ORIGINAL ARTICLE

Factors Affecting Post Placental Intra-Uterine Contraceptive Device Insertion Rate

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ABSTRACT

Background and Objective: The immensely increasing rate of population is one of the biggest hindrances in the progress of under developing world including Pakistan. One of the main component of Sustained Millennium Development Goals was to reduce maternal mortality and morbidity by fulfilling the unmet needs of contraception. Keeping these challenges into consideration, program of Post Placental Intrauterine Contraceptive Device (PPIUCD) insertion was initiated at tertiary care hospital settings in Pakistan. Objective of this study is to explore the factors affecting the rate of PPIUCD insertion rate.

Methods: This cross sectional study was carried out at the Government Teaching Hospital Shahdara Lahore, Pakistan within 15 months (July 2019 to Sep 2020). A total of 4474 pregnant females were included using non probability consecutive sampling. A trained counselorcounselled the patients regarding benefits of PPIUCD and predesigned structured proforma was filled regarding demographic data, obstetric data and other factors related to insertion of PPIUCD. After the subjects were delivered, PPIUCDs were inserted in consenting females. Data was analyzed for statistical inferences.

Results: Out of the 3292 participants who qualified for insertion, 802 females consented for PPIUCD insertion with an average insertion rate of 24.36%. The main factor affecting rate of PPIUCD insertion was presence of a trained counselor.

Conclusion: The counseling services by a trained counselor are imperative for success in PPIUCD insertion rate.

KEYWORDS: PPIUCD, Pregnancy, Insertion rate, Trained counselor.

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INTRODUCTION

The rapidly increasing population of developing world against scarce resources is a great hindrance

in the development and healthcare of their public especially maternal and child health. Among the Sustained Millennium Development Goals, one of the most important goal is to reduce maternal mortality rate to less than 70/100,000.[1] The most important step to improve maternal and child health is provision of an effective long acting contraception which provides immediate protection after child birth and protects females from complications of unplanned and closely spaced pregnancies. Post placental intrauterine contraception deviceis one such method that can be inserted after delivery of placenta.[2] PPIUCD is added in the post abortion careprogramto protect against unwanted pregnancies in the future.[3]

Despite the availability of wide range of contraceptive choices, the rate of unplanned and unintended pregnancies is high in developing world.[4,5] The reason is, availability of legal and safe options for abortions in most of developed countries which are lacking in resource poor countries like Pakistan. Each year, 208 million pregnancies occur worldwide out of which more than 41% are unintended. This is one of the reasons that couples and health care workers try to choose the most effective method of contraception with minimum failure rate.[6] PPIUCD is considered as the most efficient and cost effective long term method (5 – 10 years) of contraception, available immediately after delivery and associated with low complication rate.[7] The device Copper T IUCD A is freely available in all public sector hospitals and family planning centers in the developing world including Pakistan. This is easy to insert by trained health care workers after normal vaginal delivery, Cesarean section and post abortion. It is especially useful to female population who is unable to avail family planning services after they leave hospitals. Moreover it has no effect on breast feeding.[8]

In spite of above mentioned benefits and merits of PPIUD, the acceptance rate of this method is very low in resource poor countries of Africa and Asia.[9] The insertion rate of PPIUCD varies from nil to 40% in different set ups.[10,11] Multiple factors affect its acceptance and insertion rate e.g., public awareness, women and husband fear/phobias, taboos/myths about PPIUCD, awareness, training and motivation of health care workers delivering the women, presence of a trained councilor to counsel the couple and alleviate their fear and myths about PPIUCD and general factors like pandemics which affect adversely all aspects of health care system worldwide.[12]

Keeping above factors into consideration, program of PPIUCD insertion was initiated in July 2019 at Government Teaching Hospital Shahdara Lahore, Pakistan. It is a 300 bedded hospital affiliated with Fatima Jinnah Medical University Lahore after its upgradation from college to university level in 2015. Both FCPS and MS postgraduate programs are being successfully run here providing services to the huge population of Shahdara and surrounding areas. The purpose of this research work was to study the factors affecting the insertion rate of PPIUCD in this hospital and depending upon results of this study, strategies must be devised to resolve issues hindering the PPIUCD program and expedite the insertion rate to provide an effective and low cost method of contraception to females of this area. This will add to existing body of knowledge and open new doors of research and development.

METHODS

After taking approval from the Ethical Committee of Govt Teaching Hospital Shahdara Lahore, a total of 3292 pregnant women delivering at the hospital and fulfilling the criteria for PPIUCD insertion were included in the study after written informed consent on a written proforma to be signed by both couple and counselor. The aim of the study was to explore the factors affecting the rate of PPIUCD insertion. Study was conducted over 15 months (from July 2019 to Sep. 2020).

