective analytical study performed in the Department of Obstetrics & Gyneacology, CMCH, Chattogram from March 2018 to February 2019. All the patients who underwent CS prior to onset of labour at authors institute during study period were assessed for eligibility in the study. All the eligible women were counselled about the insertion of PPIUD by explaining the benefits and side effect of PPIUD. Participation in the study was on a volunteer basis, both for the women who accepted the PPIUD and for those who did not accept. Those who agreed for the procedure were allocated to the study group (Group A) and those who refused were allocated to the control group (Group B). Sample size was 150 in each group. Patients who were between 18 and 40 years of age with one or two alive issues having Hb% ≥8 gm/dl were included in the study. Those who refused to give consent, women with chorio-amnionitis, rupture membrane >18 hours, known uterine abnormalities (Bicornuate/septate uterus, uterine myomas), history of Antepartum haemorrhage or unresolved postpartum haemorrhage or post-partum atony requiring use of additional oxytocic agents; and patients with concomitant systemic diseases, twin pregnancy, polyhydramnios, intrauterine foetal death were excluded from the study.

PPIUD insertion technique

CuT-380A insertion was done in women in the study group immediately after the removal of placenta during CS. After exteriorization of uterus, PPIUD was placed manually high up at the fundus. CuT was held between the index and middle finger and inserted through the uterine incision. It was placed at fundus followed by slow withdrawal of hand taking care not to dislodge the PPIUD. String was pointed towards the cervix but not pushed to the cervical canal to avoid contamination of uterine cavity by vaginal flora and to prevent displacement of PPIUD. Precautions were taken to avoid strings to be included during uterine closure. Women in both the groups were followed up daily in the post-operative period till 7th POD or discharge (Which was longer) and the number and frequency of complications were recorded.

Clinical details were collected as per a pre-designed structured case record form. Data were collected with regards to e, age, socioeconomic status, literacy, residence, religion, obstetrics history, reasons for refusal and post-operative complications. Data analyses were performed SPSS (Statistical Package for Social Science) version-23. Continuous data such as participant's age, gestational age, persistence of lochia rubra and length of hospital stay were reported as the means ± SD and were compared using Student's t-test. Qualitative or categorical data (place of residence, education, occupation, religion, indication of CS, surgical site infection, genitourinary infection) were described as frequencies and proportions and were compared using Chi-square or Fisher's exact test. Between groups across time analysis of pain severity were analysed by repeated measures Analysis of Variance (ANOVA). Statistical significance was defined as $p < 0.05$ and confidence interval was set at 95% level. The study was reviewed and approved by the Ethical committee of Chittagong Medical College.

Results

There was no significant difference between groups with regards to sociodemographic characteristics. Mean age in Group A was 27.1±3.8 years and in Group B 27.5±4.1, p=0.50. Majority of the patients in both groups had low education level. Only 8 patients in Group A and 9 patients in Group B passed higher secondary certificate examination, p=0.68. Majority were from rural areas (67.3% in Group A and 60% in Group B, p=0.39). Most were Muslims (81.3% in Group A and 72% in Group B, p=0.16).

Acceptance of PPIUD was significantly higher among women without H/O of previous contraception (p 0.032) and among the women without any comorbid conditions from their counterpart (P 0.025). Antenatal care has no association with the acceptance and refusal of PPIUD (p 0.546) (Table 1). The duration since last child birth was associated with acceptance of PPIUD and it was statistically highly significant. About 52.1 % of the PPIUD accepter had their last childbirth less than 3 years in comparison to 26.2% in non-acceptor. Difference between the acceptance of PPIUD with the H/O CS was highly significant than others indications of CS (Table I).

