ORIGINAL ARTICLE:

Postplacental insertion of IUCD Cu T 380A at transcesarean section does not influence bleeding and infection at puerperial period

Menik Utami*, Baksono Winardi
Department Obstetrics dan Gynaecology, Faculty of Medicine, Universitas Airlangga,
Dr. Soetomo Hospital, Surabaya, Indonesia

ABSTRACT

Objective: To determine the difference of the puerperial bleeding and puerperial infection women who had intrauterine contraceptive device (IUCD) T380A insertion at caesarean section compare with women who had caesarean section without IUCD insertion.
Materials and Methods: This study was an observasional analytic prospective cohort. Participants allocated to 2 groups : IUCD inserted during cesarean and cesarean with no device inserted. Subject research monitoring at 10 and 40 day of puerperial period.
Results: Puerperial bleeding of group with IUCD insertion is 99,309±32,845 ml and group without IUCD is 88,010±30,824 ml, with the analysis test got p=0,085 (p>0,05) means no difference between two groups.Level hemoglobin at post cesarean section (day-0), 10 and 40 day, proportion increasing severity of anemia and duration of lochia rubra were analized and got p>0,05, no difference between two groups. Duration of puerperial bleeding period, median group with IUCD 40 days (25-50) and group without IUCD 30 days (26-45), with analized test got p<0,05. Duration of puerperial bleeding were significantly difference. Proportion of clinical sign puerperial infection 3 (6,4%) of group with IUCD and 2 (4,1%) of group without IUCD, with analized test got p=0,614 (p>0,05), no difference between two groups. Level of leucocyte at post cesarean section (day-0), 10 and 40 day, the difference both two groups was not significant (p>0,05). In this research the difference puerperial bleeding and proportion puerperial infection between two groups (women who had IUCD T380A insertion at caesarean section compare with women who had caesarean section without IUCD insertion) was no significant.
Conclusion: Insertion IUCD Cu T 380A postplacental at caesarean section is safety.

Keywords: IUCD postplacental, caesarean delivery, puerperial period, postpartum bleeding, infection

ABSTRAK

Tujuan: Untuk mengetahui perbedaan jumlah darah nifas dan infeksi nifas antara pasien yang diinsersi AKDR Cu T 380A pascaplasenta dengan yang tidak diinsersi pada persalinan seksio sesarea di RSUD Dr Soetomo Surabaya.
Bahan dan Metode: Studi ini merupakan penelitian analitik observasional kohort prospektif. Dibuat 2 kelompok yaitu pasien yang diinsersi AKDR pascaplasenta dan pasien yang tidak diinsersi AKDR pada persalinan seksio sesarea. Subyek penelitian dilakukan pemantauan pada pasca operasi (hari ke-0), 10 dan 40 hari masa nifas.
Hasil: Jumlah darah nifas pada kelompok dengan AKDR adalah 99,309±32,845 ml sedangkan pada kelompok tanpa AKDR 88,010±30,824 ml, dengan hasil uji analisa tidak didapatkan perbedaan bermakna antara kedua kelompok (p>0,05). Perbedaan kadar Hemoglobin pasca operasi (hari ke-0), 10 dan 40 hari pemantauan, proporsi peningkatan derajat severity anemia dan durasi waktu lokhea rubra tidak didapatkan perbedaan bermakna antara kedua kelompok tersebut (p>0,05). Durasi perdarahan nifas pada kelompok AKDR adalah 40 hari (25-50) sedangkan pada kelompok tanpa AKDR adalah 30 hari (26-45), dimana dari hasil uji analisa didapatkan perbedaan bermakna antara kedua kelompok (p<0,05). Tanda klinis infeksi masa nifas didapatkan 3 orang (6,4%) pada kelompok AKDR dan 2 orang (4,1%). Perbedaan kadar Leukosit pasca operasi (hari ke-0), 10 dan 40 hari, tidak didapatkan perbedaan bermakna antara kedua kelompok (p>0,05). Pada penelitian ini tidak didapatkan perbedaan bermakna jumlah darah nifas dan proporsi infeksi nifas antara pasien yang diinsersi AKDR Cu T 380A pascaplasenta dengan yang tidak diinsersi pada persalinan seksio sesarea di RSUD Dr Soetomo.
Simpulan: Insersi AKDR Cu T 380A pascaplasenta transesarean merupakan metode kontrasepsi pasca persalinan yang aman.