The postgraduate trainees were trained by a workshop on how to insert PPIUCD at the beginning of the project. A program of ongoing trainingworkshops ofnewly inducted staff was also started on monthly basis. A trained counselor was appointed, who was not a doctor, but trained and appointed by the National Committee for Maternal Neonatal Health to counsel the couples about PPIUCD insertion and alleviate their misconception about this immediately available method of contraception after delivery.

Patients' selection criteria included pregnant multigravida (2 – 6), 20 – 40 years of age, willing to avail PPIUCD insertion and eligible for IUCD according to World Health Organization Medical

Eligibility Criteria.[13] Patients having complications like prolonged rupture of membranes (> 18 hour), chorioamnionitis, evidence of sepsis after delivery, postpartum hemorrhage, Dai handling and refusal of couple to insert PPIUCD were excluded from the study.

A dedicated, trained and paid counselor was available from 9:0am to 4:0pm daily at the outdoor department for elective Cesarean section as well as for those subjects who were registered in emergency at an early labor and were counselled. An on-duty trained postgraduate resident inserted once the patients agreed, the counselor stamped their files and PPIUCDs immediately after delivery of placenta in both normal delivery and Cesarean section cases. Copper-T IUCD-A was provided by National Committee for Maternal Neonatal Health free of cost and was available in the labor room and operation theatres.

The project was closely monitored by keeping daily statistics including the total number of deliveries and insertions of PPIUCD in normal vaginal deliveries and Cesarean sections. The counselor as well post graduate trainees were regularly motivated to continue the insertion of PPIUCD. Ongoing meeting were also held to find out factors decreasing the insertion rates. Details of every patient were documented in her file as well as on a separate proforma including demographic and obstetric data, factors affecting the insertion rate i.e. patient factors (awareness, fear, phobias and myths about PPIUCD),postgraduate trainees factors (trained, motivated, etc), counselor factors (availability, motivation, etc.) and general factors like COVID-19 pandemic which started and remained at its peak during the study period and affected adversely different aspects of health care system including PPIUCD insertion rate. Data regarding PPIUCD insertion was reviewed regularly in the prescheduled morning meeting of the senior Gynecologists every week till the end of the study.

STATISTICAL ANALYSIS

Data was entered and analyzed by the SPSS Version 20 for windows. Student t-test was applied for numerical and Chi-square test for categorical data. P-value < 0.05 was taken as statistically significant.

RESULTS

The mean age of participants recorded was 26 ± 2.31 years and mean parity was 4 ± 2. Out of total 3292 participants delivered, PPIUCD was inserted in 802 patients.

Table-1: Obstetric data of participants.

Mode of delivery	*Mean Age (years)*	*Mean Parity*	*% Insertions*
Vaginal delivery	25 years ± 2	3 ± 2	36%
Cesarean section	27 years ± 2	5 ± 2	12%

The insertion rate in vaginal delivery was 36% and 12% at cesarean section with the average insertion rate of 24.36% over 15 months as shown in Table 1.

The rate of insertion increased from July 2019 (10%) to February 2020 (30%), then reduced over next five months i.e. from March 2020 to July 2020 and then started to rise till September 2020 (33.5%) as shown in Table 2.

Table-2: Total PPIUCD Insertions versus Total Births over 15 Months.

Serial #	*Month*	*No. of Births*	*No. of Insertions*	*% of Insertion*
1	July 2019	136	13	10
2	August 2019	286	60	21
3	September 2019	285	81	28
4	October 2019	305	98	32
5	November 2019	280	80	31
6	December 2019	295	67	23
7	January 2020	265	77	23
8	February 2020	263	80	30
9	March 2020	125	33	26
10	April 2020	236	31	13
11	May 2020	156	19	13
12	June 2020	103	10	10
13	July 2020	132	19	14
14	August 2020	200	54	27
15	September 2020	225	80	33.5
Total	15	3292	802	24.36 (average %)

Table 3: Factors affecting PPIUCD Insertion Rate.

Serial #	*Factors*	*Rate of Insertions % (Yes)*	*Rate of Insertions % (No)*	*P-Value*
1	Patients properly counselled	25	6	0.01
2	Presence of trained birth attendant	6.7	5.3	0.08
3	Presence of trained counsellor	35	5.2	0.02
4	Presence of COVID 19 Pandemic	9.2	22	0.01

The PPIUCD insertion rate was recorded to be high in females who were properly counselled (25%) as compared to those not counselled about PPIUC benefits before delivery (6%). The difference was statistically significant (P< 0.05) as shown in Table 3. There was no difference in PPIUCD insertion rate whether a trained birth attendant was present or not (P> 0.05). High insertion rate was recorded in the presence of a trained counsellor (24%) as compared to that when she was not available (5.2%) and the difference was significant (P<0.05).The COVID-19 pandemics with lockdown period adversely affected PPIUCD insertion rate (9.2%).

