



## CU-T 380A AS A INTRAUTERINE DEVICE – ITS ACCEPTABILITY, SAFETY AND EFFICACY DEPENDING ON THE TIMINGS OF INSERTIONS

**Dr Annappa Shetty**

Associate professor, Department of OBG, Karwar Institute of Medical Sciences, Karwar, Karnataka

### ABSTRACT

**Background:** Intrauterine copper T device is used either to space the births or to limit the family size, so as to check the fertility effectively and safely. This study aims to compare the various IUCD related clinical factors to its acceptability, safety and efficacy in immediate postpartum vaginal insertion, intracaesarean insertion, delayed postpartum vaginal insertion and interval insertion at OBG department of Karwar Institute of Medical Sciences, Karwar - a tertiary care hospital.

**Methods:** It was a retrospective analysis of data for a period of one and half year i.e from 01-02-2016 to 31-7-2017. The data collected during this period was analyzed with respect to maternal age, parity, socio-economic status, education and occupation. It was compared between post partum group and interval group. Data about spontaneous expulsion rate of IUCD, not able to feel the thread, reason for removal of IUCD and failure rate upto a period of 6 months was collected in these mothers and compared with respect to immediate postpartum insertion, delayed postpartum vaginal insertion, intra caesarean insertion and interval insertion.

**Results:** Majority of women in this study were literate belongs to the age group of 21 - 36 years, low /middle socio-economic status, multiparous and unemployed in both postpartum and interval groups. Spontaneous expulsion rates were 1.96, 1.26, 3.95 and 1.58, proportion of patients not able to feel the thread were 2.95, 9.24, 6.97 and 2.52% and removal rates were 7.81, 7.98, 8.72 and 4.76 in immediate vaginal insertion, intracaesarean insertion, delayed postpartum insertion and interval insertion groups respectively.

**Conclusion:** Copper-T IUCD were more acceptable way of interval method among well educated, literate, young multiparous women. It was found that immediate post partum period was the safest time for IUCD insertion with maximum continuation rate and less failure. Hence mothers should be adequately counselled for IUCD insertion in the immediate postpartum period.

**KEYWORDS :** Intra Uterine Contraconceptive Device - IUCD.Copper-T 380A -- Cu-T 380A

### INTRODUCTION:

The population of India is growing fast and it has crossed 121 crores (1). There were many reasons for this population explosion, needless to say, high unmet need for contraception is an important barrier to check the population growth. Survey conducted by National Family Health Service (NFHS-4), the total unmet need for contraception is 12.9% and unmet need for spacing is 5.7% (2). Hence good contraceptive coverage in the reproductive age group population not only bring the population under control but also pave a path to better health care in India by bringing down the burden on health care infrastructure.

Usually after delivery the contraceptive care of the mother is easily overlooked and this results in unintended pregnancy, thereby increasing the maternal morbidity and mortality. Besides a breast feeding mother does not use any contraceptive measures after birth of a baby, she will always have more anxiety of unintended pregnancy that may affect the bringing up of the baby. Hence a good contraception not only help in spacing the births but also check the fertility throughout the reproductive period.

Intrauterine contraceptive device (IUCD) is a useful method of contraception immediately after delivery, as it does not affect the breast feeding. Copper-T 380A (Cu-T380A) is supplied by the Indian Govt free of cost and last for 10 years. In Indian scenario, a cost effective, long acting, reversible contraceptive with less side effects for the large population is the need of the country. This study was conducted at Karwar Institute of Medical Sciences Hospital, a tertiary care hospital to address the above issues. The aim of this study is to compare various clinical IUCD related factors so as to assess its acceptability, safety and efficacy in immediate postpartum vaginal insertion, intracaesarean insertion, delayed postpartum vaginal insertion and interval insertion.

### MATERIAL AND METHODS:

The study was a retrospective study and the data was collected from the Department of Obstetrics and Gynecology, Karwar Institute of Medical Sciences Karwar, Karnataka.

