

Infection and Expulsion Rate of Intrauterine Contraceptive Device after immediate Post Caesarean Versus Interval Insertion

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ABSTRACT

Aim: To compare the frequency of infection and expulsion following insertion of IUCD immediate post caesarean to that of interval insertion in parturient undergoing elective caesarean section

Method: This Randomized controlled trial was conducted from 21 February to 20th August 2010.

Results: It was observed that in immediate post caesarean group(Group A) expulsion rate was 8.1% and infection rate 7.2% where as in interval insertion group(Group B) expulsion rate was 10.9%and infection rate was 9.0%. The difference of expulsion rate was statistically significant in two groups (p value 0.491) i.e expulsion rate was proven to be significantly higher in interval insertion group than immediate trans caesarean insertion group. The difference of infection rate was not statistically significant between two groups (p value 0.623) although infection rate was found to be higher in interval insertion group but not clinically significant difference was found.

Conclusion: Null hypothesis was rejected for expulsion rate of IUCD and a statistically significant increased expulsion rate was found in interval insertion group as compared to immediate post caesarean insertion group. Null hypothesis was accepted for infection rate after IUCD placement in two groups as no statistically significant increased infection rate was found between immediate post caesarean and interval insertion groups

Keywords: Expulsion rate, infection rate,immediate post caesarean insertion,interval insertion.

INTRODUCTION

Pakistan is one of the most populous countries of the world where contraception is still a debatable and controversial issue¹. Contraception is being practiced by only 30percent of the population².The reason behind this nonuse is unawareness, lack of access to family planning services and geographical and cultural limitations. Intrauterine contraceptive device (IUCD) is the second most common method of contraception in Pakistan, like many other countries worldwide, being used widely since 1965. It is the most popular method of reversible contraception due to its low cost and high efficacy especially in developing countries. It is particularly useful for the women who wish to use a method that does not require regular motivation, husband's day to day participation and those women who are not suitable for hormonal method use³. Failure rate of IUCD is slightly more as compared to oral contraceptives. Around 85 million women are IUCD users worldwide. In Pakistan, its acceptability should be high due to its safety, convenience and cost effectiveness, but the problem related its unpopularity is lack of awareness with many queries and concerns associated.

Insertion of IUCD during caesarean section, right after childbirth is very attractive and acceptable for many reasons. As woman is not pregnant and this is the time she might be most willing and motivated for contraception as she has recently gone through all the tough long journey of gravity and child birth⁵. She might be planning for contraception with high motivation and immediately after childbirth, hospitals are the most convenient and suitable place for her to get a reliable method of contraception With availability of skilled personnel and appropriate facilities. In developing countries post placental IUCD insertion is especially more applicable, as childbirth may be the only time for a healthy woman to visit the

hospital and chances of follow up for contraception may be remote.

However there are fears associated with trans caesarean insertion of IUCD, like perforation, expulsion and introduction of infection. As the number of caesarean is rising worldwide the choice of trans caesarean IUCD insertion is increasing for obvious reasons. Trans caesarean insertion is under direct vision so risk of perforation during insertion is very much reduced. As studies show although the risk of expulsion is greater when IUCD is inserted in postpartum period, but this can be significantly reduced by using proper insertion technique and early insertion i.e. post placental(within 10 minutes of delivery of placenta)⁶. There is no increase in infection rates after immediate post placental IUCD insertion shown by international studies. One of very catchy benefit of post placental trans caesarean insertion is convenience of the women for not to wait till puerperium to start contraception which may result in marked reduction in unwanted or unplanned pregnancies⁷.

Although trans caesarean insertion of IUCD is getting popular in Pakistan but experience is still limited which needs to be studied a lot regarding its safety and routine use. Post placental IUCD insertion is very common method of contraception in Mexico, China and Egypt⁸. Studies done international and national platforms show increase in infection and expulsion rates in immediate post placental groups as compared to interval insertion but safety, compliance, patient satisfaction and effectiveness of immediate post placental insertion of IUCD is above any doubt. Studies on displaced IUCDs, uterine perforation and infection, all of which are more relevant to developing countries with poor post insertion follow up, are still lacking⁹. As randomized trials show Increasing caesarean section rates and awareness of contraception in women undergoing abdominal births, insertion of IUCD at the time of caesarean section is a very useful area of research¹⁰.

The objective of this study is to compare the expulsion and infection rates of trans caesarean IUCD insertion with

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routine six wks. post cesarean insertion so that the better method of contraception is safely practiced.

