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Intracaesarean IUCD: Acceptability, Safety & Efficacy

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Abstract: *Introduction:* The present study was done to determine acceptability of intracaesarean PPIUCD and to observe any adverse events and expulsion rates in puerperium. *Materials & Methods:* A descriptive cohort study was conducted with 400 women undergoing caesarean section. Routine hematological, urine investigation and USG were done. The IUCD was introduced through the lower segment uterine incision during caesarean section and placed at the uterine fund us. The participants were asked to return for follow up at 3rd Post-op day, 2^{nd}& 6^{th} week or earlier in case of any adverse event like pelvic pain, foul smelling vaginal discharge or excessive bleeding. *Results:* 400 patients were counseled for intracaesarean PPIUCD out of which 100 patients accepted. Majority of the patients (58%) who accepted intracaesarean PPIUCD were in the age group of ≤20-25 years (p>0.05). A significant association was observed between acceptance of IUCD with education, employment and parity. Ease of insertion was observed in 96%of the patients. The most common complications in patients (n-90) after 6 weeks was bleeding (21.1%) followed by strings not visible (15.5%), expulsion (11.1%) and pelvic infection (1.2%). Out of 90 females, 73 (81.1%) patients were fully satisfied after 6 weeks. It was observed none of the patients with Intracaesarean IUCD conceived in 1 year follow up. *Conclusion:* Intra-operative placement of IUCD is safe and effective method of contraception with low expulsion rate and high continuation rate.

Keywords: Acceptability, Efficacy, Expulsion, Intracaesarean IUCD, Safety

Introduction

Contraception methods by definition mean to prevent unwanted pregnancy by temporary or permanently [1]. India is second largest populated country in the world accounting for 17.5% of world's population by adding around 25 million births every year, 65% of women in the first year postpartum have an unmet need for family planning [2-3].

Most women do not desire a pregnancy immediately after a delivery but are unclear about contraceptive usage in postpartum period. This results in unplanned and undesired pregnancies, which in turn increases induced abortion rates and consequently maternal morbidity and mortality. In a recent study of postpartum unintended pregnancies 86% resulted from nonuse of contraception and 88% ended in induced abortions [4]. Continuation of these pregnancies is also associated with greater maternal complications and adverse perinatal outcomes. In India, 65% women in the first year postpartum have an unmet need for family planning [3]. Hence, providing contraception in this sensitive period is important. In India, as in many other countries, postpartum family planning is usually initiated after 6 weeks postpartum. Early resumption of sexual activity coupled with early and unpredictable ovulation leads to many unwanted pregnancies in the first year postpartum. Moreover, in developing countries particularly, women who once go back home after delivery do not return for even a routine postpartum check-up, leave aside contraception. This is may be due to lack of education and awareness, social pressure, and nonaccess to facilities nearby.

Thus, immediate postpartum family planning services need to be emphasized wherein the woman leaves the hospital with an effective contraception in place. Increase in hospital deliveries provides an excellent opportunity to sensitize women and provide effective contraception along with delivery services. An intrauterine contraceptive device (IUCD) has several advantages for use in postpartum period as it is an effective, long term reversible contraception, is coitus independent,

and does not interfere with breast feeding. Short interconception period after caesarean section puts a woman at increased risk of morbidity, mortality and surgical interventions [5]. Immediate post placental intracaesarean intrauterine contraceptive device (IUCD) insertion could fulfill a long standing need for a reversible and effective, long term contraception, which does not interfere with breast feeding [3, 6]. In India, Copper T 380A is being supplied free of cost by the government, to all health centres and private practitioners. This device is a proven highly effective and reversible spacing method of interval contraception, with effective protection for 10 years [3]. However, the device has not attained much popularity due to the myths and misconceptions amongst the general public and health care personnel. Besides, due to the fear of perforation and infection, and also, lack of proper training, most health care providers are reluctant in performing interval IUCD insertion in women with previous caesarean delivery [7].

