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Original Article

Investigation of DMPA as Postpartum Contraception in a Tertiary Care Hospital: A Comprehensive Study

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ABSTRACT:

Background:Depomedroxyprogesterone acetate (DMPA) administered through injection stands out as a remarkably safe, convenient, highly effective, reversible, and long-acting method of postpartum contraception, all while having no adverse impact on lactation.**Methods**:This prospective study involved 60 women who received intramuscular Depomedroxyprogesterone acetate (DMPA) every three months starting six weeks postpartum. **Results**:In the study, 43.33% of participants fell into the 21-25 age group, while 33.33% were in the 26-30 age bracket. Of the participants, 53.34% were primiparous. The most prevalent side effect was irregular bleeding, affecting 36.67% of individuals, followed by secondary amenorrhea in 20%, weight gain in 7.5%, headaches in 5.83%, and acne in 1.67%. The majority (61.66%) discontinued DMPA after the first and second injections, with 20.84% and 17.5% discontinuing after the third and fourth doses, respectively. The primary reason for discontinuation was side effects, accounting for 68.34%. A notable 16.66% were lost to follow-up, while 15% transitioned to another form of contraception.Despite these findings, the majority of users expressed satisfaction with lactation. No significant blood pressure alterations were observed among DMPA users, and no serious adverse reactions were reported, with none of the women becomingpregnant during DMPA use.**Conclusion**:The study concluded that InjectableDepomedroxyprogesterone acetate (DMPA) proves to be a secure and highly efficient postpartum contraceptive method without negatively impacting lactation. The importance of pre-use counseling regarding anticipated side effects, coupled with consistent follow-up, emerged as a key factor in enhancing acceptance and continuation rates among users.

Keywords:Contraception, DMPA, postpartum, side effects

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INTRODUCTION

The study delved into the significant issue of unintended pregnancies during the initial year postpartum, revealing an incidence of 12.8 per 100 women years, with a striking 86% attributable to the absence of contraceptive use.[1] The repercussions of unintended pregnancies, including unsafe abortions and risks to maternal and newborn health, underscored the critical need for effective contraception during this period. Depomedroxyprogesterone acetate (DMPA), a progesterone-only preparation (POP), underwent rigorous clinical trials in the 1960s and received approval for contraceptive use by the U.S. Food and Drug Administration (FDA) in 1992. Its widespread adoption, with more than 68 million women across 114 countries benefiting from its use, underscores its global significance. Administered as a three-monthly intramuscular injectable contraceptive, DMPA delivers 150 mg of medroxyprogesterone acetate in microcrystalline suspension.The multifaceted mechanism of action of DMPA involves preventing ovulation by blocking the mid-luteal LH surge, modifying cervical mucus to impede sperm penetration, influencing endometrial receptivity for implantation by inducing endometrial atrophy with inactive glands, and reducing tubal motility.[2] A singular DMPA injection effectively inhibits ovulation for an impressive 14 weeks.DMPA stands out as a contraception choice due to its recognized attributes: it is considered safe, highly effective, convenient, coitus-independent, and a long-acting, reversible, and estrogen-free hormonal contraceptive. Notably, the one-year median cumulative typical-use contraceptive failure rate for Injectable DMPA, at 1.7, compares favorably to intrauterine contraceptive devices (IUCD) at 1.4 and is substantially lower than oral contraceptive pills at 5.5. This comprehensive understanding of DMPA's efficacy and mechanisms reinforces its pivotal role in addressing the challenges posed by unintended pregnancies, particularly in the postpartum period.The study places emphasis on the practical flexibility offered to clients using Injectable Depomedroxyprogesterone acetate (DMPA), allowing a leeway of up to two weeks, either before or after the scheduled injection due date.[3] This pragmatic approach acknowledges the diverse and dynamic lifestyles of individuals, accommodating potential challenges or unexpected delays in adhering to the strict injection schedule. Moreover, the study