MATERIALS AND METHOD

It was a Randomized control trial, conducted in the obstetrics operating rooms and out-patient department of the Holy Family Hospital Rawalpindi from 21st February, 2013 to 20th August 2013. Sample size was calculated by WHO calculator software version 2.0 for estimating the difference between two population proportions with specified absolute precision. Power of test was 80%, absolute precision required 0.05. Anticipated population proportion (Interval Insertion)⁴. 2%. Anticipated population proportion (Immediate Insertion) 10%. Sample size 110 (in each group) was calculated by Non probability consecutive sampling technique

Inclusion criteria: All adult healthy parturient scheduled for an elective caesarean section and have consented for the IUCD insertion.

Exclusion criteria: Patients with the following diseases and conditions were excluded from the study as these are the high risk diseases which can either be potentially harmful for the patients or can jeopardize the accuracy of the results (to effect modifiers)

1. Emergency caesarean section: a high risk condition with increased risk of complications as compared to Elective Cesarean
2. Known cases of uterine tumor of any kind: as high risk condition where IUCD is contraindicated
3. Patients with acute, chronic or recurrent pelvic inflammatory disease: as IUCD is contraindicated. Secondly results would be jeopardized
4. Patients with congenital uterine anomalies: as increased risk of expulsion.
5. Patients with cardiomyopathies: copper containing IUCD is not considered safe.
6. Patients giving history of dysfunctional uterine bleeding: a contraindication to IUCD

Data collection procedure: After taking ethical approval and informed consent, patients fulfilling inclusion criteria were randomly allocated by lottery method to either Immediate Insertion Group (**Group A**) where the IUCD was inserted within 10mins of placental delivery during a caesarean section, or Interval Insertion Group (**Group B**) where IUCD was inserted six weeks after cesarean section. The insertion of IUCD was done by doctors of Holy Family hospital unit 2. Both the groups were followed for an interval of 6 weeks after insertion of IUCD.

Random allocation was done with sealed envelope technique. Patients were assigned to one of these groups by randomly selecting any envelope from the pool containing written alphabet A or B. Expulsion of IUCD was assessed by view of thread through the Cusco's vaginal speculum and later confirmed by pelvic ultrasound while the symptomatology of infection e.g.; criteria of SIRS, pelvic tenderness was observed on 6 weeks follow up. To avoid observational bias, the expulsion and symptoms of infection were examined by attending gynaecologist and recorded on the designed proforma by researcher. Moreover, the contact numbers of patients were recorded to ensure follow-ups.

Table 1: Groups of The Patients

	Frequency	Percent	Valid Percent	Cumulative Percent
Immediate Insertion	110	50.0	50.0	50.0
Interval Insertion	110	50.0	50.0	100.0
Total	220	100.0	100.0	

Data analysis procedure: The data was analyzed using SPSS version 16.0. Frequency and percentages were calculated for categorical variables (expulsion and infection). Chi square was used to compare the frequency of expulsion and infection in both the groups and a P-value <0.05 was considered significant

RESULTS

In this study a total of 220 patients were included randomly and divided into two equal groups of 110 each via lottery method. In group A (immediate insertion group) Intrauterine contraceptive device was placed at the time of elective cesarean section, patients were followed after 6 weeks of cesarean section and they were assessed for expulsion of contraceptive device and signs and symptoms of pelvic infection. In group B patients (interval insertion group) were sent home after elective cesarean were recalled after 6 weeks for insertion of intrauterine contraceptive device and were followed up after 6 weeks for expulsion of IUCD and sign and symptoms of infection. Two groups were compared for these variables and results were withdrawn after analysis. The results for each variable which came after data analysis are presented below.

Expulsion Rate: In this study out of 220 patients, with 110 in each group, total expulsions of intrauterine contraceptive devices within 6 weeks follow-up time were 21(9.5%).

Expulsion rate of IUCD in group A was 09(8.1%) and group B was 12(10.9%) the difference between two groups was found to be statistically significant (p value 0.491)

Infection Rates: In this study out of 220 patients, with 110 in each group, total incidence of infection found after intrauterine contraceptive devices placement was 18(8.1%) within 6 weeks follow-up time.

Infection rate after IUCD placement in group A was 08(7.2%) and group B was 10(9%) the difference between two groups was not found to be statistically significant (p value 0.623)

Age: In this study of 220 patients, the mean age of the patients included was 28.30 years with standard deviation of ±3.451. Out of 220 patients in each group, the minimum age was 21 years the maximum age was 39 years. The age difference between two groups is not statistically significant (p value 0.726).