The efficacy of intracaesarean IUCD insertion without any added risk of infectious morbidity has also been reported by various studies [8-10]. This technique offers the obstetrician an opportunity to insert the IUCD into the uterus under vision, thus obviating the fear of perforating the uterus during the procedure. However, despite the reported safety and efficacy, obstetricians are still hesitant to implement the advantages of Copper T 380A IUCD to women undergoing operative delivery [8]. Initiating IUCD use during caesarean has the added advantage of eliminating a six week postpartum waiting period and an additional hospital visit.

Many women also find the Intrauterine Contraceptive Devices (IUCD) to be very convenient; because it requires little attention once it is inserted [11]. Provision of IUCD in the immediate postpartum period (PP) offers an effective and safe method for spacing and limiting births. A good counseling cannot be overlooked in this regard. Many of these women welcome the opportunity to delay their next pregnancy when are counseled well. Opportunity for a success is excellent, because delivery provides a convenient opportunity for the woman to receive IUCD services. This is particularly important for women who have limited access to medical care. A new mother is likely to be motivated to consider long- acting methods [11-12]. Despite the many advantages of the IUCD as a method of family planning, it generally suffers from unpopularity in India. The age old myths are the biggest hindrance in choosing this as a contraceptive method. The Ministry of Health and Family Welfare, Govt. of India introduced PPIUCD service in 19 states of India in 2010, in collaboration with Jhpiego, India [13]. PPIUCD has been recognized as a promising tool in answering the unmet need for contraception in the country by the health authorities and strong steps has been taken to strengthen it. Hence the present study was done to determine acceptability of intra-operative placement of IUCD among women undergoing caesarean section and to observe any adverse events and expulsion rates (rates of heavy bleeding, sepsis, expulsion) of intra-operative placement of IUCD in puerperium.

Material and Methods

A descriptive cohort study was conducted in the Department of Obstetrics & Gynecology at Al-Ameen Medical College and Hospital with 400 women undergoing caesarean section. All patients admitted at our hospital for caesarean section, who meets the inclusion criteria were included in our study. Following are the exclusion criteria for study:

1. Fever during labour or delivery.
2. Known to have ruptured membrane for more than 24 hours prior to delivery.
3. Known allergy to copper.
4. History of pelvic inflammatory disease, or complication of IUCD use.
5. HIV/AIDS stage 4 diseases.
6. Women with pelvic cancers (endometrial, cervical or ovarian cancer).
7. Women known to have pelvic TB.
8. Women with anatomic abnormalities of the uterus or the cervix which interferes with insertion, retention of removal of the IUCD.
9. Women with fibroids distorting the uterine cavity.

Routine hematological, urine investigation and USG was done for all cases. The IUCD was introduced through the lower uterine

segment incision during caesarean section and placed at the uterine fundus. This was done manually or using a regular ring forceps. The participants were asked to return for scheduled follow up visits at 3rd Post-op day, 2ndweek & 6thweek or earlier in case of any adverse event like pelvic pain, foul smelling vaginal discharge or excessive bleeding. At each visit, a detailed history regarding excessive bleeding, symptoms of infection, abdominal cramps or any other complaint was taken, along with general physical and pelvic examination. If vaginal discharge was present, a wet smear was performed; ultrasonography was done at first visit to ascertain the location of IUCD and at subsequent visits if the IUCD thread was not visible.

Statistical Analysis: Quantitative data was presented with the help of Mean and Standard deviation. Comparison among the study group was done with the help of unpaired 't' test as per results of normalcy test. Qualitative data was presented with the help of frequency and percentage table. Association among the study groups is assessed with the help of Fisher's test or Chi square test. 'p' value less than 0.05 was taken as significant. SPSS version 20 was used for statistical analysis.

Results

Total 400 patients were counseled for IUCD out of which 100 patients accepted insertion of intracaesarean PPIUCD. Majority of the patients (58%) who accepted intracaesarean PPIUCD were in the age group of ≤20-25 years. There was no significant difference between the groups (p>0.05) (Table 1). A total of 16% patients who accepted intracaesarean PPIUCD were educated upto primary level, 18% patients were graduates and 13% patients had no education. A total of 41.7% patients who declined intracaesarean PPIUCD were educated upto primary level while 3% of the patients were graduates and 6.3% patients had no education. It was observed that education was a significant parameter in selection of placement of IUCD (p<0.05).