highlights the importance of utilizing emergency contraception if the DMPA injection is delayed by more than two weeks, providing an additional layer of protection against unintended pregnancies. The recommendation for a pregnancy test before administering DMPA in cases of lateness underscores a proactive approach to ensuring contraceptive effectiveness.In the context of postpartum contraception, the research underscores the cautionary approach of waiting until six weeks after childbirth before initiating DMPA. This delay is strategically designed to minimize the transfer of medroxyprogesterone acetate to the infant during the crucial first week after birth, aligning with a commitment to prioritizing infant health and well-being. The study's findings reassuringly confirm the safety of DMPA in relation to both infant health and lactation.[4]Beyond its postpartum applications, DMPA is recognized as a suitable contraceptive option for women whose medical conditions preclude the use of contraceptives containing estrogen. However, the study sheds light on a common side effect among DMPA users—alterations in menstrual patterns. This finding underscores the need for comprehensive pre-use counseling to address concerns and minimize discontinuation rates attributed to anxieties related to menstrual changes.On a positive note, DMPA users benefit from a decreased risk of iron deficiency anemia, pelvic inflammatory disease, and ectopic pregnancy, as evidenced by various studies. Furthermore, there is a notable reduction in the incidence of endometrial and ovarian cancer among DMPA users.[5]The overarching goal of the study is to provide a nuanced understanding of the side effects, continuation rates, and reasons for discontinuation associated with DMPA when utilized as a postpartum contraceptive method. By illuminating these facets, the research contributes valuable insights to healthcare practices, enhancing the overall efficacy, safety, and user experience of DMPA in the context of postpartum contraception.

MATERIALS AND METHODS

The study involved a cohort of 60 lactating women in their postpartum period, all of whom provided informed written consent after obtaining approval from the Institutional Ethics Committee. The participants were meticulously informed about various contraceptive options available during the postpartum period, with a detailed explanation of the benefits and potential side effects associated with each method. Those who chose to receive Depomedroxyprogesterone acetate (DMPA) injections were included in the study.Prior to the administration of the first injection, participants received thorough counseling, addressing important aspects of DMPA use. The information conveyed included the normalcy of menstrual irregularities while using DMPA, emphasizing that such irregularities are not harmful. Importantly, participants were assured that DMPA does not cause infertility, and women can conceive within 7-10 months after the last injection. A key point emphasized during counseling was that DMPA does not adversely affect breastfeeding.Following comprehensive counseling, participants received intramuscular injections of 150 mg of DMPA, with subsequent doses repeated every three months. During each follow-up visit, participants were queried about potential side effects, including menstrual irregularities, weight gain, headaches, acne, mood changes, and any challenges encountered in breastfeeding. This systematic and patient-centric approach ensures a holistic evaluation of the impact and experiences of the participants, contributing valuable insights to the study's objectives.[6,7]In addition to the administration of DMPA injections and the detailed counseling process, specific instructions were provided to the participants. They were advised against massaging the injection site and applying hot fomentation to it. This precautionary measure aims to minimize any potential local reactions or discomfort at the injection site, ensuring the well-being and comfort of the study participants.Furthermore, the study implemented exclusion criteria to ensure the safety and appropriateness of DMPA use for the participants. Women who were unwilling or unable to adhere to regular follow-up visits were excluded, as were those experiencing undiagnosed vaginal bleeding. Additionally, individuals with known or suspected breast malignancy, diabetes mellitus of over 20 years' duration or with complications, active thrombophlebitis, a current or past history of thromboembolic disorders or cerebrovascular disease, active viral hepatitis, severe cirrhosis, or benign or malignant liver tumors were excluded from the study.[8] These exclusions were crucial to maintaining the ethical standards and safety of the research.Data collection encompassed various parameters, including age, parity distribution, side effects experienced by the participants, discontinuation rates, and the reasons for discontinuation among postpartum DMPA contraceptive users. This comprehensive approach aimed to gather detailed insights into the demographic characteristics and experiences of the study participants, contributing to a thorough analysis of the contraceptive method's effectiveness and acceptability in the postpartum period.