The data was collected from medical records for one and half year (1-2-2016 to 31-7-2017) and was related to women who had Cu-T 380A insertion. All the women who underwent copper-T 380A insertion during this period were included in this study. The study group divided into two different individual group i.e postpartum group (less than 6 weeks of delivery) and interval group (more than 6 weeks after delivery). The postpartum group again subdivided into 2 groups

1. Immediate postpartum group (within 10 minutes of expulsion of placenta)
2. Delayed postpartum (between 10 minutes to 48 hours of delivery).

### Cu T 380 A insertion and follow up.

Each patient is counselled for Cu-T insertion and asked to choose either postpartum (immediate or delayed) or interval insertion. The doctor

Serial number	Individual variable	Post partum category Number- 986	Interval category Number- 126
1.	Maternal age		
	<25	132 (13.4%)	18 (14.29%)
	25 – 35	813 (82.5%)	32 (25.39%)
	>35	41 (4.10%)	58(60.32%)
2.	Socio-economic status of mother		
	Upper	143(14.52%)	21 (16.4%)
	Middle/ Low	843 (85.48%)	105(83.6%)
3.	Parity		
	Primigravida	479 (48.6%)	28 (22.4%)
	Multigravida	507 (51.4%)	98 (77.6%)
4.	Occupation of women		
	Employed	166 (16.8%)	27 (21.5%)
	Unemployed	820 (83.2%)	99 (78.5%)
5.	Maternal Education		
	Literate	867 (87.93%)	106(84.12%)
	Illiterate	119 (12.07%)	20 (15.88%)

who handled these cases were well trained and a standard protocol was maintained. These study group underwent follow up at 6 weeks, 12 weeks and then at 6 months. During each visit the patient is questioned about any complaints and asked whether they can feel the Cu-T thread or not. If not able to feel the thread then Cu-T thread position is confirmed by clinical examination or by ultra sound examination. If after following clinical examination or ultrasound examination the Cu-T was found in position the case was grouped under inability to feel the thread. When no copper-T was found inside uterine cavity, it was grouped under, a case of spontaneous expulsion. In addition the reasons for copper-T removal were also noted, like irregular vaginal bleeding, chronic pelvic pain, PID, patients willing to use other contraceptive measures or to undergo permanent methods of contraception. If the pregnancy occurs with in situ, was considered as Cu-T failure.

**Review of Medical Records:**

In this study the data were collected from all mothers, who underwent Cu-T insertion regarding age, parity, socio-economic status, education, occupation. We also collected data about spontaneous expulsion of Cooper-T, not feeling thread, removal of Cu-T and failure of Cu-T due to pregnancy. The socio-economic status was categorised according to the modified Kuppuswamy's scale. A total 1134 patients underwent IUCD insertion. In the present study 576 women had immediate vaginal insertion and 238 women had intra caesarean Cu-T insertion, 178 women had delayed post partum insertion and 128 women had interval IUCD insertion. Out of 1134 patients 22 patients were lost follow up at the end of 6 months. They include 6 patients in immediate vaginal insertion groups, 9 patients in intra caesarean insertion groups, 5 patients in delayed postpartum insertion and 2 patients in interval insertion groups. Finally the data were analyzed under individual category and results were expressed as number of patients with respect to demographic and clinical factors.

**RESULTS:**

In this study group, total 1112 mothers were involved, out of which 845 women belonged to the age group of 25-35. Within this age group 813 mothers had post partum insertion and 32 had interval insertion. Above the age of 35 years majority women opted for interval insertion (60.32%).

Majority of women in the postpartum as well as interval group belongs to middle/ lower socio-economic group and were literate (87.93% versus 84.12%). With respect to parity, majority had parity more than one at the time of Copper-T insertion. In this study majority of patients were unemployed (table-1).