Majority of patients in both the groups were from middle class (70% and 75% respectively) followed by upper class (18% and 13.3% respectively) and lower class (12% and 13.3% respectively; p>0.05). We also observed that employment and parity as a significant parameter in selection of placement of IUCD (p<0.05) (Table 2).

Table-1: Distribution of patients according to Age

Age (yrs)	Accepted		Declined		Chi-Square	p Value
	N	%	N	%		
≤20-25	58	58%	180	60%	0.154	>0.05
26-30	28	28%	80	26.7%		
31-35	12	12%	35	11.6%		
≥35	2	2%	5	1.7%		
Total	**100**	**100%**	**300**	**100%**		

Table-2: Distribution of patients according to Parity

Parity	Accepted		Declined		Chi-Square	p Value
	N	%	N	%		
Primigravida	36	36%	210	70%	36.617	<0.05
Multigravida	64	64%	90	30%		
Total	**100**	**100%**	**300**	**100%**		

It was observed that there was ease of insertion in majority of the patients (96%). A total of 52% patients selected placement of IUCD as it was long term while 25% patients accepted it as it was safe (Table 3).

Table-3: Reasons for Acceptance by patients		
Reasons for Acceptance	**N**	**%**
Long term	52	52%
Safe	25	25%
Fewer clinic visit	10	10%
No action required	8	8%
Reversible	5	5%
Total	**100**	**100%**

A total of 63.3% patients refused placement of IUCD due to family refusal while 16.7% patients refused it as they preferred another method (Table 4). A total of 10 cases were lost on follow up. The most common complications in patients (n-90) after 6 weeks was bleeding (21.1%) followed by strings not visible (15.5%), expulsion (11.1%) and pelvic infection (1.2%). There were no complications in 46 (51.1%) patients (Table 5).

Table-4: Reasons for Refusal by patients		
Reasons for Refusal	**N**	**%**
Family refusal	190	63.3%
Prefer to use another method	50	16.7%
Fear of pain	32	10.7%
Fear of complications	20	6.7%
Don't want contraception immediately	8	2.6%
Total	300	100%

Table-5: Complications in patients after 6 weeks (n-90)*		
Complications	**N**	**%**
None	46	51.1%
Bleeding	19	21.1%
Strings not visible	14	15.5%
Expulsion	10	11.1%
Pelvic Infection	1	1.2%
* 10 patients were lost on follow up		

A total of 7 patients removed IUCD for the following reasons: family pressure (3 cases), bleeding (2 cases), pain in abdomen and menstrual disturbances (1 case each). Out of 90 females, 73 (81.1%) patients were fully satisfied after 6 weeks while 17 (18.9%) patients were not satisfied including 7 patients that removed IUCD. None of the patients with Intracaesarean IUCD conceived in 1 year follow up.

Discussion

PPIUCD are the only post-partum family planning method for couples requesting a highly effective, reversible, yet long term contraceptive method that can be initiated during immediate post-partum period in lactating women. WHO medical eligibility criteria state that it is generally safe for postpartum lactating women to use PPIUCD with the advantages overweighing disadvantages. We can reduce the unmet need of family planning with this contraceptive. PPIUCD is more convenient for health care providers and for acceptors- using opportunity of child birth when both the mother and provider are at hospital.

Another family planning visit and hospitalization is not necessary which is advantageous for socio-economically weaker section of women, who depend on Government hospitals for health care. Fewer instruments and staff are necessary for PPIUCD than for interval IUCD. Govt. of India promotes institutional deliveries and it provides increased opportunity for immediate post-partum insertion of CuT. Advantages of immediate post-partum insertion are high motivation, assurance that she is not pregnant and convenience. Period of counseling and counseling provider is a main factor in acceptance of PPIUCD. Counseling should be mainly provided by medical faculty, resident, intern followed by nurse and counselors.