RESULTS

The demographic distribution in the current study reveals a predominant usage of DMPA as postpartum contraception among women in the age bracket of 21-25 years, constituting the majority at 43.33%. Additionally, a significant portion of users falls within the age group of 26-30 years, accounting for 33.33% of the study participants. Furthermore, 10.83% of DMPA users were between 31-35 years, and 4.17% were 36 years of age and above. This age-wise breakdown provides valuable insights into the preferences and choices of women across different

age categories regarding the use of DMPA for postpartum contraception in the study population. Such demographic information is crucial for understanding the targeted demographic profile and tailoring healthcare interventions accordingly.

Table 1: Age distribution among DMPA contraceptive users (n=60).

Age (years)	No. of women	Percentage
18-20	5	8.34%
21-25	26	43.33%
26-30	20	33.33%
31-35	6	10.83%
≥36	3	4.17%

Table 2: Parity distribution of women using DMPA contraception (n=60).

Parity	No. of women	Percentage
Para-1	32	53.34%
Para-2	21	35.83%
Para-3 & above	7	10.83%

The study findings highlight the spectrum of side effects experienced by women using DMPA as a contraceptive method in the postpartum period. Notably, irregular bleeding emerged as the most prevalent side effect, affecting 36.67% of women. Secondary amenorrhea, the absence of menstrual periods, was observed in 20% of cases, indicating a notable impact on menstrual patterns. Weight gain was noted by 7.5% of women using DMPA, reflecting a potential concern for some users.Headache and acne were reported by 5.83% and 1.67% of women, respectively, as additional side effects associated with DMPA use. These findings underscore the diverse range of experiences individuals may have with this contraceptive method, emphasizing the importance of individualized care and counseling to address and manage these side effects effectively.Encouragingly, a substantial proportion of women, 28.33% of the study participants, did not report any contraceptive side effects during their use of DMPA. This suggests that a significant number of users may tolerate the method well without experiencing adverse effects, reinforcing the variability in individual responses to hormonal contraception.

Fig 1: Contraceptive side effects seen among DMPA users (n=60)

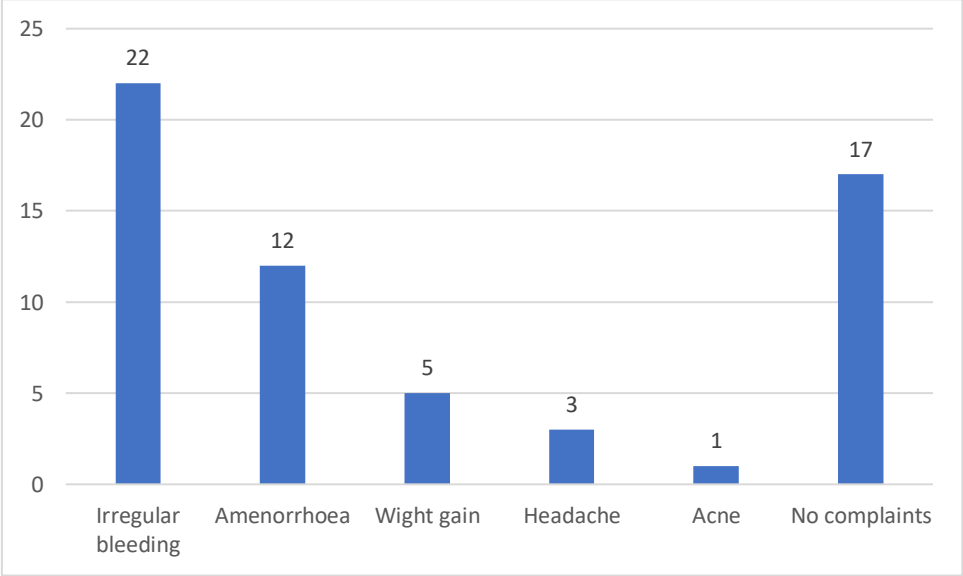

Table 3: Discontinuation rate among women using DMPA contraception (n=60)

