

# To Evaluate the Compliance of Postpartum Intrauterine Contraceptive Device at Jinnah Medical College Hospital

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## Abstract

**Objective:** To evaluate the compliance of Postpartum Intrauterine Contraceptive Device (PPIUCD) in Jinnah Medical College Hospital, Korangi.

**Methods:** This cohort study was conducted in the obstetrics and gynaecology department of Jinnah Medical & Dental College Hospital, Korangi for a period of one year from June 2016 to May 2017. All the pregnant women booked at antenatal clinic of Jinnah Medical & Dental College Hospital Karachi for delivery either vaginally or by caesarean section, after proper counselling or discussing the advantages and disadvantages of method were included in study. Patients with rupture of membranes more than 18 hours, chorioamnionitis, congenital malformation of uterus, large uterine fibroids distorting the uterine cavity, unbooked dai handled cases, coagulation disorders, fever, clinical symptoms of infection and patients who underwent postpartum haemorrhage were excluded from study.

**Results:** Total number of women counselled in the outpatient department for PPIUCD were 2027 out of which 1498 (73.9%) accepted the method. Insertions were carried out in (31.4%) women who delivered either vaginally and by caesarean section. Out of 31.4% insertions 93% followed up in outpatient department (OPD) in which main complaints were infections, menstrual cycle problems, dyspareunia, abdominal cramps, expulsion and missed thread. PPIUCD was removed in 21.49%, reasons for removal noted were menstrual cycle irregularities, pressure from family, recurrent infection, myths and misconceptions. Expulsion took place in 3.9% and continuation rate was 74.5%.

**Conclusion:** On the basis of our overall results, PPIUCD was observed as a safe, timely, cheap and convenient method of contraception. Its advantage is that women are in our immediate reach at the time of delivery, so continuation of the method in this study is high (74.59%). Rate of insertion and compliance can be further improved by effective counselling of couples and by arranging public awareness programs by multiple sources.

**Keywords:** Pregnant women, compliance, contraception, postpartum, menstrual cycle.

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## Introduction

The population growth is one of the key factors that have a strong effect on economic development of a country. High population growth not only puts a country's economic resources under stress but also increase dependency ratio of young

people and thereby constrains the productive growth in the economy<sup>1</sup>.

It is estimated that the population of Pakistan will be around 200 million at the close of the year 2017, with the growth rate of 1.9 %. It is said that population growth is one of the major problems in the developing countries like lack of educational, health, housing, sanitation facilities, shortage of food, poor infrastructure, high crime rate, and resultantly low literacy rate, unhealthy people and prevalence of poverty<sup>2</sup>. According to 2017 census presented to the Council of Common Interest on 25 Aug 2017, total population of Pakistan was 207,774,520 represented 57% increase in 19

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years<sup>3,4</sup>. The United Nations developmental program reports about the Millennium Developmental Goal maternal mortality ratio, birth attended by skilled birth attendants, contraception prevalence rate, total fertility rate, antenatal coverage reported for Sindh falls considerably short of those required for attaining these targets and progress is particularly lagging MDGs<sup>5</sup>. Pakistan has a very low contraceptive prevalence rate of 35%<sup>6</sup>.

Common reasons behind not fulfilling the unmet needs are lack of information, poor family planning services and due to fear of side effects for any other method of contraception such as oral contraceptive pills, injectable contraceptives, Norplant and interval intrauterine contraceptive device (IUCD). Women are not going in immediate postpartum period anywhere for contraceptive advice and they get pregnant by using, barrier method, rhythm method and even emergency contraceptive pills. So in this scenario postpartum intrauterine contraceptive device (PPIUCD) is an ideal form of contraception.

Use of contraceptives can be increased by increasing female literacy, role of women and decision making, awareness through media and easy access to contraceptive techniques and tools. Family planning is critical for our nation's economic development and is the big first step toward growth, quality and sustainable development that opens the doors to opportunity and prosperity for woman's family everywhere<sup>1</sup>.

Postpartum family planning (PPFP) is the prevention of unintended and closely spaced pregnancies through the first twelve months following childbirth. Postpartum women need a range of effective contraceptive methods to be able to prevent an unplanned pregnancy, within a short interval<sup>7,8</sup>.

Copper intrauterine contraceptive device is the most commonly used type of IUCD it is small flexible and T-shaped device that we can place it for 10 years and was primarily used as interval IUCD, it induces local inflammatory reaction that disturbs the functioning of endometrium and also destroys the receptivity of endometrium and prevent the embryo to implant in the uterine cavity.