In our study, majority of the patients (58%) who accepted intracaesarean PPIUCD were in the age group of ≤20-25 years followed by 28% in the age group of 26-30 years. We observed no significant association between age and rate of acceptance ($p>0.05$). VilvapriyaS et al. [14] in a prospective observational study also found most (n=176, 58.6%) of the PPIUCD acceptors were in the age group of 20-24 years, followed by 25-29 years age group (n=80,26.6%), who are the active reproductive age women. Sudha CP et al. [15] in a prospective study found mean age of the patients who choose PPIUCD as a method of contraception was 24.22 years.

In the present study, it was observed that education was a significant parameter in

selection of placement of IUCD ($p<0.05$). YadavM et al. [16] in their study found that acceptance was more in those who completed their primary and secondary school level education. Kanhere A et al. [17] and Mishra S et al. [11] found high acceptance among women who completed their primary and secondary school education. Goswamy G et al. [18] also found more acceptors who had completed secondary school education (49%) followed by primary school (23%), compared to illiterates (13%). Vidyarama R et al. [19] found more literacy will lead to acceptance (15.7%) compared to illiteracy (5.3%). All these studies and our study reiterate that educational status has definitely high influence in acceptance of PPIUCD.

In the present study, it was observed that increased parity led to a significant acceptance of placement of IUCD ($p<0.05$). In a study done by Vilvapriya S et al. [14], most of the willing patients were multigravida (n=199, 66.4%), who were the ideal candidates for this non hormonal reversible spacing method of contraception. Sudha CP et al. [15] found that majority of the patients who accepted IUCD placement were multigravida i.e. 63.3%. Goswamy G et al. [18] found that women with second gravida were high acceptors (48%). Similarly ShuklaM et al. [9] found that multiparous women had high acceptance i.e. 68.33% compared to primiparous at 31.66%.Mishra S et al. [11] and Maluchuru S et al. [20] found women who had at least one delivery, preferred temporary methods.

It was observed in our study that there was ease of insertion in majority of the patients (96%) while difficulty was faced in only 4 (4%) patients.JanwadkarA et al. [21] found 94.3% women had PPIUCD insertion without any difficulty and 79.54%did not experience any pain. Most preferred method of insertion was intra-cesarean. Sudha CP et al. [15] found the ease of insertion of PPIUCD wherein difficulty was encountered in only 2 patients which is 3.3% cases. The most common complications in patients after 6 weeks was bleeding (21.1%) followed by strings not visible (15.5%) for which USG was done to confirm and IUCD was found intact in all cases, expulsion (11.1%) and pelvic infection (1.2%). There were no complications in 46 (51.1%) patients. A total of 10% cases were lost to follow up. Vilvapriya S et al. [14] observed missing string was noted in 12.4% (n=37) of which 7.7% (n=23) were found to be inside the uterine cavity confirmed by ultrasound. Spontaneous expulsion rate was 4.7% (n=14). Most of the expulsion (n=13, 4.3%) were observed within the first year of insertion.Sudha CP et al. [15] found at 6 weeks follow up, 14 patients (23.3%) had missing strings on speculum examination, hence underwent a pelvic ultrasound scan. IUCD was found in-situ in all the patients. At 6 months' follow-up, expulsion was reported by 2 (3.3%) patients. Remaining 58 (96.7%) of the patients were comfortable with IUCD and did not have any complications.

IUCD strings were missing in 4 cases and all of them had intracaesarean insertion. About 20% of patients experienced complications like bleeding, infection, spotting, pain abdomen and expulsion at 6 weeks follow up. Bleeding and pain were the most significant complications experienced by patients. Bleeding was reported by 6.7% cases which settled after treatment with NSAIDS. KitturS et al. [22] reported 6.19% bleeding. YadavM et al. [16] found out of 312 accepted women 56 were lost to follow up after 6 weeks. Sixteen were reported complications. Main reported complications were bleeding (8.20%), pain abdomen (5.85%). Expulsion rate was 3.12%.