Kata kunci: AKDR pascaplasenta; persalinan seksio sesarea; perdarahan; infeksi; masa nifas

***Correspondence:** Menik Utami, Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Airlangga, Dr. Soetomo Hospital, Jalan Prof. dr. Moestopo 6–8, Surabaya 60286, Indonesia. E-mail: dr.menikutami@gmail.com

pISSN:0854-0381 ● eISSN: 2598-1013 ● doi: http://dx.doi.org/10.20473/mog.V26I22018.61-66
● Maj Obs Gin. 2018;26:61-66 ● Received 4 Dec 2017 ● Accepted 8 Ags 2018

INTRODUCTION

Proper pregnancy is wanted and planned. Today, family planning is the government's focus to prevent of population explosion in the future. Fertile couples represent the target of contraception service goals. Fertile couples, whether wishing to postpone pregnancy or wishing not to have child again but not using contraceptive method, reached 9.1% according to SDKI 2007 and, according to Mini Survey in 2009, it increased to become 12.1%. Postpartum women who not immediately used contracepives may contribute to the increase of unmet need.[1] To reduce the growth rate of the population, we require an efective long-term contraceptive method, the implant, IUCD and sterilization.

Association between short birth intervals with higher risk of complications and death of the mothers and their children are well documented in the literature, and justifies the emphasis on post-partum contraception. Among the available contraceptive methods, combined hormonal contraceptives are not recommended in postpartum period due to their inhibiting effect on lactation. Some authorities do not consider progestogen-only methods as the first choice during lactation, because small amounts of steroids are present in the milk and there is no sufficient information regarding the long-term effects on the child.[2]

In postpartum period, mothers encounter some difficulties in reaching family planning clinic once they leave the facility where the delivery was performed because they have to take care of their children. This is true especially in rural areas and in families where the mother does not obtain support from their family. For this reason, it is important to ensure that women have been counseled regarding family planning, including in choosing what method to use, while they are still in the hospital.[3]

WHO recommend post-placental insertion of IUCD for contraception method for postpartum women. Compared with sterilization, however, the use of an IUD is simpler, less expensive, and immediately reversible. Insertion of an IUD after delivery may avoid the discomfort related to interval insertion, and any bleeding from insertion will be disguised by lochia and because of dilatation of cervix in vaginal delivery.[2,3,4]

In spite of these advantages, post-placental insertion of IUD has rarely, even almost never, been performed. One possible explanation for the resistance to insert the IUD immediately post-partum is the fear that the insertion of the IUD might be associated with increased blood loss and greater risk of infection in the immediate post-partum period.[2,5,6,7]

At Dr Soetomo Hospital, Surabaya, Indonesia, from April 1 to August 31, 2013 there were 212 patients who had postplacental IUCD insertion (< 10 minute after placental born) at caesarean delivery. The present study was conducted to assess the safety of post-placental IUD insertion conducted to the patients at Dr Soetomo Hospital, Surabaya, Indonesia. by comparing puerperial bleeding and puerperial infection in caesarean delivery in those using post-placental IUCD and those who did not.

MATERIALS AND METHODS

This was an observasional analytic cohort prospective study, comparing postpartum/puerperial bleeding and puerperial infection of patient conducted trancesarean post placental insertion of IUCD Cu T380A with patients who just had caesarean section without IUCD insertion in Dr. Soetomo Hospital, Surabaya, Indonesia. This study was performed at Dr. Soetomo Hospital Surabaya, from November 2013 to February 2014. Population in this study was women who had caesarean section with and without transcesarean IUCD post-placental insertion. Samples were taken from population with the method of consecutive sampling.

The inclusion criteria were women who had caesarean section in Dr Soetomo Hospital, living in and nearby Surabaya, and agreed to involve in this study. The exclusion criteria were women who had clinical sign of infection before hospitalized, such as fever, increasing leucocyte count, neglected labour etc.; women who had PROM more than 12 hours, meconium stain of amniotic fluid; women who had abnormality of hematology disorder like anemia (not having tranfusion in obstetrics ward), thrombocytopenia, etc.; women who had history of PID before delivery; and women who had complication in caesarean delivery, such as postpartum haemorrhage, decrease of consiousness etc. Drop out criteria were women who did not come for follow up; women who got secondary post partum haemorrhage due to rest placental or subinvolution uterine; women who were included in IUCD group but had expulsion in the first follow up; and women who got complication in wound or got severe infection or septicemia. Minimum size of the subject research was calculated by Pursuant formula, requiring a number of 46 subjects to each group.

