Original Article

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Comparison of Depot Medroxyprogesterone Acetate and Postpartum Intrauterine Contraceptive Device in a Teaching Institute of Rural Bengal: A Longitudinal Cohort Study

Obstetrics and Gynaecology Section

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ABSTRACT

Introduction: Contraception is one of the proximate determinants of fertility and the most important predictor of fertility transition. Depot Medroxyprogesterone Acetate (DMPA) and Intrauterine Contraceptive Device (IUCD) share some common features- both are Long Acting and Reversible Contraceptives (LARC), but the mechanisms are different. DMPA is a non invasive, hormonal manoeuvre while IUCD is an invasive, non hormonal one.

Aim: To compare the acceptance and reasons for refusal or non compliance between DMPA and Postpartum Intrauterine Contraceptive Device (PPIUCD).

Materials and Methods: A longitudinal cohort study was done in which total of 110 postpartum women (55 in each group) using either DMPA or IUCD were selected randomly and were interviewed and followed-up for minimum of six months. Data (variables- number of candidates accepting or refusing PPIUCD or DMPA) from the questionnaires were entered in Microsoft Office Excel 2007 and was transferred to IBM SPSS software, version 20.0 (SPSS Inc. Chicago, IL, USA). Pearson's Chi-square test was used for variables and p-values were calculated using to find out the statistical significance of the variables and p-value <0.05 was considered statistically significant.

Results: The overall acceptance of DMPA (87.3%) was found to be much more than that of PPIUCD (63.6%). In respect to different age groups, the acceptances of both PPIUCD and DMPA were significantly higher in women of age group 21-25 years. In respect to parity, acceptance of PPIUCD was more in women with one child, whereas the acceptances of DMPA were almost similar in women with either one or two children. Among women using PPIUCD, 36.4% refused to continue with the method, whereas only 12.7% of DMPA users refused further injections, the main reason for both the groups being the same irregular bleeding.

Conclusion: The acceptance as well as compliance of DMPA as a method of postpartum contraception is much better than PPIUCD in women of this part of rural Bengal.

Keywords: Acceptance, Contraception, Long acting reverse contraceptive, Refusal

INTRODUCTION

Planning, provision and use of birth control is called family planning [1]. It is an essential fundamental human right for the welfare of the individual, family and society as a whole. Birth control methods have been used since ancient times, but effective and safe methods only became available in the 20th century [2]. The use of safe and effective contraception is the need of the hour as India is the second largest populous country in the world accounting for 17.5% of the world's population [3]. India was the first country in the world to implement a Family Planning, as early as 1952, with an aim of controlling its population which has already reached 1.26 billion. Considering the high decadal growth rate of 17.64, the country's population is slated to surpass that of China by 2028 United Nations Development Programme (UNDP). Family planning can avert more than 30% of maternal deaths and 10% of child death if couples spaced their pregnancies more than two years apart. In India, 65% of women in the first year postpartum have an unmet need for family planning [4].

Intrauterine Contraceptive Devices (IUCD) provide very effective, safe and long-term yet reversible protection from pregnancy. It can safely be used for many years (for 10 years for Cu IUCD 380A, and for five years for Cu IUCD 375). Postpartum lactating women can also use Cu IUCD safely, as it does not interfere with breastfeeding. Postpartum IUCD can be inserted immediately after vaginal delivery, during caesarean section and up to 48 hours after birth, before women gets discharged from the health facilities [5].

Depot Medroxyprogesterone Acetate (DMPA) is a hormonal contraceptive with high satisfaction level as it is provided by an injection every three months, which can be given outside the clinical facilities. It is also low cost and highly effective long acting method. It is also a reversible method and women's chances of getting pregnant after stopping its use are no different from those who have not used DMPA [6].

The novelty of this study is comparing the acceptance of two such contraceptives with similar features but different mechanisms of administration and action. While DMPA is a non invasive, hormonal manoeuvre, IUCD is an invasive, non hormonal one.

The primary objective of this study was to compare the acceptance between these two contraceptives in relation to variables like age, parity. The secondary objective was to compare the reasons for non compliance between these two contraceptives.