DISCUSSION

PPIUCD has been approved in WHO eligibility criteria for contraception.[13]Introduced in 2012 in Pakistan, PPIUCD program is being supported and institutionalized in public sector by different agencies like NCMCH, USAID, Green Star and Jhpieg. In our institution, it is being run with the help of NCMNH since July 2019.

In this study, 3292 pregnant females were counseled regarding PPIUCD as an effective, long term and immediately available method of contraception after delivery of placenta. Out of 3292 participants approached, PPIUCD was inserted in 802 patients with average insertion rate of 24.36%. Different studies have recorded rates as low as 8% to as high as 50%.[14-18] A low acceptance rate (8.2%) has been recorded by Prabha et al.[14] In a study conducted by Kachan Rani,[15] high rate (51.6%) of acceptance of PPIUCD was found. An acceptance rate ranging between 43.8 – 50% has been mentioned in a research work done by Rajuan Doley et al.[18] The rate (24.36%) of PPIUCD insertion recorded in our study lies midway between above mentioned studies.[15-19] The difference in rate of insertion is due to multiple factors operating in different setups.

Different factors affect PPIUCD acceptance and insertion rate worldwide. These includepatient factors, factors associated with the health care workers delivering the women, availability of trained birth attendants and general factors like COVID-19 pandemic. Patient factors like concepts about family size, awareness about PPIUCD, fear and myths about PPIUCD, husband refusal, lack of trust on healthcare system, etc. remained dominant in the presentstudy. It is found that in patients who were approached repeatedly, the acceptance rate was relatively higher (25%). Through dedicated counseling of couples, the fear and myths about PPIUCD were alleviated and acceptance rate thus increased. These figures are comparable to a study by Butt et al,[19] where refusal by husbands recorded was as high as 15.4%.In another study by Solomon et al,[20] the role of counseling of the women, husbands and family to increase uptake of PPIUCD services has been emphasized.

The second factor studied was the healthcare workers delivering the women. Inthe present study the postgraduate traineeswho delivered the pregnant women were, though, trained through workshops however their role was not found to be supportive. The counsellor who counseled the couples and females and acquired a written informed consent for the subjects played the imperative role., When explored, it was found that due to a very busy routine and large patient turn-over in public sector hospitals, the residents were unable to spare time for effective counseling of patients regarding PPIUCD insertion, thus contributing toa low rate of insertion. Out of 4 batches allocated, only one batch of residents seemed highly motivated and resulted in an increased rate of PPIUCD insertion during her duty hours. In our point of view, unless and until the health care workers will not effectively assume this responsibility to insert PPIUCD at the time of delivery, the success in insertion rate cannot be achieved. A PPIUCD in place of baby in uterus should be the principle that needs to be followed.

In the present study, the maximum number of insertions was done in the presence of counsellor (35%) i.e. at day and evening time. The records at nighttime were low due to lack of availability of counselor. It was recorded in daily stats that on the days when counselor was not available due to some reasons, the rate of insertion remained very low (5.2%). These results are comparable to those of other studies emphasizing on the appointment of a separate counselor to convince and mentally prepare the couple to accept PPIUCD.[21-25]

The fourth important factor we studied was the presence of a pandemic which started during our study time and adversely affected the PPIUCD insertion rate due to multiple factors.[26,27] It was

noted that after initiating the program in July 2019, the rate of insertion of PPIUCD gradually increased from 10% in July 2019 to 30% in February 2020. During the peak period of COVID-19 with lock down, the rate gradually reduced from 26% in March 2020 to 10% in June and 14% in July followed by a gradual increase to 27% in August and 33.5% in September 2020 after the end of lock down. The main factors noted were fear and phobia of the pandemic among health care workers as well as public along with the non-availability of counselor during peak pandemic period.

CONCLUSION

The rate of PPIUCD insertion remained relatively low in our study. The most important factor increasing the rate of insertion was availability of a trained counselor at the time of labour. Effective counselling skills in the gynaecology residents must be inculcated to achieve success rate in insertion of PPIUCD at tertiary care hospitals.

LIMITATIONS OF THE STUDY

The study represents data from one gynecology department of a tertiary care hospital. Comparison between insertion rate by residents with or without counselor could not be computed in the given period of the study.

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CONFLICT OF INTEREST

None to declare

GRANT SUPPORT & FINANCIAL DISCLOSURE

None to disclose

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Author's Contribution

MuN: Conception and design of study, acquisition of data, intellectual and critical input in the revision of manuscript.

AH, NN, MK: Acquisition and analysis of data, drafting of manuscript.

ASA: Drafting of manuscript, acquisition of data.

ALL AUTHORS: Approval of the final version of the manuscript to be published.