

Study on DMPA as postpartum contraception in a tertiary care hospital
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Abstract

Background: Injectable Depomedroxyprogesterone acetate (DMPA) is a very safe, convenient, highly effective, reversible, long-acting postpartum contraception without affecting lactation. **Objectives:** To find out side effects, continuation rate and reasons for discontinuation of DMPA used as postpartum contraception. **Material and methods:** This Prospective study was carried out on 120 women. Intramuscular DMPA administered every 3 months after 6 weeks postpartum. Data in relation to age, parity, side effects, continuation rate and reasons for discontinuation was statistically analysed using SPSS software and Microsoft Excel. Results were expressed in terms of numbers and percentages. **Results:** 43.33% and 33.33% were in the age group of 21-25 and 26-30 years respectively. 53.34% were Primipara. Irregular bleeding was the most common side effect seen in 36.67%. 20% had secondary amenorrhoea. 7.5% noticed weight gain. 5.83% complaint of headache and 1.67% had acne. Majority (61.66%) discontinued DMPA after first and second dose of injection. 20.84% and 17.5% discontinued after third and fourth dose respectively. Most common reason for discontinuation was its side effects, seen in 68.34%. 16.66% were lost to follow up. 15% switched over to another contraception. Most of the users were satisfied with their lactation. No significant alteration of blood pressure was found among DMPA users. No serious adverse reaction was noticed and none of the women became pregnant during DMPA use. **Conclusion:** Injectable DMPA was found to be safe and highly effective postpartum contraception without any adverse effect on lactation. Pre-use counselling on expected side effects along with regular follow-up increases the acceptance and continuation rate.

Keywords: Contraception, DMPA, postpartum, side effects.

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Introduction

The incidence of unintended pregnancy during first year postpartum was found to be 12.8 per 100 women years and 86% had resulted from non use of contraception [1]. Unintended pregnancies can lead to many undesirable consequences like unsafe abortion, maternal and/or newborn morbidity and mortality. Depomedroxyprogesterone acetate (DMPA), the progesterone only preparation (POP) was first studied in clinical trials in the 1960s and approved for contraception by the U.S. FDA in 1992. DMPA has been used by more than 68 million women in more than 114 countries worldwide [2]. It is a 3 monthly intramuscular injectable contraceptive that delivers 150 mg of medroxyprogesterone acetate in microcrystalline suspension. The mechanism of action of DMPA are: prevents ovulation by blocking

mid-luteal LH surge, thickens cervical mucus decreasing sperm penetration, alters endometrial receptivity for implantation by making endometrium atrophic with inactive glands and decreases tubal motility. One injection of DMPA inhibits ovulation for 14 weeks. DMPA is considered as safe, highly effective, convenient, coitus independent, long acting, reversible, oestrogen free hormonal contraception. One year median cumulative typical-use contraceptive failure rates for Injectable DMPA is 1.7 which is comparable to IUCD (1.4) and lower than pill (5.5) [3]. Client can return as much as 2 weeks early or late than due date of injection allowing some flexibility in return visit for DMPA users. Emergency contraception should be used as a "back up" if more than two weeks late for DMPA injection and pregnancy testing should be performed before administering DMPA. To minimize the amount of medroxyprogesterone acetate that is passed to the infant in the first week after birth, women should wait until 6 weeks after child birth before starting DMPA for postpartum contraception. Study indicates that effect of DMPA on infant health and lactation are found to be safe

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[4]. It is also recommended for women whose medical status precludes use of contraceptive doses of oestrogen. Alteration of the menstrual pattern is a quite common side effect among DMPA users, which make them anxious and apprehensive. In contrast to normal menstruation, progestin induced breakthrough bleeding is focal and comes from small superficial veins and capillaries. Increased fragility of endometrial blood vessels results from disturbance of angiogenesis and of reduced expression of progesterone receptors at bleeding sites [5]. Pre-use counselling is essential to minimise discontinuation rate because of menstrual changes. DMPA users have a decreased risk for iron deficiency anaemia, pelvic inflammatory disease and ectopic pregnancy [6]. Various studies found that endometrial and ovarian cancer are decreased among DMPA users.

Aim of the study was to know the side effects, continuation rate and reasons for discontinuation of DMPA used as postpartum contraception.