MATERIALS AND METHODS

A longitudinal cohort study was conducted in the Outpatient Department (OPD) of Obstetrics and Gynaecology at College of Medicine and JNM Hospital, WBUHS, Kalyani, Nadia, West Bengal, India, over a period of 10 months from 1st July 2018 to 30th April 2019. Institutional Ethical committee approval (Ref. No. F-24/PR/COMJNMH/IEC/18/1936) and informed consent of the candidates were obtained.

Inclusion and Exclusion criteria: Eligibility criteria included postpartum women using either of the two methods of contraception,

DMPA or PPIUCD for a minimum of six months. Women using either DMPA or PPIUCD for less than six months or those using other methods of contraception were excluded from the study.

Sample size calcultaion: Sample size has been calculated by the formula (G power) based on the acceptance rates of two contraceptives- DMPA-68% [7] and PPIUCD-36% [8]. Based on formula, a minimum number of 76 postpartum women who are using either DMPA or PPIUCD (38 in each group) were calculated.

In this study, total of 110 postpartum women (55 using PPIUCD and 55 getting DMPA injection) who fulfilled the eligibility criteria and consented to participate in the study were included. Data was collected through a questionnaire to be filled by eligible women in the OPD. The questionnaire included the candidate's details like age, parity, whether wanting to continue or decline and reasons behind that. Candidates were asked for follow-up three monthly and were reviewed with another separate questionnaire, whether they wanted to continue or decline the method of contraception.

STATISTICAL ANALYSIS

Data from the questionnaires were entered in Microsoft Office Excel 2007 and two Master Charts were prepared (one for each method of contraception). Results were presented in tables, columns, pie charts, bar diagrams and texts. Data from the tables were transferred to IBM Statistical Package for the Social Sciences, version 20.0 (SPSS Inc., Chicago, IL, USA). Pearson's Chi-square test was used for variables and p-values were calculated to find out the statistical significance of the variables. The p-value <0.05 was considered statistically significant.

RESULTS

The acceptance rate for PPIUCD was 63.63% in case of PPIUCD users and the acceptance rate for DMPA was 87.3% in case of DMPA users. It was seen that the acceptance of DMPA was significantly higher than that of PPIUCD [Table/Fig-1].

Contraception	Acceptance	Decline	Total
PPIUCD	35	20	55
DMPA	48	7	55

[Table/Fig-1]: Comparison of overall acceptance and decline rate between PPIUCD and DMPA users.
Chi-square value- 8.29; p-value- 0.004 (highly significant)

In [Table/Fig-2], it was found that acceptance of PPIUCD in women of age group 21-25 years was significantly higher than women of other age groups. Women of age greater than 30 years were reluctant to continue PPIUCD even after counseling, commonly due to either pressure from family or shifting to permanent methods of contraception. However, women of age group 31 to 35 years after proper counseling and ensuring constant availability of injection and for free of cost, wished to continue DMPA.

Age (years)	PPIUCD acceptance, n (%)	DMPA acceptance, n (%)
≤20	11 (31.4%)	13 (27.1%)
21-25	19 (54.3%)	19 (39.6%)
26-30	2 (5.7%)	10 (20.8%)
31-35	1 (2.9%)	5 (10.4%)
≥36	2 (5.7%)	1 (2.1%)

[Table/Fig-2]: Comparison of acceptance between PPIUCD and DMPA users with respect to different age groups.
Chi-square value- 22.03 (PPIUCD) and 20.33 (DMPA); p-value <0.001 (highly significant) for both

In [Table/Fig-3], it was seen that primiparous women wished to continue PPIUCD more than women with two or more children. However, they were ensured that PPIUCD would be removed when they would conceive again (after a gap of minimum three years). Women with three or more children were inclined more to permanent method of contraception. In case of DMPA, it was seen that women with one and two children accepted and continued the injection almost equally in this study, with very low level of acceptance among women having three or more children.

Parity	PPIUCD acceptance, n (%)	DMPA acceptance, n (%)
1	21 (60%)	20 (41.7%)
2	12 (34.3%)	23 (47.9%)
≥3	2 (5.7%)	5 (10.4%)

[Table/Fig-3]: Comparison of acceptance between PPIUCD and DMPA users with respect to parity.
Chi-square value- 15.49 (PPIUCD) and 11.63 (DMPA); p-value <0.001 (highly significant) for both

In [Table/Fig-4], it was seen that educational status did not seem to have much influence on the acceptance of either PPIUCD or DMPA in this study.