Table I Analysis of obstetric characteristics between two groups

Variables	Accepted PPIUD (n=150)	Denied PPIUD (n=150)	p value
H/O previous contraception			
No	9 (6.0%)	2 (1.3%)	0.032*
Yes	141 (94.0%)	148 (98.7%)	
Type of method among users			
PPIUD	4 (2.8%)	2 (1.4%)	0.376*
Non-PPIUD	137 (97.2%)	146 (98.6%)	
Pattern of ANC			
No	3 (2.0%)	2 (1.3%)	
Irregular	17 (11.3%)	23 (15.3%)	0.549*
Regular	130 (86.7%)	125 (83.3%)	
Co-morbid condition			
No	134 (89.3%)	120 (80.0%)	0.025*
Yes	16 (10.7%)	30 (20.0%)	
Parity			
1	100 (66.7%)	92 (61.3%)	0.336*
2	50 (33.3%)	58 (38.7%)	
Age of last child			
≤3	74 (52.1%)	39 (26.2%)	<0.001*
≥4	68 (47.9%)	116 (73.8%)	
Gestational age			
Mean ±SD	38.4±1.6	38.7±1.2	0.051#
Future pregnancy desire			
Yes	124 (82.7%)	130 (86.7%)	
Not sure	15 (10.0%)	12 (8.0%)	0.538*
No	11 (7.3%)	8 (5.3%)	
Indication of CS			
H/O CS	106 (70.7%)	72 (48.0%)	<0.001*
Others[a]	44 (29.3%)	78 (52.0%)	

*p values were derived from either Chi-square test or Fisher's exact test as appropriate.

Postoperative pain was reduced significantly over time in both groups (p <0.001). Both the groups had similar improvement across the time (p 0.728) (Figure 1). Most of the patients in both groups had mild to moderate degree of pain. Pain during the postoperative period was described as severe in 6.0% and 4.7% of women in the study and control group respectively and it was statistically insignificant (p 0.607).

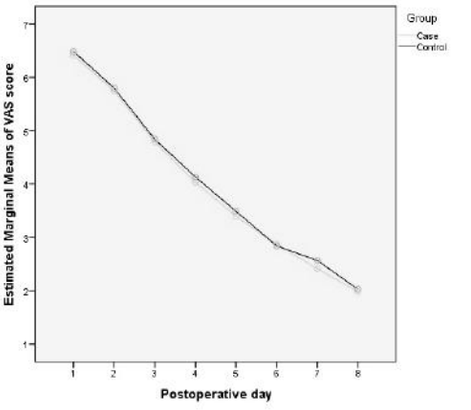

Figure 1 Comparison of postoperative pain between two groups at different day up to 7th POD

Persistent of lochia rubra ranged from 3 to 5 days in bath groups and was not statistically different between groups (Mean 4.58±0.97 days in group A and 4.29±0.78 days in Group B, P=0.9. Wound infection developed in 6.0% cases who accepted PPIUD and 7.3% of cases who denied PPIUD (p=0.64). Hospital stays ranged from 7 to 16 days in both groups (Mean 7.31±1.43 days in Group A and 7.55±1.98 days in Group B, p=0.31). Majority of the women declined PPIUD because of fear of pain and heavy bleeding (81 patients, 54%) (Figure 2).

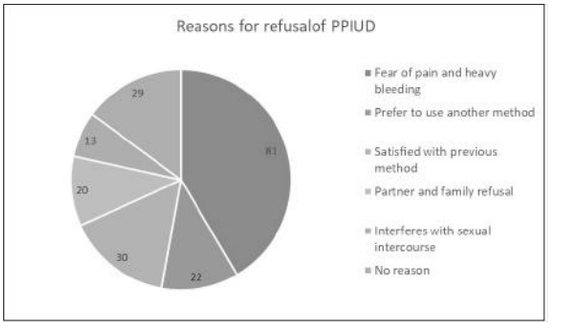

Figure 2 Reasons for refusal of PPIUD (n=150, multiple responses)

Discussion

The results of this study indicate that post-placental insertion of CuT-380A did not increase the amount of bleeding, neither did it increase the risk of infection up to the 7th post-partum day. In the present study, most of the patients in both groups had mild to moderate degree of pain.