Methods

This was a hospital based prospective study carried out in the Department of Obstetrics and Gynaecology, F.M. Medical College & Hospital, Balasore, Odisha for a period of 18 months from June 2019 to November 2021. Study group comprises of 120 women in their postpartum period who were lactating. Institutional Ethics Committee approval was obtained to conduct the study. Written and informed consent was taken from the enrolled patients. Participants were given options and explained well about the benefits and side effects of each and every contraceptive method that can be practiced in postpartum period. Those who opted for DMPA Injection were included in the study. Patients are counselled that menstrual irregularities are normal while using DMPA injection and are not dangerous, DMPA does not causes infertility, women can become

pregnant after 7-10 months of last injection and DMPA does not affect the breast milk. So, after explaining in detail about advantages, disadvantages, side effects, effectiveness and impact on breast feeding, injection DMPA 150 mg was administered intramuscularly to the study participants and same dose was repeated every 3 months. During each follow up visit clients were asked about any menstrual irregularities, weight gain, headache, acne, mood changes and problem in breast feeding. They were also instructed not to message and not to apply hot fomentation at the injection site. Women not willing for regular follow-up, women having undiagnosed vaginal bleeding, Known or suspected malignancy of breast, diabetes mellitus of more than 20 years duration or diabetes mellitus with complications, active thrombophlebitis, current or past history of thromboembolic disorders, or cerebrovascular disease, active viral hepatitis, severe cirrhosis, benign or malignant liver tumour were excluded from the study.

Data was obtained regarding age, parity distribution, side effects, discontinuation rate and reasons for discontinuation among postpartum DMPA contraceptive users. Data were compiled, reflected in the form of table and expressed in term of numbers and percentages. Statistical analysis was performed using statistical package for social sciences (SPSS) v.21.0 software and Microsoft Excel.

Results

In the current study, majority of women using DMPA as postpartum contraception were in the age group of 21-25 years (43.33%), while 33.33% of women were in the age group of 26-30 years. 10.83% of DMPA users were between 31-35 years and 4.17% belonged to 36 years of age and above (Table 1).

Table 1: Age distribution among DMPA contraceptive users (n=120).

Age (years)	No. of women	Percentage
18-20	10	8.34%
21-25	52	43.33%
26-30	40	33.33%
31-35	13	10.83%
≥36	5	4.17%

53.34% of DMPA users were Primipara, 35.83% were Para-2 and 10.83% women belonged to Para-3 and above (Table 2).

Table 2: Parity distribution of women using DMPA contraception (n=120).

Parity	No. of women	Percentage
Para-1	64	53.34%
Para-2	43	35.83%
Para-3 & above	13	10.83%

Irregular bleeding was the most common side effect seen in 36.67% of women using DMPA contraception. 20% had secondary amenorrhoea, 7.5% women noticed weight gain during DMPA use.

5.83% women complaint of headache and acne developed in 1.67% cases as contraceptive side effect. 34 women (28.33%) did not complaint any contraceptive side effect during DMPA use (Table 3).

Table 3: Contraceptive side effects seen among DMPA users (n=120)

Side effects	No of women	Percentage
Irregular bleeding	44	36.67%
Amenorrhoea	24	20%
Wight gain	9	7.5%
Headache	7	5.83%
Acne	2	1.67%
No complaints	34	28.33%

36.66% of women discontinued DMPA after first injection, 25% users discontinued after second injection. After third injection,

20.84% women discontinued DMPA use and after fourth dose of DMPA injection 17.5% users discontinued it (Table 4).

Table 4: Discontinuation rate among women using DMPA contraception (n=120)

Follow up after IM DMPA	No. of women discontinued	Percentage
After first Injection	44	36.66%
After second Injection	30	25%
After third Injection	25	20.84%
After fourth Injection	21	17.5%

Most common reason for discontinuation of DMPA use was its side effects which were seen in 82 women (68.34%). 16.66% of women

were lost to follow up and 15% DMPA users switched over to another contraceptive method (Table 5).

Table 5: Reasons for discontinuation of DMPA contraceptive use (n=120)

Reasons	No. of women	Percentage
Side effects	82	68.34%
Lost to follow up	20	16.66%
Changed contraception	18	15%

In the present study, we could not find any lactation problem among DMPA users irrespective of parity status. No significant alteration of blood pressure was seen among DMPA users. None of the DMPA users became pregnant and no serious adverse reaction was noticed among women using DMPA during the study period.

Discussion

Present study was conducted to find out age and parity distribution among 120 women using DMPA as postpartum contraception and to know the side effects, continuation rate and reasons for discontinuation of DMPA. In our study, majority of DMPA users were in the age group of 21-25 years (43.33%). Divya et al in their study from Madurai, India found 28.2% of DMPA contraceptive users were in the age group of 21- 25 years [7].

We found majority (53.34%) of women using DMPA were Primipara. Shweta M and Rupali G from Uttar Pradesh, India reported 41.13% of DMPA contraceptive users were primipara [8].

Studies have revealed that during first 3 months of DMPA use, close to half of the users experience irregular and prolonged bleeding. With continued use, these patterns become less frequent, while an increase number of women experience infrequent bleeding or even complete amenorrhoea. DMPA users experience anxiety over menstrual changes may be concerned that pregnancy or gynaecologic disease is present.

Aktun H et al and Wellings K et al reported that the most common side effects in DMPA users were menstrual disorders, weight gain and headache [9, 10].