According to the World Health Organization Medical Eligibility Criteria, an IUCD can be inserted in the 48 hours postpartum referred to here as a

postpartum IUCD (PPIUD), or after four weeks following, birth<sup>9</sup>. A 2010 Cochrane review concluded that PPIUCDs were safe and effective contraceptive methods. The public health benefits from PPIUCD stemmed from the women's increased accessibility to PPIUCDs following facility births, as PPIUCDs could be offered at health facilities after childbirth. This, in turn, decreased opportunity and other costs incurred by clients who may otherwise have to return to facilities' to access contraceptive services<sup>10</sup>.

In under-developed countries like ours most women deliver at home by dai, booked patients come to hospital only for delivery and they never come in postnatal period for family planning advice, so it is best opportunity for them to provide contraception. Other advantages of PPIUCD insertion are ease of insertion. Availability of skilled personnel, appropriate facilities and convenience of the woman, as the symptoms of IUCD insertion get masked with the after pains of delivery<sup>11</sup> so immediate insertion relieves discomfort for women she can go home with ease and without any anxiety of future pregnancy.

Postpartum contraceptive device can be inserted: post-placental- immediately within 10 minutes of delivery of placenta; immediate postpartum-delivery to 48 hours; postpartum-initial six weeks after delivery; and extended postpartum-six weeks to one year after delivery<sup>12</sup>.

Birth spacing between children of more than one year is important for the health of the mother as she prepares to carry a healthy foetus. Family planning provides time to plan pregnancy as to control the medical disorders such as diabetes, hypertension, epilepsy, thyroid disorders, etc. which have harmful effects on developing foetus. Poorly-timed pregnancies increase the risk of neonatal morbidity and mortality.

This study was conducted to evaluate the safety and compliance of postpartum intrauterine contraceptive device (PPIUCD) insertion in women delivering vaginally or by caesarean section at a hospital affiliated with Jinnah Medical & Dental College and catering to undergraduate and postgraduate training.

## Patient and Methods

This cohort study was carried out in the obstetrics and gynaecology department of Jinnah Medical & Dental College Hospital, Korangi Industrial area for a period of one year from June 2016 to May 2017. The inclusion criteria was, all women booked at the antenatal clinic of JMDCH and delivering in the hospital either vaginally or by caesarean section were counselled in the antenatal period in Out Patient Department (OPD) and documentation was done. Those who accepted the method were included in the study, written and informed consent was taken which was taken again at the time of insertion of IUCD in labour room/operation theatre. Patients with rupture of membranes >18 hours, chorioamnionitis, unbooked dai handled cases, large uterine fibroids distorting uterine cavity, congenital malformation of uterus, coagulation disorders and patients who underwent PPH were excluded from the study.

Women who had given the consent for postpartum intrauterine contraceptive device insertion were examined per abdominally after the delivery of foetus and placenta, uterine fundus were checked to evaluate the tone of uterine muscles, after taking all the aseptic measures, Sim's speculum was inserted in vagina to retract the posterior vaginal wall and anterior lip of cervix was held gently with sponge holding forceps, intrauterine contraceptive device was inserted by holding it with Kelly's forceps into uterus, then other hand should be moved to abdomen over the fundus and uterus was pushed upwards gently to reduce the angle and curvature between the uterus and vagina. Now PPIUCD was moved upwards with forceps until resistance was felt, at the fundus, Kelly's forceps was opened to release the PPIUCD & swept to side walls, uterus was stabilized until forceps removal was complete, and then thread was inspected.

Those undergoing caesarean section PPIUCD was placed high up in the fundus holding with sponge holding forceps passed through the caesarean section incision and thread of PPIUCD was directed towards cervical canal. Care was taken not to include thread during uterine closure.

On discharge from hospital patient was advised to return for follow up. At six weeks follow-up visit questions were asked about the side effects and patient's physical and pelvic examination was per-

formed to verify the thread and cut short the lengthening thread, also examined for signs and whether any symptoms of infection were present. Patient was also reassured about the safety of the method.

Data were collected from participants using a structured questionnaire in the antenatal period in the OPD, and it included demographic information, mode of insertion, continuation or removal and reasons for removal of the method. Follow up was done at six weeks and six months after delivery in OPD. Safety of the method was assessed by asking about the complications after which, data were analysed.

## Result

A total number of patients counselled at antenatal OPD for PPIUCD were 2027 out of which 1498 (73.9%) agreed to accept the method and 529 (26%) declined.

Total deliveries conducted in the study period were 1049 and PPIUCD insertion was done in 330 (31.4%) women at the time of delivery, out of which 57.5% were post-placental & in the immediate postpartum period after vaginal delivery and 42.4% were intra-caesarean insertions. In our study acceptance (73.9%) of PPIUCD was noted higher as compared to insertions (31.4%).