The Copper-T 380A expulsion, during this study varies in different groups. In the post partum group a total of 18 patients had spontaneous expulsion (1.82%) and in the interval group 2 had expulsion of IUCD (1.58%). Maximum rate of expulsion is seen in delayed postpartum group (3.95% -Table2). After a period of 6 months of IUCD introduction, 51 (5.12%) patients in the post partum group were not able to feel the thread of Cu-T, while it was in normal position compared to 2 patients in interval groups (2.52%). It has been seen that the complaints of missing thread was most common in the intra caesarean group (9.24%) and least common in interval group (2.52%) [Table-3]

At the end of present study nearly 85 patients underwent removal of Cu-T 380A for various reasons (7.64%). It has been seen that cumulative removal rate was more in post partum group compared to interval group (8.01 versus 4.76%). Under subgroup analysis, delayed postpartum group had highest incidence of IUCD removal (8.72%) and interval group had least incidence of IUCD removal (4.76%) [table-4].

The reasons for removal of IUCD include chronic pelvic pain, irregular vaginal bleeding, pelvic infection and willing to undergo permanent contraception. It has been found that chronic pelvic pain was the main cause for removal of IUCD in postpartum group (3.85%). Under post partum group, delayed postpartum IUCD category has maximum incidence of chronic pelvic pain as a cause for removal of IUCD.

The study also indicates that irregular bleeding p/v was major cause for removal of Cu-T380A under interval group (2.38% versus 1.62%). A total 9 patients in this study group motivated for permanent contraception. At the end of this study period, the IUCD continuation rate was highest for interval group compared to post partum group (95.23% versus 91.98%) and no pregnancy occurred with IUCD during this study period [table -5]

**TABLE - 1 Clinical And Demographic Profile Of Individual Study Group**

1.	Maternal age <25 25 – 35 >35	132 (13.4%) 813 (82.5%) 41 (4.10%)	18 (14.29%) 32 (25.39%) 58(60.32%)
2.	Socio-economic status of mother Upper Middle/ Low	143(14.52%) 843 (85.48%)	21 (16.4%) 105(83.6%)
3.	Parity Primigravida Multigravida	479 (48.6%) 507 (51.4%)	28 (22.4%) 98 (77.6%)
4.	Occupation of women Employed Unemployed	166 (16.8%) 820 (83.2%)	27 (21.5%) 99 (78.5%)
5.	Maternal Education Literate Illiterate	867 (87.93%) 119 (12.07%)	106(84.12%) 20 (15.88%)

**TABLE - 2 Showing The Spontaneous Expulsion Of Cu-t Iucd Among Individual Group.**

Serial number	Individual Group	Total number of patients	Total no. of patients with IUCD expulsion	Total % of IUCD expulsion
1.	Post partum group • Immediate vaginal insertion • Intra caesarean insertion • Delayed post partum insertion	986 576 238 172	18 11 3 4	1.82% 1.96% 1.26% 3.95%
2.	Interval Insertion group	126	2	1.58%

**TABLE – 3 Showing The Number Of Patients Not Able To Feel The IUCD Thread Among Individual Group After A Period Of Six Months.**

Serial number	Individual group	Total number of patients	No. of patients not able to feel the Cu-T thread	% of patients not able to feel the thread
1.	Post partum group • Immediate vaginal insertion • Intra caesarean insertion • Delayed post partum insertion	986 576 238 172	51 17 22 12	5.2% 2.95% 9.24% 6.97%
2.	Interval insertion	126	2	2.52%

**TABLE – 4 Showing The Number Of Patients Who Undergone Removal Of Cu-t Among Individual Category**

Serial number	Groups	Total number of patients	Number of patients who underwent removal of Cu-T	% of patients who underwent Cu-T removal
1.	Postpartum group • Immediate vaginal insertion • Intra caesarean insertion • Delayed postpartum insertion	986 576 238 172	79 45 19 15	8.01% 7.81% 7.98% 8.72%
2.	Interval insertion	126	6	4.76%