All research population obtained prophylactic antibiotics, Cefazolin 2 g intavenously in a few minutes before incision of the caesarean section. In group with trancesarean post placental IUC, the IUCD was placed at uterine fundal through and passed the incision of

lower segment of the uterus at caesarean section, within <10 minutes after the removal of the placenta.[8,9] On the other side, the control group had cesarean section without being followed with postplacental IUCD insertion.

Both groups received uterotonics Oxcytocin 20 IU in condensation 500 cc of Ringer Lactate. Both groups were also instructed to use the same maternity pads provided in the obstetric wards. This was important for the equivalence in numeration of puerperial bleeding for the profile of blood asessment charts. The filling of blood asessment charts was done by the subjects themselves without any intervention from the researchers. If the period of lochia rubra was more than 10 days, the subjects were contacted to evaluate the number of puerperial bleedings after the follow up. Blood examination was checked 4 times before and after operation, and 10 and 40 day in the follow up.

Data of the subjects were collected and subjected to statistical analysis to determine the homogeneity of both groups. Data on puerperial bleeding, duration of lochia rubra, duration of puerperial period, and Hb and leucocyte counts on day 10 and 40 during the follow-up. The statistical analysis was done by t test, and Mann whitney test if data distribution was not normal. Difference of the severity of anaemia and clinical sign of puerperial infection was done alternatively by statistical analysis of Chi Squre test and Fisher's Exact test. We used the software IBM of SPSS Statistics 20 with significance value of $p<0.05$.

RESULTS AND DISCUSSION

As many as 150 women had caesarean section at Dr.Soetomo Hospital, Surabaya, Indonesia, from November 5, 2013 up to January 2, 2014 (Fig 1). According to inclusion and exclusion criteria, we obtained 55 patients of each research group. At follow-up on day 10 after the caesarean section, 6 subjects dropped out from research groups. Thereafter, in IUCD group there were 2 subjects fell into the exclusion criteria because of subinvolution. On day 10 of follow-up, there were 47 subjects in IUCD groups and 49 subjects in control group. After 40 days of follow-up, three subjects dropped out from the control group, leaving 47 subjects in IUCD group and 46 subjects in control group finishing the study protocol. From the whole subjects who followed the study protocol, the clinical data were tabulated and grouped and subjected to homogeneity analysis (Table 1). From statistical analysis it was found that the variable was homogeneous both in IUCD group and control group.

Table 1. Characteristics of the subjects

Characteristics	Mean ± SD		P
	IUCD group	Group without IUCD	
Age (year)	27.81 ± 5.40	31.94 ± 4.88	0.200
BMI (kg/m^2)	29.9 ± 5.98	28.54 ± 5.67	0.200
Birth Weight (g)	2938.71± 712.12	2778.57± 757.44	0.062
Hb pre operative (g/dl)	12.00±1.71	11.89±1.55	0.200
Leucocyte pre operative	13086.77± 4502.50	11756.86± 4423.68	0.200

Table 2. Analysis of puerperial blood loss, Hb post-operatively (day 0), day 10 and day 40 of the follow-up.

Characteristics	Total		Mean±SD /Median (min-max)		*p*
	IUCD Group	Group without IUCD	IUCD Group	Group without IUCD	
Puerperial Blood Loss (ml)	47	49	99.309±32.845	88.010±30.824	0.085
Hb post operatif (day-0) (g/dl)					
• 7-9.9	11 (22.4%)	9 (18.4%)	11.662±1.81	11.507±1.46	0.643
• 10-11.9	15 (30.6%)	20 (40.8%)			
• ≥12	23 (46.9%)	20 (40.8%)			
Hb 10 day follow up (g/dl)					
• 7-9.9	11 (22.9%)	6 (12.2%)	11.2 (8.3-14.6)	11.3 (8.4-14.0)	0.560
• 10-11.9	23 (47.9)	34 (69.45)			
• ≥ 12	14 (29.2%)	9 (18.4%)			
Hb 40 day follow up (g/dl)					
• 7-9.9	7 (14.9%)	1 (2.2%)	11.2 (9.4-13.5)	11.4 (9.8-14.1)	0.579
• 10-11.9	29 (61.7%)	36 (32.2%)			
• ≥ 12	11(23.4%)	9 (23.7%)			

