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Original Research Article

Study on the Acceptance and Efficacy of Depot Medroxyprogesterone Acetate (DMPA) as a Contraceptive Method in GMC Anantnag (J&K)

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Abstract: ***Background:*** Depot Medroxyprogesterone Acetate (DMPA) is a long-acting progestin-only injectable contraceptive administered every three months. Despite its proven efficacy, its acceptance among women varies across populations due to cultural, social, and medical concerns. ***Objective:*** To study the acceptance and efficacy of DMPA as a contraceptive method in women of reproductive age. ***Methods:*** A prospective observational study was conducted among women attending the OPD of Obstetrics and Gynecology GMC Anantnag Kashmir over a period of 12 months. Women opting for DMPA were counseled, administered the injection, and followed up at 3, 6, 9, and 12 months. Data regarding demographic profile, side effects, continuation, and contraceptive failures were analyzed. ***Results:*** A total of 120 women opted for DMPA during the study period. The acceptance rate was higher among multiparous women (93.1%) compared to primigravida (6.9%). DMPA is a preferable contraceptive method in all the groups of patients including interval (65%), postpartum (16%) and post abortal (21%) patients for spacing and to avoid unplanned pregnancy. Irregular bleeding was the most common side effect (40.19%), followed by amenorrhea (26.47%). The continuation rate at 12 months was 60%. No pregnancies were reported during the follow-up period, confirming 100% efficacy in compliant users. ***Conclusion:*** DMPA is a highly effective contraceptive method with good acceptance, particularly among multiparous women. Counseling regarding bleeding irregularities and return of fertility is crucial for improving continuation rates.

Keywords: DMPA, primigravida, postpartum haemorrhage, irregular bleeding, amenorrhea.

INTRODUCTION

Contraception plays a vital role in reducing unintended pregnancies and improving maternal health outcomes. Depot Medroxyprogesterone Acetate (DMPA), a progestin-only injectable, has been widely used globally due to its high efficacy, low maintenance, and suitability for women who cannot use estrogen-containing methods. DMPA has been part of contraceptive programs of many countries for more than 25 years. It is proven to be safe, effective, reversible and acceptable. In 1956, Medroxy progesterone acetate was discovered by Syntex and the Upjohn Company[1]. In 1992, FDA approved use of intramuscular DMPA as a long-acting contraceptive under the brand name Depo-provera (150 mg/mlMPA) after the publication of reassuring World Health Organization (WHO) studies regarding gynecological cancer risk. It is now a widely used contraceptive and is approved for use in more than 130 countries[2]. In June 1993, DMPA was

approved by the Drug Controller General of India (DCGI) for marketing and use as an injectable contraceptive method. In June 2016, National Family Planning program, DMPA injectable contraceptive has been added to the basket of contraception as ANTARA[3].

According to NFHS-3, around 30%of the fertility in India was unwanted, indicating a huge gap between the demand and supply of family planning measures. The unmet need for contraception in the country as a whole is about 13%. Reasons for this include: limited choice of methods, limited access to contraception, particularly among young people, poorer segments of populations, unmarried people, fear of experiencing side effects, cultural or religious opposition, poor quality of available services, users and providers bias, gender-based barriers[4]. It is a highly effective contraceptive with perfect use failure rate 0.3% with good safety profile. Long acting acts for 3months with a grace period of 4weeks, completely reversible within 7-10 months from the date of last injection[5].

Following study has been done to establish safety, efficacy, acceptance and continuation rate in reproductive age group patients. Injectable Contraceptive (DMPA) is an aqueous suspension of microcrystal for depot injection of pregnane 17 alfa hydroxyprogesterone –derivative progestin medroxyprogesterone acetate. DMPA is a progestin-only, long-acting, reversible injectable method of birth control can be given via 2 routes: (1) Intramuscular DMPA: It is 1 cc crystalline suspension of 150 mg drop medroxyprogesterone acetate that is injected intramuscularly (IM) every three months. (2) Subcutaneous DMPA: Prefilled auto disable syringe in Uniject system[6]. It is low dose 104 mg of medroxyprogesterone acetate in a 0.65 ml solution that is injected Subcutaneously every three months.