Severe pain was complained by few patients (6.0% in study group and 4.7% in control group), all during the 1st POD only. Study conducted in other parts of the world also reported similar types of pain pattern.[9,10] In the study of Alvarez and his colleague pain during the postpartum period was described as light for 91.0% and moderate for 9.0% in the PPIUD group and as light for 93.2% and moderate for 6.8% in the control group. Nidhi et al. reported that, postoperative pain was described as mild in 88% and 91% of women in the PPIUD accepter and denied group respectively and as moderate in 12% and 9% of women in the PPIUD accepter and denied group respectively. No woman in both the groups complained of severe pain in their study.[10]

There was no incidence of excessive bleeding in women with and without PPIUD insertion in the present study. The entire study population irrespective of the Groups had mild bleeding following CS till 7th POD. Different other studies also noticed that, vaginal bleeding did not appear to be increased after PPIUD insertion. Welkovic et al. assessed infection at 10 days postpartum and found no difference in clinical signs of endometritis between IUD acceptors and non-acceptors (Five IUD acceptors and seven comparison women presented with clinical signs of infection, p 5 0.65) or in leukocyte ratio with a left shift (15.1% and 16.1% respectively in IUD acceptors and non-acceptors group, p 0.991).[11] Alvarez and Borbolla noticed 4 (5.1%) cases of endometritis in the IUD group and 3 (4.1%) cases in the control group.[9] In the present study, there was very little and non-statistically signi cant difference between the groups regarding abdominal wound infection with an overall infection rate of 6.7% (Figure 3). This finding was in agreement to the findings of Nidhi et al. where post-operative infection being 5% and 7% in the study and control groups respectively and Bhutta et al. where wound was infected in 10% women in PPIUD inserted group and 2% in PPIUD non-inserted group.[10,12] In a study by Divya et al. postoperative febrile morbidity was the most common complications following PPIUD insertion at the time of CS (2% in both groups).[13] However, the investigators confirmed that, those febrile episodes were not related to infection. Similarly, in the present study few febrile episodes ere also noticed that were most likely due to breast engorgement or mastitis. Similar to the study of Bhutta et al. where hospital stay of PPIUD group was 3.48 days as compared to 3.46 in non-PPIUD inserted group there was no significant differences in length of hospital stay between two groups in the present study.[12]

A signi cant number of women (54%) refused to take PPIUD because of fear of complications, preference to another method, satisfied with the previous methods (Table VI). In a study done in Egypt, among the 71.1% women who refused the PPIUD, planning another pregnancy in the near future (34.3%) was the most common reason followed by preference of interval PPIUD (30.2%) and lactational amenorrhea (9.3%). Complications from previous use of PPIUD (9.7%) or absence of husbands (3.4%) were some other reasons.[14] Mishra stated that, major reasons behind low acceptance in primiparous women were mainly social and psychological fear and taboos.[15]

Limitation

This study results should be interpreted considering some limitation of the study. It was conducted in a single centre, it was non-randomized and might be subjected to selection bias and the follow up period was short. Nonetheless, in this study no differences were found in the rates of infection, postoperative pain, hospital stay and volume or duration of bleeding. These evidences suggest that, IUD insertion during CS is a convenient procedure. Immediate PPIUD appears to be a neglected technology in many countries. The lack of providers' acceptance of post-placental IUD insertion may be partially related to the belief of a higher risk of excessive bleeding or infection. Results of this study may help to provide additional assurance that this concern appears unfounded.

Conclusion

Women who accepted and got inserted PPIUD during caesarean section had minimal complications and the complications that did occur were the same as those associated with caesarean section without PPIUD insertion.

Recommendation

Intra-caesarean PPIUD insertion can be a practical, convenient and acceptable contraceptive method and with adequate selection of patients it could be a secure and helpful method for the fertility control for women with high risk of reproduction.

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Contribution of authors
SA: Concept, data collection, manuscript writing and final approval.
KN: Design, critical analysis, manuscript writing and final approval.
ZR: Interpretation of data, critical analysis, and final approval.
TFR: Data collection, data analysis, manuscript writing and final approval.
HMH: Data analysis, critical analysis and final approval.
MI: Data analysis, critical revision and final approval.

Disclosure
All the authors declare no competing interest.

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