In the present study, irregular bleeding was the most common side effect seen in 36.67% of women using DMPA. Raj L et al and Pratibha S et al reported irregular bleeding in 45% and 50% of women using DMPA [11, 12]. Whereas Abhipsa P et al in their study among 90 women who used DMPA as contraception observed irregular bleeding in 61.11% cases [13]. All progestogen-only methods whether low or high dose, lead to menstrual disturbances, so in this respect DMPA is not unique. Spotting and breakthrough bleeding may be handled by counselling or by short course of high-dose ibuprofen or of low-dose of oestrogen supplementation.

We found, 20% of DMPA users had secondary amenorrhoea. Abhipsa P et al in their study reported secondary amenorrhoea in 29% cases [13]. Belessey E.M. noticed that after 1 year DMPA use (four injections), 50% of women experience amenorrhoea [14]. WHO multicentre study reported amenorrhoea in 37% cases [15]. Guzman-Garcia et al observed that, amenorrhoea itself is not well tolerated by some women as it gives them doubt about their fertility and their pregnancy status [16]. A pregnancy test should be offered in the first month of amenorrhoea, after which no treatment is necessary.

In our study, 7.5% of women noticed weight gain during DMPA use. WHO multicentre study, reported weight gain in 10% cases with a mean weight gain of 1.5 kg per year. Espey E et al in their study on 172 Navajo women who received DMPA contraception observed that study group gained a mean of 6 pounds weight over one year and 11 pounds over 2 years [17]. However, Mainwaring R et al and Risser WI et al reported non-significant changes in weight among women who used DMPA for up to one year [18, 19]. Njoku C.O. et al in their study on DMPA observed that 14.2% of DMPA contraceptive users had weight gain [20]. Counselling may help women to manage weight gain through caloric reduction and an increase in exercise.

We found, 5.83% of women using DMPA contraception complaint of headache. Njoku C.O. et al reported that 1.9% of DMPA users' complaint of headache [20]. David et al noticed headache as contraceptive side effect in 5.4% cases using DMPA in 6-9 months follow up period [21]. Catherine d'Arcangues found that DMPA has the highest discontinuation rate among modern, highly effective contraceptives, and dissatisfaction with changes in menstrual bleeding is the most common method-related reason for discontinuation [22]. Pre-administration anticipatory counselling regarding side effects with DMPA increases continuation rates. Lei ZW et al in their Pre-DMPA counselling intervention trial reported 12-month discontinuation rate of only 11%, compared with 42% without counselling [23].

In our study, majority (61.66% of users) discontinued DMPA use after first and second dose of injection. 20.84% and 17.5% contraceptive users discontinued its use after third and fourth dose of DMPA injection respectively. Fonseca M et al reported 73%, 59%, 41% and 31.5% of DMPA users discontinued its use after first, second, third and fourth dose of DMPA injection respectively [24]. Polaneczky M et al in an exploratory study over 261 U.S. women using DMPA contraception found that the continuation rate was 81% at 3 months, 63% at 6 months, 52% at 9 months, and 42% at 12 months [25]. Vikash Gupta et al observed that more than two-fifth of subjects discontinued the DMPA, i.e., they did not turn up for the second dose of DMPA [26]. Davidson AR et al reported that 12-month life-table discontinuation rate was 58%, with half of the discontinuers stopping after only one injection [27]. Aladag N et al found satisfaction as one of the most important factors affecting contraceptive selection and its continuation. They also mentioned that satisfaction from a method is often influenced by frequency of side effects and the outcomes on individual's health [28].

In the current study, most common reason for discontinuation of DMPA use was due to side effects seen in 68.34% users. Paul C et al from New Zealand reported that side effects particularly menstrual disturbances and weight gain were the most common reasons for stopping DMPA contraception and only 1.6% of discontinuation was attributed to contraceptive failure [29]. Adeyemi A.S. et al noticed that menstrual abnormality, most commonly encountered side effect was the commonest reason for discontinuation of injectable DMPA [30].

We did not find any significant change on blood pressure among DMPA users. Bigrigg A et al reported that DMPA use has no appreciable effects on blood pressure or thrombosis risk [31].

In the present study, irrespective of parity status most of the DMPA users were satisfied with their lactation. Karim M et al reported when DMPA initiated immediately or at 6 weeks postpartum, it has not been shown to decrease the amount of milk and duration of lactation or infant weight gain [32].

Conclusion

In conclusion, menstrual irregularities were most commonly encountered side effects among women using DMPA as postpartum contraception. Very few clients had weight gain, headache and acne as contraceptive side effects. We could not find any serious adverse reaction among DMPA users. Breast feeding in term of duration and quantity was not affected among nursing mother using DMPA; none of the DMPA user had contraceptive failure in the study period. It had no significant effect on blood pressure. Hence, intramuscular

DMPA injection is considered to be safe, convenient, and highly effective postpartum contraceptive method. Pre-use counselling regarding expected side effects and regular follow-up are crucial to increase the acceptance and compliance of DMPA contraception.

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