Despite these advantages, concerns about menstrual irregularities, weight gain, and delayed return of fertility have influenced its acceptance. Understanding the acceptance and efficacy of DMPA in specific populations is essential for improving contraceptive uptake and addressing unmet needs in family planning.

Mechanism of action: Injectable DMPA inhibits follicular development and prevent ovulation as their primary mechanism of action. The progesterone decreases the pulse frequency of (GnRH), which decreases the release (FSH) and LH leading to inhibition of follicular development, preventing an increase in estradiol levels[7,8]. Thickening of cervical mucus -due to depletion of oestrogen and thinning of endometrial lining -due to high progesterone and depleted oestrogen adds to its contraceptive action[9,10].

The aim and objective is to study the acceptability, efficacy and side effects of DMPA as contraceptive in postpartum, interval and postabortal period.

MATERIALS AND METHODS

The present study was a prospective longitudinal study conducted in the Department of Obstetrics and Gynaecology, Government Medical College Anantnag Kashmir over a time period of 1 year after clearance by the Institutional Ethical Committee Patients full filling the selection criteria was enrolled for the study.

Inclusion criteria: All reproductive age group (18-45) women who were willing to use DMPA (Antara) as contraception in postpartum period, postabortal period or in interval period and also were ready for follow up were included in the study.

Exclusion criteria: These are:

- WHO category breastfeeding woman less than six weeks postpartum
- Blood pressure more than 160/100 mmHg
- Unexplained vaginal bleeding
- Breast cancer

In our setting, patients eligible for DMPA injection were counselled regarding the frequency, mode of injection, side effects, changes in the pattern of menses and minor ailments like weight gain, mood changes etc. Patients were also counselled regarding the reversibility of fertility upon discontinuation. The injection was given either in the first week of menses, immediate post abortal or at 40-45 days post partum period.If given within 1 week of menses no backup contraception was advised. When given after 7 days of menstrual cycle, backup method (e.g., condom) for the first 7 days after the injection was advised. If the women fail to follow up on the given date for the next dose or if she had a history of amenorhoea a urine pregnancy test was done to rule out pregnancy. A separate register was maintained in the OPD. At the time of 1st dose, DMPA card was given to the patients where her particulars, weight gain, blood pressure, menstrual complaints, date of next visit was mentioned. A written informed consent was taken from the patients. With all aseptic precautions the injection was given intramuscularly in the gluteal region.

Statistical Methods: The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to the data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Statistical software SPSS (version 20.0) and Microsoft Excel we're used to carry out the statistical analysis of data.

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RESULTS

Table 1: Age, Parity and Time of Injection and side effects in women accepting DMPA (n=102)

Variable	Category	No. of Patients	Percentage
Age in Years	18 – 25	53	51.96%
	26 – 35	41	40.19%
	>= 35	08	7.85
Parity	Primi Para	07	6.86
	Para 2	22	21.56
	Para 3	36	35.30
	Para 4	29	28.43
	Para >5	08	7.84
Timing of Injection	Interval	65	63.72
	Postpartum	16	15.69
	Postabortal	21	20.59
Side effects	Amenorrhea	27	26.47
	Irregular bleeding/spotting	41	40.19
	Weight gain (>2 kg)	05	4.9
	HMB	07	6.86
	Scanty Menses	05	4.9
	Mood changes	04	3.92
	Headache and Others	03	2.94
	No Complaint	10	9.80

The table depicts the distribution of participants according to age, parity, timing of injection, and reported side effects.