Figure 1: Infection rate in groups of patients

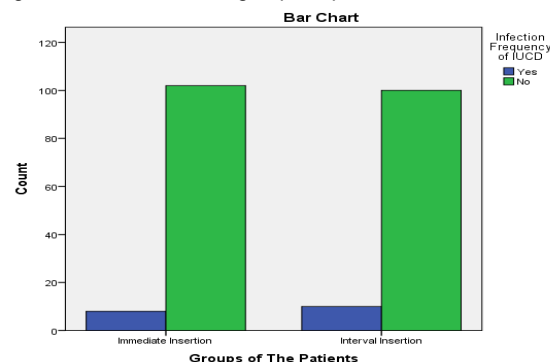


Table 2: Expulsion Frequency of IUCD

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	21	9.5	9.5	9.5
No	199	90.5	90.5	100.0
Total	220	100.0	100.0	

Table 3: Groups of the Patients - Expulsion Frequency of IUCD

		Expulsion Frequency of IUCD		Total
		Yes	No	
Groups of The Patients	Interval Insertion	12	98	110
	Immediate Insertion	9	101	110
Total		21	199	220
Pearson Chi-Square		P= .491		

Table 4: Infection Frequency of IUCD

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	18	8.2	8.2	8.2
No	202	91.8	91.8	100.0
Total	220	100.0	100.0	

Table 5: Groups of the Patients - Infection Frequency of IUCD

		Infection Frequency of IUCD		Total
		Yes	No	
Groups of The Patients	Interval Insertion	10	100	110
	Immediate Insertion	8	102	110
Total		18	202	220
Pearson Chi-Square		.623		

Table 6: Descriptive Statistics of Age

	N	Minimum	Maximum	Mean	Std. Deviation
Age of the patient	220	21	39	28.30	3.451
Valid N (listwise)	220				

Table 7: Age distribution in both groups

	Groups of The Patients	N	Mean	Std. Deviation	Std. Error Mean
Age of the patient	Immediate Insertion	110	28.38	3.373	.322
	Interval Insertion	110	28.22	3.541	.338
Using Independent Samples Test	P= .726				

DISCUSSION

Pakistan has become one of the most populous countries of the world, where unmet need of contraception is increasing day by day. Intrauterine contraceptive device is one of the safest, reliable, long term, easily available, non coitus interrupting and easily reversible method of contraception. In Pakistan general awareness regarding contraceptive methods is still lacking and lots of efforts are needed in this sector of health care. Intrauterine contraceptive devices are considered the second most popular method of contraception in Pakistan. Intrauterine contraceptive device is one of the cheapest methods of contraception, contrary to the western world where intrauterine contraceptive devices are very expensive. In Pakistan IUCDs are available almost free in many areas of the country by efforts of family planning department of the government.

In this study it was noticed that there were general avoidance, misconceptions and fear regarding intrauterine contraceptive device use which made it unpopular among the women. Misconceptions regarding permanent subfertility, infections, uterine perforations, excessive weight gain, hormonal imbalance, sexual dissatisfaction, sexual dysfunction and systemic side effects were widely noticed in general public. Thus difficulties were faced

during motivation and counseling of the patients to participate in the study.

In this study one of the parameter studied was the expulsion rate of intrauterine contraceptive devices which was compared between two groups, one with immediate post cesarean insertion group and other the interval insertion group. Expulsion rate was found to be lesser in the immediate post cesarean group to a clinically significant level with p value less than 0.5. This result was not in correspondence with a study conducted in Karachi, in which expulsion rates were found to be higher in the immediate post cesarean group. This difference of result may be due to improper technique used in the trans cesarean IUCD insertion leading to higher expulsion rates or may be coincidental.

The second parameter studied was infection rate comparison between the two groups. Infection rate was also found to be lower in the immediate post cesarean group. This result may be due to better compliance of the patient for antibiotic use immediately after LSCS leading to lower infection rates. In a study conducted in Karachi the infection rate was also found to be higher in the immediate post cesarean insertion group as compared to the interval insertion group, which may be due to unhygienic techniques of IUCD insertion or may be coincidental.

In this study it was noticed that women were highly satisfied with this method of contraception on their follow up visits. There were no complaints of any pain, sexual dissatisfaction or dysfunction, difficulties in breast feeding, psychological issues or any systemic side effects. Only three women complained of heavy irregular bleeding, two of them responded well to the symptomatic treatment and only one woman requested IUCD retrieval due to heavy bleeding.

IUCD expulsion was noticed more commonly in multiparous women, those undergoing LSCS for the first time and those who have previously given vaginal births. Expulsion rates were also higher in the patients in whom IUCDs were placed by junior obstetricians, probably due to improper technique of IUCD insertion. Infection rates were higher in women with poor hygienic conditions, those non-compliant to antibiotics and oral hematinic and those belonging to lower socioeconomic group. No correlation between ages of patients and infection or expulsion rates of IUCD were found in both groups under study.

Post placental IUCD insertion is highly recommended after this study as results show high motivation of women and their families for contraception at this time, assurance that patient is not pregnant, less side effects like infection or expulsion rates after immediate post-delivery insertion and least need for additional analgesia.

This study proved IUCD insertion to be one of the best methods of contraception with least side effects and high effectiveness. The best time to insert a contraceptive device is immediately after baby and placental delivery which makes it the safest, most appropriate and successful time of IUCD insertion.

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