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Research Article

Comparative study of interval versus postpartum Cu-T insertion in a central referral hospital of North East India

Pesona Grace Lucksom*, Bikram Kishore Kanungo, Nikhil Sebastian, Rashi Mehrotra, Dipika Pradhan, Rekha Upadhya

Department of Obstetrics & Gynaecology, Sikkim Manipal Institute of Medical sciences, Tadong, Sikkim, India

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***Correspondence:**
Dr. Pesona Grace Lucksom,
E-mail: pesonadoc@gmail.com

ABSTRACT

Background: Aim of current study was to compare interval and postpartum Cu-T (380A) insertion in terms of safety and immediate outcome.
Methods: This was a retrospective cohort study where retrospective analysis of prospectively collected data in the department of OBG, SMIMS, Gangtok, from April 2011 to April 2012 were taken for evaluation. 164 women who were inserted Cu-T after delivery and in the interval period were studied. 80 were inserted Cu-T at post-partum period (36 after vaginal delivery and 44 intra caesarean) while 84 were inserted at interval period. Follow up was done at 6 weeks and 3 months. Outcome was measured by tail visibility at 6 weeks and 3 months, spontaneous expulsion rate, removal rate and perception of insertion using visual analog scale (0-5).
Results: Tail visibility at 6 weeks and 3 months was less in post-partum than that of interval insertion. Spontaneous expulsion rate was nil in post-partum while 5/84 (5.95%) in interval insertion. Perception of insertion for doctor and client was easiest in intra Caesarean (0) while difficult in interval (4). Removal rate was 1/80(1 %) in post-partum and 9/84 (10.7%) in interval.
Conclusions: Study suggested that post-partum insertion is more effective than interval Cu-T insertion with low expulsion rate and complications compared to interval insertion.

Keywords: Cu-T, Removal, Acceptance, Advantages, Counselling

INTRODUCTION

Family planning if practiced can prevent nearly one-third of maternal deaths and 10% of child mortality especially if spacing of pregnancies are more than two years.[1] Cu-T is one of the most effective forms of birth control and is a type of long-acting reversible contraception used worldwide.[2] 2005-2006 National Family Health Survey (NFHS)[3] in India reported that 61% of births were spaced less than three years. It also stated that 22% of married women had an unmet need for family planning and 65% of women in the first year postpartum had an unmet need for family planning.[4] India is a country where population control and maternal mortality has been of great concern thus the use of IUD (intra uterine device) is of benefit for prevention of unwanted pregnancies. Cu-T 380A and the Cu-T 280S has been recommended as the first choice for copper IUDs according to a review done in 2008, because those two models have the lowest failure rates and the longest lifespans.[5] Medical Eligibility Criteria for an IUCD insertion post-partum according to the World Health Organization is within 48 hours after delivery, or after four weeks following a birth[6] which is called Post-Partum IUCD insertion (PPIUCD) and interval insertion respectively.

The benefits of providing highly effective contraception immediately after delivery particularly in country like ours where women have limited access to medical care outweighs its disadvantages. Insertion of an IUD after delivery has several advantages such as 1) any bleeding from insertion will be disguised by lochia 2) since majority of women are in lactational amenorrhea, stress and doubt of her being pregnant is relieved and she can enjoy her new motherhood without the fear of conception 3) motivation for post-partum contraception may be high and the setting may be convenient for both the woman and health personnel inserting the device. 4) Postpartum Cu-T insertion especially after caesarean is a good alternative to tubal ligation in conditions where the wellbeing of the baby cannot be confirmed or in repeat caesareans where the baby is distressed and there is difficulty in deciding about tubal ligation.

However, immediate post-partum IUD insertion may have its disadvantages such as the risk of spontaneous expulsion which may be unacceptably high according to many studies. With improvements in insertion technique expulsion rates have been reported lesser more recently.[7,8] Thus the objective of our study was to compare two different timings of IUD (Cu-T 380A) insertions i.e., postpartum within 48 hours and interval, any time after 6 weeks of delivery in terms of safety and their immediate outcome.