**TABLE – 5 Showing The Reasons For Removal Of IUCD Among Various Groups**

Serial Number	Groups	Number of patients with IUCD removal	Number of patients with chronic pelvic pain	Number of patients with pelvic infection	Number of patients with irregular P/V bleeding	Number of patient willing for permanent contraception
1.	Post partum • immediate vaginal insertion	79(0.01) 45(7.81)	38(3.85) 24(4.11)	10(1.01) 7(1.21)	16(1.62) 9(1.56)	8(0.81) 5(0.86)

	• intra-caesarean insertion	19(7.98)	14(5.85)	2(0.84)	2(0.84)	1(0.42)
	• delayed postpartum insertion	15(8.72)	8 (4.65)	3 (1.74)	2(1.16)	2 (1.16)
2.	Interval insertion	6 (4.76%)	1 (0.79%)	1 (0.79%)	3 (2.38%)	1 (0.79%)

## DISCUSSION :

Safe and effective contraception to prevent unwanted pregnancy is the present day need for the women in the reproductive age group. The success of IUCD result depends on various clinical settings, that includes maternal education, socio-economic status, regular check up, timing of insertion, health education and motivation. Therefore this study was conducted at the OBG department of Karwar Institute of Medical Sciences, Karwar to look for efficacy and safety of Cu-T 380A, depending on the timing of insertion and this result was assessed with respect to maternal demographic and clinical profile, inability to feel the Cu-T thread, expulsion rate, and various reasons for removal of IUCD in women of nearby area. The population of India stands out 121 crore (census 2011) and to halt this alarming rise of population is of immediate concern for the health policy makers.

Intrauterine contraceptive devices are being used by an estimated 100 million women. Nearly 13% of women use an IUCD, more in the developing country compared to developed country (2).

In this study maximum number of women belongs to the age group of 25 to 35 years, both in the postpartum and interval group. This study results was comparable to the results of Singh et al i.e 20 to 35 years (3). This shows that the acceptance of IUCD as a contraceptive method was more in the younger age group.

In this study, majority of women were literate i.e 86.7% in post partum group and 84.12% in the interval group. The increased literacy rate helps to counsel the patients for IUCD advantages and for regular follow up. Archana et al reported higher literacy rate for maximum acceptance of IUCD insertion (4).

The majority of the women in the study group belongs to middle / low socio-economic group (nearly 85%). Developing country like India with maximum number of mothers belonging to middle or low socio-economic category, Cu-T 380A, definitely had an advantage since it is freely available at the doorstep and effective for 10 years. In our study multigravida patients were motivated well for IUCD insertion compared to primigravida. Hence the best time for motivation of primigravida for IUCD insertion starts from antenatal period and it should be continued in the intranatal and postnatal period. Kumar S et al reported higher acceptance rate for IUCD for primigravida compared to multigravida (5).

The major concern for the IUCD provider is the expulsion of intrauterine Cu-T device. The Cochrane database systemic review shows higher expulsion rate of IUCD in post partum group than the interval group (2). In our study also, we found higher IUCD expulsion in postpartum group compared to interval group (1.82% versus 1.58%). In the individual post partum category, delayed postpartum insertion had maximum expulsion rate (3.95%). Study by Sebastian N et al showed no case of spontaneous expulsion in post partum group (6).

We also found that immediate postpartum insertion has lower expulsion rate (1.96%) and least in intra-caesarean group (1.26%). This study suggests that immediate post partum period is the best opportunity to the healthcare provider for counseling the mother and introduce Cu-T 380A IUCD.

Feeling of Cu-T thread or visibility of the thread is an important part of IUCD follow up. In our study postpartum women showed highest percentage of patients not able to feel the Cu-T thread and interval group showed least percentage (5.2 versus 2.52%). The findings were similar to other study at various places (3,6). Thus the patients should be adequately counseled regarding the appreciation of Cu-T thread and mere problem of missing the thread should not discourage the patients for accepting the postpartum IUCD.