Regarding demographics shown in Table 1, majority who accepted method were multiparous (70.7%) and in primipara acceptance was seen in 438 (29.9%) and age of acceptance was maximal between 26-30 years (33.17%), followed by 31-35 years 468 (31.24%). Out of total 330 insertions, 307 followed-up in OPD out of which 45% had complications. It was observed that 14% had irregular bleeding, 10% had infection, expulsion was observed in 3.9% patient, 7.4% had abdominal pain, 2.6% patients had dyspareunia and missed thread was found in 7.6%.

Table 1. Counselling and acceptance of PPIUCD in OPD relation to age

Age	Total Counsellled	Accepted	Percentage
21-25 years	501	217	14.48%
26-30 years	511	497	33.17%
31-35 years	410	468	31.24%
35 years	452	316	21%
Total	2027	1498	73.9%

**Table 2.** Counselling and acceptance of PPIUCD in relation to parity in out patient department

Parity	Total Counselling	Accepted	Percentage
Primigravida	850	438	29.9%
Multigravida	1177	1060	70.76%

**Table 3.** Deliveries and insertion of PPIUCD in relation to mode of delivery

Mode of delivery	Number	Insertion	Percentage
Total SVD	617	190	57.57%
Total C/S	432	140	42.42%
Total	1049	330	31.45%

**Table 4.** Complaints among recipients of PPIUCD

Complaints	No	Percentage
Irregular bleeding P/V	43	14%
Infection	31	10%
Expulsion	12	3.9%
Abdominal cramps	23	7.49%
Dyspareunia	8	2.6%
Missed thread	22	7.16%
Total	139	45%

**Table 5.** Continuation rate of PPIUCD

Continuation rate	No	%
Total insertions	330	
Total follow-up	307	
Expulsion	12	3.9%
Removal	66	21.49%
Continuation	229	74.59%

**Table 6.** Reason for removal of PPIUCD

Reason for removal	No	%
Change in menstrual cycle	13	4.2%
Pressure from family	23	7.4%
Recurrent infection	16	5.2%
Myths and misconception	14	4.5%
Total	66	21%

In 330 insertions, PPIUCD removal was done in 66 (21.49%) out of which 23 (7.4%) was due to pressure from family as husband and mother in-law were not willing for contraception or they were interested in other methods of contraception and in 13 (4.2%) due to changes in menstrual cycle some women reported heavy and irregular menstrual pattern while some only had spotting. It was removed due to myths and misconceptions in 14 (4.5%) and 16 (5.2%) due to recurrent infection. Continuation rate of PPIUCD was 74.59%.

## Discussion

Postpartum IUCD insertion is an opportunity which should not be missed in developing countries where delivery may be the only time when a healthy woman comes in contact with health care providers and the chances of returning for contraceptive advices are uncertain<sup>13</sup>.

It is reported by WHO in 2006, better family planning and birth-spacing service resulted in better maternal and neonatal outcome. When promoted in countries with high birth rates, 32% of all maternal deaths and over 1 million deaths of children under 5 years of age could be prevented. Healthy timing and spacing of pregnancies have a positive effect on maternal health and newborn outcomes<sup>14</sup>.

The intrauterine contraceptive device is a one-time insertion, lasting for ten years, independent of coital activity and it does not need user compliance neither a separate visit for insertion nor waiting for the menstrual cycle to be resumed. It also has advantage of being independent of lactation and partner's cooperation. In cases of complications, removal can be done at any time<sup>15</sup>.

In our study, 2027 women were counselled in OPD out of which 1498 (73.9%) accepted the method and 525 declined. In our study, acceptance of PPIUCD was (73.9%) as compared to insertions (31.4%) women who were counselled in OPD, as women who had agreed in antenatal period they refused the method at the time of insertion in postpartum period in labour room because of myths and misconceptions, and different other reasons, similarly less insertions as compared to initial acceptance was also observed by Aswathy et al in his study<sup>16</sup>.

This is probably because of partner's lack of involvement during counselling as women are coming to hospital alone or accompanied with neighbour. We observed that if woman comes in antenatal OPD along with her husband, counselling will become more effective, as in our society woman is not in a position to take decisions independently. So couple counselling is most important to increase the rate of insertion and continuation.

Total deliveries conducted in this period were 1049; consent was taken again in women who accepted the method during antenatal period, insertion carried out in 31.4% women. Highest rate of acceptance was observed in multiparous women (70.7%), followed by 438 (29.9%) in primipara and it is also comparable to study conducted by Aswathy S et al.<sup>16</sup> in which acceptance of PPIUCD was common among multipara (73.3%) compared to primipara (26.7%), it is also a comparable figure with study conducted in North India by Shukla M<sup>17</sup>, and Vidyarama R et al.<sup>18</sup> found PPIUCD acceptance in primipara 15.47%. Contrary to this, Gautum R et al. found higher insertion rate in primipara (71.9%)<sup>19</sup>.