With respect to age distribution, the majority of women belonged to the 18–25 years age group (53; 51.96%), followed by 26–35 years (41; 40.19 %). Only small proportion was aged ≥35 years (8; 7.85%). This indicates that most injectable users were young reproductive-age women. Regarding parity, the largest proportion were Para 3 (36; 35.30%), followed by Para 4 (29; 28.43%) and Para 2 (22; 21.56%). Primipara constituted 7 (6.86%), and women with parity >5 accounted for 8 (7.84%). This suggests that injectable contraceptive use was more common among multiparous women, particularly those with three or more children. In terms of timing of injection, most women received the injection during the interval period (65; 63.72%). Postabortal cases accounted for 21 (20.59%), while postpartum administration was observed in 16 (15.69%). This shows that interval insertion was the predominant timing for injectable contraception. Concerning side effects, irregular bleeding/spotting was the most commonly reported complaint (41; 40.19%), followed by amenorrhea (27; 26.47%). Heavy menstrual bleeding (HMB) was reported in 7 (6.86%), while weight gain (>2 kg) and scanty menses were each noted in 5 women (4.9%). Mood changes were observed in 4 (3.92%), and headache and other minor complaints in 3 (2.94%). Notably, 10 women (9.80%) reported no complaints.

Table 2: Continuation rates (4 or more Injections in relation to Parity, n=102)

Parity	No. Patients	No. of Patients (more than 4 Injections)	P value
Para 1	07	5	<0.001
Para 2	22	10	
Para 3	36	32	
Para 4	29	11	
Para 5	08	03	

The table shows the relationship between parity and the number of patients who received more than four injectable doses. Among the total participants, Para 3 women constituted the largest group (36 patients), and the majority of them (32) continued beyond four injections, indicating the highest continuation rate in this category. Para 4 women accounted for 29 patients, of whom 11 received more than four injections. In the Para 2 group (22 patients), 10 continued beyond four injections. Among Para 1 women (7 patients), 5 received more than four injections, suggesting relatively good continuation in this smaller group. In contrast, among Para 5 women (8 patients), only 3 continued beyond four injections.

The result is statistically significant where $p<0.01$. There is highly significant association between parity and patients receiving more than 4 injections.

Table 3: Discontinuation due to Complications (n=41)

Complication	No. of Patients	Percentage
No complication	61	59.80
Irregular Bleeding	19	18.62
HMB	06	5.82
Husband Staying Away	03	2.94
Weight Gain	02	1.96
Ammenorrhea	08	7.84
Plan Conception	03	2.94

The table depicts the reasons for discontinuation among 41 patients. Irregular bleeding was the most common reason for discontinuation, reported by 19 patients (46.34%), indicating that menstrual irregularities remain the primary factor affecting compliance. Amenorrhea was the second most common reason, seen in 8 patients (19.52%). Heavy menstrual bleeding (HMB) accounted for 6 cases (14.63%). Other less frequent reasons included husband staying away and planning conception, each reported by 3 patients (7.32%). Weight gain was the least common reason, observed in only 2 patients (4.87%).

DISCUSSION

The present study evaluated the acceptance, effectiveness, and continuation of Depot Medroxyprogesterone Acetate (DMPA) among 120 women of reproductive age. Of these, 18 were lost to follow-up, and 102 women were analyzed. The results reaffirm the high contraceptive efficacy of DMPA while also highlighting practical concerns related to tolerability and continuation.

Age Distribution: Most participants belonged to the 18–25 years age group (51.9%), comparable to Patel RR et al11 (49.5%) and Mane NS et al12 (53.3%). The 26–35 years age group constituted 40.2%, whereas Patel RR et al11 and Mane NS et al12 reported 40.38% and 30.7% respectively in this category. These findings suggest that younger women are more inclined toward injectable contraception.

Parity: Acceptance was higher among multiparous women, with para 3 (35.3%) and para 4 (28.4%) forming the majority, while primigravidae accounted for only 6.9%. Patel RR et al11 similarly observed that 36.53% were para 2 and 25.96% para 3, with only 9.6% primigravidae. This pattern indicates that women with completed or larger families are more willing to adopt long-acting reversible contraception, whereas primigravidae may hesitate due to concerns regarding fertility and adverse effects.