In the present study, Cu-T removal was done for various reasons. The postpartum group showed higher rate of IUCD removal compared to interval group (8.01% v/s 4.76%). This result is comparable with the result of other studies (7 and 8)

The important reasons for removal of Cu-T include chronic pelvic pain, irregular bleeding p/v, pelvic infection and change over to other contraception. In the postpartum group chronic pelvic pain was the

important cause for removal of IUCD and in the interval group irregular bleeding p/v was the important reason for the removal of IUCD. This finding was similar to other studies (9, 10). The present study shows pelvic infection was least in intra-caesarean group (0.79%). This finding was supported by other similar studies (11, 12, 13)

The IUCD continuation rate was maximum with interval group compared to post partum group. Even though it was a retrospective study, it provides us many vital information i.e regarding the timing of insertion, importance of counselling the mothers, health education and follow up.

## CONCLUSION :

This study concludes that Cu-T 380A is an important, temporary, effective and reversible contraceptive method for literate, young women in this part of Karnataka. The continuation rate of IUCD was more than 90% and if the post partum women counseled adequately for IUCD advantage we can achieve higher continuation rate.

As this IUCD was found to be safe and effective in both the post partum and interval period, the health worker should counsel the mother and remove her anxiety and provide timely IUCD insertion will go a long way, in preventing unwanted pregnancy and thus stabilize the population of our country.

## REFERENCES

1. Population census 2011 – India at glance
2. Lopez, L, M Grimes, D. A et al – immediate post partum insertion of intrauterine devices. Cochrane database. System. Rev 2010;5: CD003036
3. Singh U, Sonkar S, Dayal M et al : comparative study of post partum IUCD versus interval IUCD at a tertiary care centre in Allahabad. India. Int. J. Obstetrics Gynaecology 2017; 6(4); 1534-8
4. Archana S, Kant S, Singh A K et al : Acceptance rate, probability of follow up and expulsion of post partum copper T device offered at two primary health centers. North India. J. Family. Med. Pri. care 2016; 5(4): 770-6
5. Kumar S, Sethi R, Balasubramaniam et al : women experience with post partum intrauterine contraceptive device in India. Reproductive health 2014; 11:32
6. Sebastian N, Lucksom P G, Pradhan D et al : comparative study of interval versus post partum Cu-T insertion in a central referral hospital of North East India Int. J. Reprod. Contracept. Obstetrics Gynecology 2015; 4(1):47-51
7. Jain N, Akbar N : a study compare the efficacy, safety and outcome of immediate post partum intrauterine contraception device (PPIUCD) with that of delayed insertion. Int. J. Sci. 2015; 4(2); 1388-91
8. Ramappa R, Mohan H, Akash B K : PPIUCD versus interval IUCD (380A) insertion ; a comparative study in a referred hospital of Karnataka. India J. Reprod. Contracept. Obstetrics Gynecology 2015; 4(6); 1730-2
9. Srinivas S, Bano I, Israt N : evaluation of PPIUCD versus interval IUCD insertion Int. J. Sci. Reprod. 2016; 5(7); 1780-2
10. Bharathi R, Singal S, Dewan R et al: clinical outcome of postnatal Cu-T380 A insertion in women delivering by caesarean section. J. Clin. Diagnosis Res 2014; 8(9); oco1-4
11. Parikh V, Ghandhi AS : Safety of Cu-T as contraceptive after caesarean section J. Indian Medical Association 1989; 87; 113-5
12. Shukle M, Quereshi S, Chandravathi : post placental intrauterine device insertion a five year experience at tertiary care center in North India. Indian. J. Med. Res 2012; 136 :432-5
13. Celen S, Moroy P, Socak A et al : clinical outcomes of early post placental insertion of intrauterine contraceptive devices. Contraception 2004; 69; 279-82