According to River-Fuentes et al.<sup>20</sup> women's preference of beginning contraception is influenced by their knowledge about post-delivery return to fertility, limitation of lactational amenorrhea and resumption of sexual activity which is 40% in less than three months, 90% by one year. So there is need to pay more attention regarding PPIUCD counselling to young primipara as it is seen in our study that rate of acceptance of method is less in primipara than multipara.

In our study, post-placental insertions after vaginal delivery were 57.5%, and 42.4% were intra-caesarean. Acceptance was also good during caesarean section probably as women need definite gap in between caesarean section, while Manju Shukla et al.<sup>17</sup> found 60.87% acceptors who underwent caesarean section. Vidyaramana et al.<sup>18</sup>, found 83.73% of acceptors were people who had caesarean section and 16.26% acceptors were people underwent vaginal delivery.

As we observed in our study, reason of removal due to family pressure was 7.4% followed by 5.2% and due to recurrent infection 5.2%. A multi-central study conducted in India showed the comparable rate of infection (4.5%) with PPIUCD<sup>21</sup>. Welkovic et al. in his study found no difference in infection rate

among IUCD users and non users<sup>22</sup>. About 4.5% women came for removal due to myths and misconception that it is irreversible, causes painful and heavy menstruation, infection and may cause cancer, so women should be reassured and misbeliefs should be cleared during counselling in antenatal period in a way that she can choose the method confidently. Removal due to changes in menstrual cycle was seen in (4.2%), such as irregular periods, heavy flow, clotting and some of them have continuous spotting was seen in 4.2% women in those who were irresponsive to initial treatment. Doley R<sup>23</sup> found 42.11% removal due to bleeding followed by the pressure by the family. About 17.5% and 15.79% had removal due to changes in menstrual cycle and pain in abdomen respectively. Family pressure seems to be a common reason of removal in our study. Continuation rate was 74.59% which is good achievement for this study population of people, and is almost comparable to 86% by Kittur S and Kabadi YM, 76%<sup>24</sup>. Main complaints which were noticed in OPD in women who came for follow-up with PPIUCD insertion in our study were irregular vaginal bleeding 14%. Infection rate was 10% in our observation it was also observed in studies conducted in 13 other countries due to IUCD<sup>25</sup>. Women also complaining of dyspareunia is 7%, which is comparable to 6% by Kulandai H's study<sup>26</sup>.

Missed thread was observed in 7.16% mainly in intra-caesarean insertion, which was also noticed by Doley R<sup>23</sup> as it coiled up in the cervix so after confirmation of correct location of IUCD on ultrasound, woman can be reassured. Expulsion rate was 3.9%, it is mainly noticed after vaginal deliveries which is comparable to a study by Somash Kumar et al.<sup>27</sup>, while Erog K. et al describes that expulsion rate was higher with postpartum insertion (within 48 hours of delivery) than immediate post-placental (within 10 minutes of placental delivery)<sup>28</sup>. UNPOP report stated six months cumulative expulsion rate 9% for postplacental compared with the 37% postpartum insertions<sup>29</sup>.

Provision of PPIUCD is an example of integration of the national maternal and child health and family planning in facility based delivery by skilled birth attendants<sup>30</sup>.

Rate of expulsion can be reduced by correct insertion technique of PPIUCD placement in uterine fundus and no thread should be visualised at cervi-

cal os at the time of insertion, as it comes out from the cervix six weeks postpartum and it is the time when woman should be called in OPD for trimming of thread.

It is recommended that myths and misconceptions about the method should be cleared while helping patient and spouse to understand the problems with unplanned pregnancies. Public awareness programs should be arranged by government through different media sources to increase the compliance rate.

It is important to organise training programs for doctors and health care providers in order to increase knowledge and skills for postpartum intrauterine contraceptive device insertion in every hospital besides the family planning centres.

It should be promoted at a national level and obstetricians general practitioners, lady health workers and traditional birth attendants along with family planning workers must participate to improve the maternal and child health. Peoples who are satisfied with the method should be interviewed and their experiences should be shared. Government should pay attention to literacy of our society, especially female education as it is said that if you educate the male you educate an individual, but if you educate a female you educate a family. It strengthens the women and makes them decisive.

## Conclusion

The study reveals a reasonable compliance rate to postpartum IUCD in the study population showing that efficient counselling can be productive for long term benefits of couples. If husbands are involved in counselling and decision making in antenatal OPD, the success of this family planning method will improve further. Overall PPIUCD was observed to be a safe, cheap and convenient method of contraception.

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## Conflict of Interests

Authors have no conflict of interests and no grant/funding from any organisation.

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