Table 3. Analysis of the anemia severity

Characteristics	Total		*p*
	IUCD Group	Group without IUCD	
Degree of Anemia *severity* (Hb post operatif- 10 day follow up)			
• decrease	10 (21.2%)	12 (24.5%)	0.761
• stable	19 (40.4%)	19 (38.8%)	
• increase	18 (38.4 %)	18 (36.7%)	
Degree of Anemia *severity* (Hb at 10 – 40 day follow up)			
• decrease	6 (12.8%)	10 (21.7%)	0.577
• stable	36 (76.6%)	30 (65.2%)	
• increase	5 (10.6 %)	6 (13.0%)	

Table 4. Analysis of the duration of lochia rubra and puerperial bleeding

Characteristics	Median (Minimum – Maximum)		*p*
	Group IUCD	Group without IUCD	
Duration of lochia rubra (days)	10 (5-12)	10 (4-12)	0.883
Duration of puerperial bleeding (days)	40 (25-50)	30 (26-45)	0.000

Table 5. Analysis of infection post-operatively (day 0), day 10 and day 40

Characteristics	Total		Mean±SD		*p*
	IUCD Group	Group without IUCD	IUCD Group	Group without IUCD	
Fever (10 day follow up)					0.614
• yes	3 (6.4%)	2 (4.1%)			
• no	44 (93.6%)	47 (95.9%)			
Leucocyte post operation (day 0)	49	49	16334.19±4218.58	15150±4358	0.118
Leucocyte 10 day follow up	47	49	9706.81±1922.61	10088.16±2821.78	0.440
Leucocyte 10 day follow up	47	46	8217.02± 1323.585	8326.09±1881.068	0.747

Analysis of puerperial blood loss was observed from some parameters as follows: puerperial bleeding representing the data taken from conversion of blood assesment charts filled by the subjects on day 10 monitoring, post-operative Hb score (day 0), day 10 and day 40 day of the follow-up, different proportion of anaemia severity, and duration of lochia rubra from both groups were not significantly different ($p>0.05$). On 40 day follow-up the duration of puerperial bleeding was significantly different between IUCD group, which was longer, and the group without IUCD ($p<0.05$). Analysis of puerperial infection was observed from some parameters as follows: clinical sign of infection (fever) and leucocyte count post-operatively (day 0), day 10 and day 40 follow-up, on which both groups were not significantly different ($p>0.05$) (Table 5). Postplacental IUCD is one of family planning method to postpartum women to supress the number of missed opportunity when the opportunity to take contraceptives is very high because the women have contact directly with health provider. WHO recommends postplacental IUCD insertion as an effective and efficient method of long-term contraception, especially for women having limited access to health service.[4]

Table 6. Post-operative length of stay in the hospital

Characteristics	Median Minimum - Maximum		*p*
	IUCD Group	Group without IUCD	
Length of stay at hospital after operation (day)	4 (3-7)	4 (3-10)	0.088

The advantage of postplacental IUCD is that it is an effective contraception method (99.2%) for long-term usage, has fast reversibility, decreases the risk in forgotten contraception usage, not bothering sexual intercourse, not affecting breastmilk quality and volume, not having hormonal side effects and not having side effects for women who are consuming drug for medication.[2,12]

Table 1 shows that normality test to the characteristics of the subjects revealed p>0.05, indicating normal distribution. For other characteristics, the amniotic fluid should have been clear, the temperature before the caesarean section should be afebrile and abnormality before and during caesarean section should have been avoided as they would have influenced the study results. Table 2 shows that puerperial blood loss in IUCD group was 99.309±32.845 ml, while in group without IUCD was 88.010±30.824 ml. From the data, the amount of puerperial blood loss in IUCD group was higher compared to that in group without IUCD, then we conducted a test analysis and obtained p=0.085 (p> 0.05). There had been no studies using same method as in this study. Other studies by Pedron et al, Bhuta SZ et al, and Elsedeek, although using different method, however, obtained p>0.05, demonstrating that the amount puerperial blood loss had no significant difference between both groups.[6,7,8] In this study the duration of lochia rubra in IUCD group had median of 10 days (5-12 days), while in group without IUCD the median was also 10 days (4-12 days). The result of Mann Whitney test showed no significant difference in both groups with p=0.883. No other previous studies to compare the duration of lochia rubra.