In this study, DMPA uptake was highest during the interval period (64%), followed by post-abortal (20%) and postpartum (16%) acceptance, consistent with Mane NS et al12. Patel RR et al11 reported 41.35% interval, 26.92% postpartum, and 31.73% post-abortal acceptance. Interval initiation appears to reflect deliberate contraceptive choice after family planning goals are clarified.

Side Effects and Tolerability: Menstrual irregularities were the most common adverse effects. Irregular bleeding/spotting occurred in 40.2%, amenorrhea in 26.5%, and HMB in 6.9%. Patel RR et al11 reported irregular bleeding in 50.96%, amenorrhea in 29.8%, and HMB in 6.3%. Although amenorrhea is medically benign, it contributed to discontinuation in several cases. Weight gain was reported by 4.9%, lower than Patel RR et al11 (9.6%) and Rai et al13 (10%). Mood changes (3.9%) and headache (2.9%) were infrequent, compared to 5.75% and 9% respectively in Patel RR et al11. Notably, 9.8% reported no complaints, indicating variability in individual response.

Continuation and Compliance: Continuation was higher among women with three or more children; 32 of 36 para-3 women completed four or more injections. Only 5 of 7 primigravidae continued beyond one year. The overall 12-month continuation rate of approximately 60–65% is comparable with other Indian and international studies.

Reasons for Discontinuation: Among 41 discontinuations, irregular bleeding (46.34%) was the most common reason, followed by amenorrhea (19.51%) and HMB (14.63%). Non-medical factors included husband's absence (7.3%) and planning conception (7.3%). Weight gain accounted for 4.8%, similar to Patel RR et al11. These findings emphasize that bleeding disturbances are the principal cause of discontinuation, underscoring the importance of comprehensive pre-injection counseling.

Efficacy: No pregnancies were reported during follow-up, confirming the high contraceptive reliability of DMPA. Published data demonstrate a failure rate below 1% per year, making it comparable to intrauterine devices and more effective than user-dependent methods such as oral pills and condoms.

Comparison with Other Studies: The continuation rate in this study (~60%) is similar to Kaunitz (1994) (58%) and WHO multicentric data (55%). The side effect pattern parallels global observations where menstrual disturbances predominate. The lower

incidence of weight gain compared to Western data may reflect differences in baseline BMI and lifestyle factors.

Implications for Practice: The study highlights the need for enhanced counseling to improve both uptake and continuation. Addressing expected menstrual changes, reassuring women regarding reversibility and safety, and offering appropriate management strategies can reduce premature discontinuation. Focused counseling for multiparous women and improved postpartum and post-abortal engagement may further increase acceptance and sustained use of DMPA.

CONCLUSION

This study concludes that DMPA is a preferable contraceptive method in all the groups of patients including postpartum and post abortal patients for spacing and to avoid unplanned pregnancy with 100% effectivity. DMPA has higher acceptance and continuation rate in multipara women who fear to use permanent sterilization or IUCD as per their religious and cultural beliefs and as an alternative to permanent sterilization. Menstrual disturbance was major side effect associated with DMPA use. Pretreatment counselling on expected side effects and proper treatment of side effects helps in better continuation of DMPA.

Patients prefer DMPA because it is non coitus dependent, convenient, long acting, no need of daily use of pill or other methods and because of its other non-contraceptive benefits

Summary of Key Discussion Points
High efficacy: No pregnancies reported, comparable with global literature.
Acceptance: Greater among multiparous and interval users.
Side effects: Menstrual irregularities remain the main drawback.
Continuation: Around 60% at one year, higher in women with 3+ children.
Dropout causes: Predominantly bleeding disturbances, followed by amenorrhea.

Practice implication: Pre-use counseling and side effect management are crucial to improve compliance.

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