Follow up after IM DMPA	No. of women discontinued	Percentage
After first Injection	22	36.66%
After second Injection	15	25%
After third Injection	13	20.84%
After fourth Injection	10	17.5%

The findings from the present study provide reassuring insights into the safety and efficacy of DMPA use in the postpartum period. Notably, no lactation problems were identified among DMPA users, irrespective of their parity status. This observation suggests that DMPA does not adversely impact lactation, contributing to its suitability as a contraceptive choice for breastfeeding women.Moreover, the study noted no significant alterations in blood pressure among DMPA users, indicating a favorable cardiovascular safety profile associated with the use of this contraceptive method.[9] This finding is crucial, particularly considering the importance of monitoring cardiovascular health in contraceptive users.Equally noteworthy is the absence of pregnancies among DMPA users during the study period, affirming the contraceptive efficacy of DMPA when administered in the postpartum period.

Additionally, the study did not report any serious adverse reactions, highlighting the overall safety of DMPA during the observed timeframe.These reassuring outcomes contribute valuable information to the body of knowledge surrounding DMPA's safety and effectiveness, reinforcing its potential as a reliable and well-tolerated contraceptive option for women in the postpartum period. The absence of lactation issues, stable blood pressure, and the absence of pregnancies or serious adverse reactions underscore the positive outcomes associated with DMPA use in the context of postpartum contraception.

DISCUSSION

The objective of the current study was to explore the age and parity distribution within a cohort of 60 women utilizing Depomedroxyprogesterone acetate (DMPA) as their chosen method of postpartum contraception. The study revealed a noteworthy trend, with a substantial majority (43.33%) of DMPA users falling within the age range of 21-25 years.[10] This demographic pattern is consistent with findings from a study conducted by Divya et al. in Madurai, India, where 28.2% of DMPA users were also reported to be in the 21-25 age group. This alignment underscores a commonality in age demographics among DMPA users, transcending geographical boundaries.An essential aspect of the investigation centered on understanding the side effects, continuation rates, and reasons for discontinuation associated with DMPA use. The study brought to light the prevalence of irregular and prolonged bleeding during the initial three months of DMPA use, a phenomenon that tends to diminish with continued usage. Moreover, an intriguing shift in bleeding patterns was observed, with an increasing number of women experiencing infrequent bleeding or complete amenorrhea over time. Equally important was the acknowledgment of the psychological impact of menstrual changes on DMPA users, revealing concerns and anxieties related to potential pregnancies or gynecologic conditions. This insight underscores the need for comprehensive patient education and support to address these psychological aspects of contraceptive use.These findings align with existing literature, as noted in studies by Aktun H et al. and Wellings K et al.[11], which identified menstrual disorders, weight gain, and headaches as prevalent side effects among DMPA users. This comprehensive understanding of the challenges and concerns associated with DMPA use contributes valuable insights for healthcare providers, enabling them to tailor counseling strategies and support services to enhance patient experiences and satisfaction with this contraceptive method. The collective evidence from the current study and existing research enriches our understanding of the nuanced dynamics surrounding DMPA use in the postpartum period.The findings of Aktun H et al. and Wellings K et al. align with the observations in the present study, emphasizing that menstrual disorders, weight gain, and headaches are among the most commonly reported side effects in women using Depomedroxyprogesterone acetate (DMPA) for contraception.