METHODS

This is a retroprospective analysis of prospectively collected data in department of obstetrics and gynaecology, central referral hospital, Sikkim Manipal Institute of Medical Sciences (SMIMS), Gangtok, Sikkim, India. This study was conducted for a period of one year from April 2011 to April 2012. Before conducting the study Obstetricians inserting Cu-T had training on post-partum IUD insertion conducted by the department of health care, human services & FW, Sikkim, in collaboration with the family planning division government of India. All women undergoing Caesarean section/vaginal delivery and those wanting contraception in the interval period were counselled about Cu-T insertion. 200 women consented but 36 women were lost for follow up (16 in postpartum group and 10 in interval group), hence, 164 women were selected for the study. 80 women had consented for Cu-T insertion at post-partum period (36 after vaginal delivery and 44 intra caesarean) while 84 were inserted Cu-T at interval period (>6 weeks after delivery). Kelley's forceps/placental forceps were used for insertion in women after vaginal delivery and "no touch" technique was practiced for interval insertion. Follow up was done at 6wks and 3 months.

Inclusion criteria

All women 18 years or older with no contraindications for Cu-T insertion. For post-partum insertion: Period within 48hrs of vaginal delivery and women undergoing caesarean section. For interval: Any time after 6 weeks following delivery.

Exclusion criteria

Known congenital or acquired uterine anomaly including fibroids that distort the uterine cavity, current or recent pelvic infection, undiagnosed genital tract bleeding, suspected pregnancy, risk for PPH and PROM for >18 hours were excluded from the study.

RESULTS

The comparison between post-partum and interval insertion of Cu-T was done using the following indicators:

Tail visibility at 6 weeks and 3 months
Spontaneous expulsion rates
Removal rate

Perception of insertion using visual analogue scale (VAS) from 0-5 where 0 is easiest and 5 is most difficult

Tail visibility (Table 1)

Women were called for follow up at 6 weeks and 3 months following Cu-T 380A insertion. Tail visibility at 6 weeks showed that in post-partum group 18 out of 36 (50%) who were inserted after vaginal delivery had tail viability at 6 weeks while only 4 out of 44 (10%) in intracaesarean group had tail visibility. Total post-partum showed 27.5% tail visibility at 6 weeks. With interval IUD insertion 2 had spontaneous expulsion, therefore, in the interval group 82 out of 84 (97.6%) had tail visibility at 6 weeks. 3 women had their Cu-T removed at 6 weeks. In cases where tail was not visible, USG (ultrasonography) was done to confirm its position. In all post-partum women with missing thread, Cu-T was seen inside the uterine cavity.

All women except those with spontaneous expulsions and who had their IUD removed were called for follow up at 3 months. At 3 months 14 more women in post-partum vaginal insertion group showed tail visibility while in intracaesarean group 12 more women showed tail visibility. Hence, at 3 months total tail visibility was 89% (32/36) in the vaginal sub group and 41% (18/44) in the intracaesarean sub group.

Within 3 months 3 more women in interval insertion who had tail visibility at 6 weeks complained of spontaneous expulsion hence 79/84 (94.04%) women had tail visible by 3 months. Women who wanted their Cu-T removed due to various causes were included in tail visible group. Therefore by 3 months cumulatively 62.5% of women in post-partum group showed tail visibility while in interval group 94.04 % had tail visibility (Table 1).

Table 1: Tail visibility.

Results	Tail visibility at 6 weeks		Total tail visibility at 3 months	
	No. (n)	(%)	No. (n)	(%)
Post placental (Vaginal)	18 (36)	50%	32 (36)	89%
Intra-caesarean	4 (44)	10%	18 (44)	41%
Total PPIUCD	22 (80)	27.5%	50 (80)	62.5 %
Interval	82 (84)	97.6%	79 (84)	94.04%

Spontaneous expulsion rate (Table 2)

There were no expulsions in postpartum period but 5/84 women (5.95%) in interval insertion group had spontaneous expulsion by 3 months period.

Table 2: Spontaneous expulsion rate.