Table 2 shows that mean post-operative (day-0) Hb count in IUCD group was 11.662±1.81 g/dl, while in group without IUCD it was 11.507±1.46 g/dl. Result of analysis revealed p=0.643 (p>0.05), indicating no significant difference between both groups. Median of Hb count in 10-day follow-up in IUCD group was 11.2 g/dl (8.3-14.6), while in group without IUCD it was 11.3 g/dl (8.4-14.0). Result of analysis revealed p=0.560 (p>0.05), showing no significant difference between both groups. Similar result was found in a study by Welkovic et al who observed women with vaginal delivery receiving postplacental IUCD insertion with p=0.768 (p>0.05).[2] No other different studies on caesarean delivery compared Hb count on 10-day follow-up between IUCD group and the group without IUCD.

Table 3 shows different proportion of the degree of anaemia severity (post-operative Hb in 10-day follow-up), which increases in IUCD group comprising 18 (38,4%) patients, and in group without IUCD in 18 (36,7%) patients. Test analysis in both groups revealed p=0.677 (p>0.05). Another study by Welkovic et al. showed that mean Hb change in IUCD group was 0.08±1.45, while in group without IUCD was 0.06±1,57 g/dl. The analysis test in both groups revealed p=0.856 (p>0.05).[2] There was no significant difference between both groups. Our study used different method from that of Welkovic et al. Our study assessed different degree of anaemia severity, while Welkovic's study used difference of Hb count before operation and on 10-day follow-up. In this study, the proportion of the degree of anaemia severity on 10 and 40 days follow-up showed an increase in IUCD group comprising 5 patients (10.6%) while in group without IUCD 6 patients (13.0%). Analysis test in both groups revealed p=0.577 (p>0.05). There was no difference in the case of anaemia severity degree in both groups.

Table 4, regarding the duration of puerperial bleeding, shows that in IUCD group the median is 40 days (25-50) and in group without IUCD 30 days (26-45). Test analysis revealed p<0.05, indicating significant difference between IUCD group and group without IUCD. Duration of puerperial bleeding was longer in IUCD group compared to the group without IUCD. This finding was similar to a study by Elsedeek and Nidhi et al., in which IUCD group had longer period compared to the group without IUCD.[8,13] Median of Hb count on 40-day follow up in IUCD group was 11.2 g/dl (94-13,5) while in group without IUCD 11.4 g/dl (9.8-14.1). The analysis revealed p=0.579 (p>0.05), showing no difference in Hb count between both groups. However, although the duration of puerperial bleeding in IUCD group was longer compared to that in group without IUCD, but there was no significant difference in Hb count on 40-day follow-up and there was no significant difference in proportion of the degree of anaemia severity. In this study, fever occurred in 3 patients (6.4%) in IUCD group while in group without IUCD there were 2 patients (4.1%). The analysis in both groups revealed p=0.614 (p>0.05). There was no significant difference in both groups.

The limitation of this study was that fever was only determined from history taking, whether a patient was getting fever or not. However, objective monitoring of the subjects during the follow-up showed that axillary temperature was afebrile (T<38ºC). We did not conduct other examinations. The examination to esta-blish the diagnosed puerperial infection was performed by taking samples of the culture of lochia, blood smear, checking transvaginal USG, etc.