Specifically, the current study identified irregular bleeding as the predominant side effect, affecting 36.67% of women utilizing DMPA. This observation is in line with similar studies conducted by Raj L et al. and Pratibha S et al.[12], which reported irregular bleeding in 45% and 50% of DMPA users, respectively. Notably, Abhipsa P et al. observed a higher incidence of irregular bleeding at 61.11% in their study among 90 women using DMPA for contraception. The variability in reported rates underscores the diverse experiences individuals may have with DMPA, emphasizing the need for personalized patient care.It is highlighted that menstrual disturbances are common across progestogen-only methods, irrespective of dose levels, and DMPA is no exception.[13] The occurrence of spotting and breakthrough bleeding, while potentially challenging for users, may be effectively managed through counseling or short courses of high-dose ibuprofen or low-dose estrogen supplementation. This proactive approach to addressing menstrual irregularities contributes to enhanced patient satisfaction and improved contraceptive adherence.The collective evidence from these studies aids in building a comprehensive understanding of the side effect profile associated with DMPA use, providing valuable insights for healthcare practitioners to tailor counseling strategies and offer targeted support to women considering or currently using DMPA for contraception.

The study results indicate a noteworthy trend in DMPA discontinuation rates, with the majority (61.66%) of users discontinuing after the first and second doses. Subsequent discontinuation rates were 20.84% and 17.5% after the third and fourth doses of DMPA injection, respectively. These findings align with studies conducted by Fonseca M et al., Polaneczky M et al.[14], Vikash Gupta et al., and Davidson AR et al., showcasing variations in DMPA continuation rates across different study populations. Factors influencing discontinuation include side effects, satisfaction, and individual experiences with the contraceptive method.Notably, Fonseca M et al.[15] reported higher discontinuation rates of 73%, 59%, 41%, and 31.5% after the first through fourth doses of DMPA injection, respectively. Polaneczky M et al. conducted an exploratory study on U.S. women and observed decreasing continuation rates over time, with 81% at 3 months, 63% at 6 months, 52% at 9 months, and 42% at 12 months. Vikash Gupta et al. noted that more than two-fifths of subjects discontinued DMPA, primarily by not returning for the second dose. Davidson AR et al.[16] reported a 12-month life-table discontinuation rate of 58%, with half of the discontinuers stopping after only one injection.The most common reason for discontinuation in the

current study was side effects, noted in 68.34% of users. This finding resonates with studies by Paul C et al. from New Zealand, where menstrual disturbances and weight gain were the primary reasons for stopping DMPA, with only 1.6% discontinuation attributed to contraceptive failure. Adeyemi A.S. et al. also found menstrual abnormality to be the most common reason for discontinuation of injectable DMPA.

Blood pressure remained stable among DMPA users in the present study, consistent with the findings of Bigrigg A et al., who reported that DMPA use has no appreciable effects on blood pressure or thrombosis risk.Regarding lactation, the study revealed that most DMPA users, regardless of parity status, were satisfied with their lactation. This aligns with the findings of Karim M et al., who reported that when DMPA is initiated immediately or at 6 weeks postpartum, it does not decrease the amount of milk, duration of lactation, or infant weight gain.These comprehensive results provide valuable insights into the multifaceted aspects of DMPA use, including continuation rates, reasons for discontinuation, and the impact on lactation, contributing to a nuanced understanding of the contraceptive experiences of postpartum women.

CONCLUSION

In summary, the study highlights that menstrual irregularities, such as irregular bleeding, were the most commonly reported side effects among women using Depomedroxyprogesterone acetate (DMPA) as a postpartum contraceptive method. Few clients experienced weight gain, headache, or acne as contraceptive side effects, and no serious adverse reactions were identified among DMPA users. Importantly, breastfeeding, both in terms of duration and quantity, was not adversely affected among nursing mothers using DMPA, and there were no instances of contraceptive failure during the study period. Additionally, DMPA had no significant impact on blood pressure.The study's findings affirm the safety, convenience, and high effectiveness of intramuscular DMPA injection as a postpartum contraceptive method. The positive outcomes underscore the importance of pre-use counseling, emphasizing expected side effects, and the necessity of regular follow-up. These measures are deemed crucial to enhance the acceptance and compliance of DMPA contraception, ensuring that individuals are well-informed and supported throughout their contraceptive journey.

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