In our study, the expulsion rate in 4 patients was $\leq$7 days while it was 7 days-2 weeks and >2-4 weeks in 3 and 1 patient respectively. The expulsion rate was >4 weeks in 2 patients. Anjum A et al. [23], Gautam R et al. [24] and Kittur S et al. [22] found spontaneous expulsion rate at 30 months was 4.7% and 13 out of 14 expulsion were in first year of insertion. In a study done by VilvapriyaS et al. [14] expulsion rate was 4.3% whereas in the study done by Fritz M et al. [25] expulsion rate was 5% at the end of first year of insertion. Yadav M et al. [16] found the expulsion rate at 4-6 wks interval were 8 (3.12%). KanhereA et al. [17] observed 28% patients were lost in follow up, 8% had pain abdomen and 6% found menstrual irregularities. Mishra S et al. [11] found expulsion rate 6.4% at 6 weeks. 23.05%

participants were lost in follow up. Goswamy G et al. [18] found expulsion rate was 10% and 30% lost in follow up.

The reason for removal of IUCD in 7 patients after 6 weeks were: family pressure (3.3%), bleeding (2.2%), pain in abdomen (1.1%) and menstrual disturbances (1.1%). Janwadkar A et al. [21] observed pain, abnormal bleeding and bleeding were principal factors for discontinuation. Family pressure or husband's opposition was another main reason which contributed for removal. Two women (11.11%) demanded removal saying that husband has opposed, even though they did not have any complication or any other complaints. Celen S et al. [26] found 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. Vidyarama R et al. [19] observed high follow up (93%) and minimal percentage expelled and went for removal due to complications like pain and discharge. Maluchuru S et al. [20] found reasons for removal were bleeding (27.27%), menstrual disturbances (18.18%), pressure from family (27.27%) other problems (18.18%) and pain (9%).

In present study, 73 (81.1%) patients were fully satisfied after 6 weeks while 17 (18.9%) patients were not satisfied including 7 patients that removed IUCD. In the study of Janwadkar A et al. [21] 90.9% women had no complaints while few experienced pain and bleeding. On providing medical assistance 75.3% women desired to continue whereas rest demand removal. About 73.9% women desired to use PPIUCD again in future as a contraceptive method. Sudha CP et al. [15] found that out of 60 cases followed up after 6 months, 53 patients were happy with PPIUCD as a method of contraception and continuation rate was 88.3%. Continuation rate in the present study is 81.1% similar to the studies by Celen S et al. [26] and KitturS et al. [22].

In present study, a total of 52% patients selected placement of IUCD as it was long term while 25% patients accepted it as it was safe. Kanhere A et al. [17] found 28% accepted because people it is long acting, 20% accepted because IUCD needs few follow up visits, 17% because it is reversible, 10% accepted by stating that safe & non hormonal and 11% accepted because attention needed to check. In a study done by Maluchuru S et al. [20] the reasons for accepting IUCD by patients were long acting (55.28%) and 20.73% thought it is safe. In a study done by Yadav M et al. [16] majority of the patients (56.73%) accepted due to its long term effect, 19.55% patients accepted due its safety and 10.89% accepted it due to fewer clinic visits. Different views were found in different studies but majority of the studies stated that people accepted IUCD because it is long acting and safe.

It was observed that all patients with Intracaesarean IUCD in our study had not conceived in 1 year. VilvapriyaS et al. [14] found 84.3% of acceptors continued IUCD and 15.7% discontinued because of various reasons. Excessive bleeding pattern was observed in 8.7% patients and heavy bleeding in only in 1.7% patients. Majority of the studies including current study observed pain and discharge were the main problems for removal of IUCD.

Conclusion

Intra-operative placement of IUCD is safe and effective method of contraception with low expulsion rate and high continuation rate. Women who underwent intra-operative placement of IUCD showed high level of satisfaction with their choice of contraception. It is not associated with increased risk of infection, perforation, post-partum bleeding, sub involution, excessive menstrual bleeding and pain. Also the rates of expulsion are low enough so that the benefits of contraceptive protection outweigh the potential inconvenience of needing to return for care for that subset of women.

We can find a bright future of IUCD as effective choice in postpartum family planning by making it available at all health facilities with active participation of private health care facilities. This will ignite a chain reaction such that all women who accept it shall motivate other neighboring women to use IUCD without any second thought. Hence it can be highly recommended as an effective method of postpartum contraception in developing countries.

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