Another study in Mexico by Lara et al. found the occurence of endometritis count after caesarean delivery followed by insertion IUCD was 1.1% and in group with caesarean delivery only it was 0.8%, and the

analysis test to both groups showed no significant difference ($p>0.05$).[14] In this study, leukocyte count on 10-day follow-up was 9706.81±1922.61, while in group without IUCD it was 10088.16±2821.78 with p=0.440 ($p>0.05$), indicating no significant difference between both groups. A study by Welkovic et al. on clinical infection at vagi-nal delivery revealed positive clinical sign in IUCD group as much as 3.4% while in group without IUCD it was 4.5, with p=0.65 ($p>0.05$). Monitoring of leucocyte count change in vaginal delivery in IUCD group revealed 15.4% and in group without IUCD it was 16.1%, in which the analysis test in both groups revealed p=0.99 ($p>0.55$). From clinical sign of infection and monitoring of leucocyte change, the infection occurence had no significant differrence between two groups.[2]

From the monitoring on day 40, we found subjects with fever in both groups. From the analysis of leucocyte count on day 40 follow-up (Table 5), mean leucocyte count in IUCD group was 8217±1323,59, while in group without IUCD it was 8326±1881,07, with p=0.747 ($p>0.05$). There was not significant difference in blood leucocyte count among the two groups. The other result of this study was the difference in length of stay at the hospital between patients receiving post-placental IUCD insertion compared to those without IUCD insertion at caesarean delivery. The result of analysis revealed p=0.088, so that the postplacental IUCD insertion did not add the length of hospital stay. This finding was similar to that from a study by Bhuta and Chi, which there was no significant difference in the length of stay at hospital between both groups.[7,15]

CONCLUSION

Puerperial bleeding and puerperial infection are not different between patients receiving postplacental insertion of IUCD Cu T 380A compared to patients not followed with IUCD insertion after caesarean delivery. Trancaesarean postplacental insertion of IUCD Cu T 380A represent a reliable contraception methods for postpartum women at caesarean delivery.

REFERENCES

1. Ekoriano M. Policy brief: Upaya meningkatkan pemakaian alat kontrasepsi (KB) pasca persalinan dan pasca keguguran di rumah sakit. BKKBN; 2010.
2. Welkovic S, Costa LO, Faundes A et al. Postpartum bleeding and infection after post placental IUD insertion. Contraception. 2001;63:155-8.
3. Eroglu K, Akkuzu G, Vural G et al. Comparison of efficacy and complication of IUD insertion in immediate postplasental/early postpartum period with interval periode: 1 year follow up. Contraception. 2006;74:376-81.
4. Grimes DA, Lopez LM, Schulz KF et al. Immediate post-partum insertion of intrauterine devices. Cochrane Database of Systematic Reviews. 2010.
5. Kapp N and Curtis KM. Intrauterine device insertion during the postpartum period: a systematic review. Contraception. 2009;80:327-36
6. Pedron N, Mondragon H, Marcushamer B, Gallegos AJ. The effect of postpartum IUD insertion on Postpartum Bleeding. Contraception. 1987;35:345-51.
7. Bhuta SZ, Butt IJ, Bano K. Insertion of intrauterine contraceptive device at cesarean section. Jcall Physician Surg Park. 2011; 21:527-30
8. Elsedeek MS. Puerperial and menstrual bleeding pattern with different types of contraceptive device fitted during elective cesarean delivery. Int J Gynaecol Obstet. 2012;116:31-4
9. The ACQUIRE Project. The postpartum intrauterine device: A training course for service providers. Participant Handbook. New York: Engender Health; 2008.
10. WHO. Medical Eligibility Criteria for Contraceptive Use Update, 3rd edn. Geneva; 2004.
11. Larsson C, Saltvedt S, Wiklund I et al. Estimation of blood loss after cesarean section and vaginal delivery has low validity with a tendency to exaggeration. Acta Obstetricia et Gynecologica. 2006; 85:1448-52.
12. BKKBN and Kemenkes RI. Pedoman Pelayanan Keluarga Berencana Pasca Persalinan di Fasilitas Kesehatan. 2012.
13. Nidhi M, Neelesh D, Vrunda J, Intrauterine device insertion during cesarean section –a Boon for rural women. IOSR Journal of Dental and Medical Science. 2013;8:21-3.
14. Lara R, Sanchez RA, Aznar R. Application of intrauterine device through the incision of the caesarean section. Ginecol Obstet Mexico. 1989; 57:23-7
15. Chi IC, Zhou SW, Balogh S, Katherine NG. Postcesarean section insertion of intra uterine devices. Am J Public Health. 1984;74:1281-1282.