Education	PPIUCD acceptance, n (%)	DMPA acceptance, n (%)
Illiterate	4 (11.4%)	2 (4.2%)
1-5 Grade	11 (31.4%)	19 (39.6%)
6-8 Grade	8 (22.9%)	15 (31.2%)
9-12 Grade	10 (28.6%)	10 (20.8%)
Graduate	2 (5.7%)	2 (4.2%)

[Table/Fig-4]: Comparison of acceptance between PPIUCD and DMPA users with respect to educational status.
Chi-square value- 8.57 (PPIUCD) and 10.50 (DMPA); p-value- 0.073 (significant) (PPIUCD) and 0.05 (significant) (DMPA)

[Table/Fig-5] shows, most common cause of decline of PPIUCD was menstrual disturbances, followed by pain abdomen and missing thread. In case of DMPA, very few women refused to continue with the injection, only reason for refusal being menstrual disturbances.

Reasons for decline	No. of candidates (n=20) (PPIUCD)	No. of candidates (n=7) (DMPA)
Pain abdomen	5 (25%)	
Irregular bleeding or spotting	7 (35%)	5 (71.4%)
Family pressure	2 (10%)	
Spontaneous expulsion	1 (5%)	
Missing thread	3 (15%)	
Wanted permanent method	2 (10%)	
Amenorrhoea	-	2 (28.6%)

[Table/Fig-5]: Comparison of reasons for decline between PPIUCD and DMPA users.

DISCUSSION

In this study, the total acceptance of DMPA was found to be significantly more than that of PPIUCD (p-value=0.004). About 48 out of 55 women wished to continue DMPA (acceptance rate- 87.30%), where 35 out of 55 women wished to continue PPIUCD (acceptance rate- 63.63%). HaziKazemi E et al., showed the continuation rate after six months for DMPA was 39% [9].

In relation to different age groups, the acceptance of both PPIUCD and DMPA were found to be significantly higher (p-value <0.001) in age group between 21 to 25 years. Similar results were found in a study by Kanhere AV et al., on PPIUCD and by Fonseca M et al., on DMPA. Acceptances were found to be low in elderly women for both groups as they were more inclined to accepting permanent methods of contraception [8,10].

In regards to parity, the acceptance of both methods were found to be significantly higher (p-value <0.001) in women who had one or two children. Study done by Safwat A et al., in Egypt where 30% of primiparous mother accepted the use of PPIUCD compared to 15% of multipara [11]. In the study by Fonseca M et al., most of the women (44%) accepted DMPA who had 2 or more children [10]. Nulliparous women were more inclined towards spacing methods.

Educational status of mother plays an important role in the acceptance of any contraception. In this study, it was found that 60-70% of study population were below 10th standard. Educational status did not seem to influence significantly the acceptance of either PPIUCD. Goswami G et al., found the acceptance of PPIUCD was 23% in those with primary schooling, 49% in those with secondary schooling and 13% among illiterates [12].

In this study, 20 out of 55 women (36.4%) using PPIUCD declined the method. Most common reason for decline was found to be irregular bleeding. Similar observation was by Mishra S, where bleeding (32.56%) also was the most common reason for removal [13]. One important reason for refusal or decline of PPIUCD was found in this study was pressure from the family, specialy from husband. This was also seen in a study by Goswami G et al., where the significant reason for IUCD removal was pressure from husband and other family members [12].

In case of DMPA, only seven out of 55 women (12.7%) in this study declined the injection, the main reason for decline being irregular bleeding. Similar results were found in a study by Nautiyal R et al., where menstrual disturbances were the main reason for discontinuation of DMPA [14]. Pre-use counsellling is essential tool to minimise the effect of menstrual change which occurs in most of the patients [15].

Limitation(s)

The study population was small and the study duration was short. Long term follow-up was not done (done for only six months). Acceptance was compared in respect to only two variables, age and parity. Hence, the result of the study might not reflect the true picture of the entire society.

CONCLUSION(S)

The acceptance of both PPIUCD and DMPA was found to be significantly higher in women of age group 21-25 and with one or two children. However, despite both the methods having certain side-effects, the acceptance of DMPA was found to be much more than that of PPIUCD in this region of rural Bengal. Government and health care facilities need to develop strategies to increase public awareness of PPIUCD through different media sources. Parallelly, awareness of DMPA should also be increased by government and all misinformation should be removed.

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