Timing	No. of patients (n)	%
Post-partum	0	0%
Interval	5 (84)	5.95%

Removal rate (Table 3)

By three months women removed Cu-T due to various reasons: In post-partum - Only 1/80 woman (1.25%) removed her Cu-T due to bleeding not controlled by tranexamic acid which indicated good patient satisfaction. In interval insertion - 3 women removed due to bleeding, 2 due to backache and majority i.e., 4 women removed Cu-T due to social myths (Figure 1). Therefore continuation rate in postpartum was better than internal insertion.

Table 3: Removal rate.

Results	No. of cases (n)	Percentage (%)
Post-partum	1 (80)	1.25%
Interval	9 (84)	10.71%

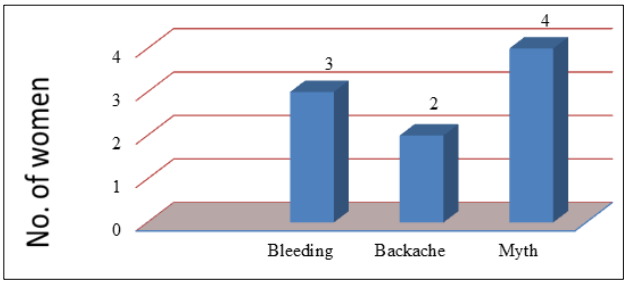

Figure 1: Causes for removal.

Perception of insertion (Table 4)

Insertion was easiest in intra caesarean group followed by post placental vagina delivery and then interval insertion (Table 4). Perception of insertion also indicated that post-partum Cu-T insertion is easier for the doctor and the patient compared to interval insertion.

Table 4: Perception of insertion.

Results	VAS grading of doctor (0-5)	VAS grading of women (0-5)
Post placental (vaginal)	2	1
Intra caesarean	0	0
Interval	1-2	3-4

DISCUSSION

The benefits of providing highly effective contraception immediately after delivery particularly in country like ours where women have limited access to medical care outweighs its disadvantages. Hence we conducted a retrospective analysis of the prospectively collected data for PPIUCD and interval Cu-T insertion to compare their short term results and to evaluate if PPIUCD was an acceptable method as contraception.

Cochrane Database Systemic Review, 2010 assessed the efficacy and feasibility of post-partum IUD insertion.[9] In this review all randomized controlled trials that involved immediate post-partum (within ten minutes of placental expulsion) insertions of an IUD were studied. The review concluded that immediate post-partum insertion of IUDs appeared safe and effective. However, expulsion rates appeared to be higher in post-partum than with interval insertion unlike our study. Similarly a systematic review of Intrauterine device insertion during the postpartum period conducted by Nathalie Kappa et al. concluded that immediate IUD insertion was safe when compared with later postpartum time periods and interval insertion. Immediate postpartum IUD insertion showed lower expulsion rates when compared to delayed postpartum insertion but with higher rates than interval insertion.[10] Immediate insertion following cesarean demonstrated lower expulsion rates than immediate insertion following vaginal delivery. There was an increase in expulsion rates with delayed postpartum insertion when compared to immediate insertion and with immediate insertion when compared to interval insertion. In our study we found no expulsion in postpartum insertion group but 5 women out of 86 (5.95%) in interval insertion had spontaneous expulsion by 3 months (Table 2). Doctors who inserted Cu-T had training on post-partum IUD insertion conducted by the department of health care, human services & FW, Sikkim, in collaboration with the family planning division government of India before the study. Training of doctors to learn the correct method of Cu-T insertion is important especially for post-partum insertion so that expulsion rates can be reduced. A five year study of post-placental intrauterine device insertion in north India was done by Shukla et al. in 2012 to evaluate the safety and efficacy of immediate post-partum IUD insertion in women delivering vaginally or by caesarean

section.[11] Cu-T 200B was inserted immediately after delivery of placenta in vaginal or caesarean delivery. These women were followed up at 6 week and 6 months after delivery. A total of 1317 women were included in the study. Of these, 1037 (78.7%) came for first follow up. The expulsion rate at the end of 6 months was 10.68%. The expulsion rate for immediate post-partum insertion was higher than for interval insertion.

Akkuzu G et al. conducted a study to compare post placental and early postpartum intrauterine device (Cu-T 380A) insertions with post puerperal and interval IUD insertions.[12] This study included 130 women (84 post placental and 46 postpartum) and a control group of 138 women (62 post puerperal and 76 interval) who had IUDs inserted. They were followed-up at 8 weeks, 6 months and 12 months, and the data was analyzed which showed continuation occurred in 38.6% of the study group and in 72.3% of the control group (P <0.001). The highest continuation rate was in interval, post puerperal and post placental groups respectively (P <0.05). The reason for discontinuation was frequently partial expulsion in the study group (52.6%) and displacement in the control group (27.8%). The insertion time of IUD most frequently discontinued was post placental in the study group (55.2%) and interval in the control group (31.3%). The study conducted in our hospital i.e., Sikkim Manipal institute of medical sciences, showed that only one woman in the post-partum arm of the study removed Cu-T due to bleeding not controlled by tranexamic acid while 9 women out of 86 (10.71%) removed the Cu-T within 3 months. 3 women removed due to bleeding, 2 due to backache and majority i.e., 4 women removed their Cu-T due to social myths (Table 3 and Figure 1). Social myths e.g., Cu-T would reach the heart etc. were found to be a big hindrance in the use of Cu-T as was found during this study. Many women refused Cu-T insertion during counseling; also women who had IUD inserted came for removal due to these myths. This study thus helped us understand that educating the community about IUDs is necessary and the false beliefs regarding its use have to be removed. Only then can we be able to reduce maternal mortality related to unsafe abortions because Cu-T is a good contraceptive device and once inserted will give a women contraception for 10 yrs. Celen S et al. in Ankara, Turkey, conducted a study enrolling 235 women to assess the efficacy, safety and thus, advantages and disadvantages of early post placental intrauterine device (IUD) insertion (74% of the cases had vaginal deliveries and 26% had cesarean deliveries).[13] Follow up was done at 6 weeks, 6 months and 12 months. Continuation rates were relatively high, 87.6% and 76.3%, at 6 and 12 months, respectively, after post placental insertion of IUD. In this study, the 1-year cumulative expulsion rate with Cu-T 380A device was 12.3%. Perception of insertion using Visual Analogue Scale (VAS) from 0-5 where 0 is easiest and 5 is most difficult was also evaluated in our study which showed that insertion of post-partum Cu-T is easier than interval group. Intra caesarean group is easiest for the doctor (VAS 0) and painless for the woman as she is under anesthesia (VAS 0). Post vaginal insertion is difficult for the practitioner but less painful for the woman compared to interval insertion (Table 4). The evidence from this study suggested that immediate post placental insertion of Cu-T 380 is an effective, useful, safe, convenient and low-cost procedure for early postpartum contraception.

Tail visibility is also of concern with Cu-T as it acts as an indicator of its intrauterine position and also its presence makes removal easier. Tail visibility is a problem in post-partum insertion because the uterine cavity is enlarged and the tail is inside the cavity during placement unlike interval insertion. Nelson et al.[14] at Los Angeles biomedical research institute at Harbor-UCLA medical center, conducted a pilot project to test the feasibility of a technique designed to place a copper intrauterine device (IUD) through the hysterotomy incision of an elective cesarean delivery to guarantee that tail strings were visible in the vagina for easy removal should complications occur. The sutures tied to the IUD strings were visible on vaginal examination in each case. The original tail strings were visible in the vagina at 6 weeks and each IUD was fundally positioned. In the study we conducted in Sikkim Manipal referral hospital we found that 50% of women in post placental vaginal group had tail visibility by 6 weeks and 89% by 3 months while in intra caesarean group only 10% had visible tail at 6 weeks however by 3 months 41% of these women showed tail visibility (Table 1). In interval insertion all women except those with spontaneous expulsion showed tail visibility.

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