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Progesterone Only Injectable Contraceptives: A Five Year Review of Side Effects and Discontinuation Rate in a Teaching Hospital in Niger Delta, Nigeria

Nonye-Enyidah Esther Ijeoma[1*] and Enyidah Nonyenim Solomon[2]

[1]Department of Obstetrics and Gynaecology, Rivers State University Teaching Hospital, Port Harcourt, Nigeria.
[2]Department of Medicine, Rivers State University Teaching Hospital, Port Harcourt, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Author NEEI designed the study, wrote the protocol and first draft of the manuscript and also managed the literature search while author ENS managed the analysis of the study. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Progesterone only injectable contraceptives (POICs) are long acting reversible method of contraception used worldwide. Menstrual abnormalities are recognized side effects that can lead to discontinuation of these highly effective and safe contraceptives.
Objectives: To determine the prevalence rate, side effects, discontinuation rate and indications for discontinuation of Norethisteroneenanthate (noristerat) and Depot Medroxyprogesterone acetate (depoprovera) at Rivers State University Teaching Hospital (RSUTH), Port Harcourt.
Methods: A five year retrospective study of 874 clients attending family planning clinic at the RSUTH from 1st of January, 2015 – 31st of December, 2019. Their records were retrieved from the clinic and reviewed. Data was extracted, coded and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY). Chi square test was used as test of significance where applicable and a p-value <0.05 was considered statistically significant.
Results: One hundred and thirty eight clients accepted and used POICs out of 874 acceptors of contraceptives within the study period giving a prevalence rate of 15.8%.

**Corresponding author: E-mail: hernsi@yahoo.com;*

Depot Medroxyprogesterone acetate was more preferred by the women. The modal age group was 25-34 years accounting for 86 (62.3%). Age range was 19-48 years and the modal parity was para 2. Majority of the clients had formal education, 137 (99.3%), married, 128 (92.8%) and multipara 85 (61.6%).The discontinuation rate was 31.9%and the commonest reason for discontinuation was irregular vaginal bleeding accounting for 25%.

Conclusion: The prevalence rate of POICs was low and Depot Medroxyprogesterone acetate was more popular. Majority of the discontinuation was due to the side effects of the contraceptives.

Keywords: Depot medroxyprogesterone acetate; Norethisterone enanthate; side effects; discontinuation rate; RSUTH.

1. INTRODUCTION

Progesterone only injectable contraceptives (POICs) are used worldwide by more than 16 million women [1-3]. They offer women a convenient, safe, reversible and effective birth control method with failure rates ranging from 0.1 to 2/100 women-years [1,4]. Commonly available ones are Depot Medroxyprogesterone acetate and norethisterone enanthate given intramuscularly at a dose of 150mg, three-monthly and 200mg, two- monthly respectively. Both work in three ways namely the inhibition of ovulation by suppressing the levels of Luteinizing and Follicle Stimulating Hormones, increased viscosity of the cervical mucus thereby impairing the movement of sperm into the uterine cavity and thinning of the endometrial lining making it unsuitable for implantation [1,5].

These POICs have adverse effects and complications which may not be acceptable to the acceptors therefore leading to discontinuation of these contraceptives [2,6,7]. The commonest adverse effects and the reasons for most discontinuation of use include secondary amenorrhoea, menorrhagia and irregular vaginal bleeding [8,9]. Other side effects are weight gain, abdominal and chest pains, abdominal bloating, breast discomfort, mood swings, reduced libido, headache, loss of bone mineral density leading to osteoporosis, and delay in return of fertility following use [1,10]. Weight gain is another important reason for discontinuation of POICs though Cochrane systematic review indicated limited evidence in support of the claim on weight [11]. On the other hand, persistent use of a particular POIC with good and adequate counseling before and during use go a long way to improve continuation rate [12-14].

In view of this very effective and safe method of contraception, it becomes imperative to review the side effects and complications, discontinuation rate and the reasons for discontinuation of POICs in the family planning clinic of RSUTH. The findings will aid in intensifying on the counseling of these women and to encourage them to improve the uptake rate of these contraceptives thereby reducing the discontinuation rate.

2. MATERIALS AND METHODS

This was a retrospective study of clients who accepted and used POICs at the family planning clinic of RSUTH between 1st of January 2015 and 31st of December 2019, evaluating the side effects, discontinuation rate and reasons for discontinuation of POICs. The RSUTH is a tertiary hospital located in Rivers State which is one of the states in Niger Delta Region, Nigeria. The family planning clinic of the hospital opens from 8 am to 4 pm, Monday to Friday. It is headed by a family planning physician with the support of family planning nurses, resident doctors and student nurses.

At presentation, the clients were counseled by the family planning nurse and guided to make an informed choice of contraceptives suitable for them. Thereafter a medical history was taken and clinical examination done. Investigations were done to exclude pregnancy. During the study period, the only available progesterone-only injectables were intramuscular injections of DMPA and Norethisterone enanthate. The nurses injected 150 mg and 200 mg of DMPA and Norethisterone enanthate respectively into the deltoid or gluteal muscle within 7 days of normal menstrual period after excluding pregnancy. They were also given six weeks post partum in breastfeeding mothers who were yet to resume menstruation. Follow up observations and repeat injections were done every 90 and 60 days respectively.

At each visit, the complaints were documented likewise weight, blood pressure and results of urinalysis. A client was considered lost to follow up if she did not keep to her appointment dates

for more than twice. The record cards of all the clients that accepted and used POICs between 1st January, 2015 and 31st December, 2019 were retrieved and studied. Relevant information extracted from the cards using a purpose designed proformaincluded the socio-demographic characteristics of the clients, previous contraceptive methods used and their sources, side effects and complications of the current contraceptive, discontinuation and the reasons for discontinuation. The data was analyzed with the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY) using frequency counts and percentages for categorical variables while mean and standard deviation were used for continuous variables. Chi square test was used as test of significance where applicable and a p-value <0.05 was considered statistically significant. Level of confidence interval was set at 95%.

3. RESULTS

One hundred and thirty eight (138) clients made POICs as their method of choice during the study period, accounting for 15.8% of the 874 contraceptive acceptors. Of the 138 acceptors, 101 (73.2%) chose Depot medroxyprogesterone acetate and 37 (26.8%) chose Norethisterone enanthate.

The age range of the clients was 19 to 48 years. Majority of the clients 86 (62.3%) were between 25-34 years. The mean age of the study was 31.14± 5.81 years. Most of the clients were multiparous women, 85 (61.6%) and Christians 136(98.6%). The parity range was 0 to 7 and modal parity was para 2. Eight (5.8%) nullipara and 28 (20.3%) grandmultipara accepted and used POICs during the study period. One hundred and thirty seven (99.3%) clients had formal education out of which 85 (61.6%) had tertiary level of education while 45 (32.6%) and 7 (5.1%) had secondary and primary levels of education respectively. Only one client (0.7%) had no formal education. Majority of the clients were married 128 (92.8%) while 10 (7.2%) were single. The socio-demographic characteristics of the POICs acceptors are shown in Table 1.

Fig. 1 shows the sources of procurement of previous contraceptives used by the clients. Eighty (58%) clients got their previous contraceptives from government hospitals, 27 (19.6%) got theirs from private hospitals and 31 (22.4%) did not use any form of contraceptives prior to the use of POICs. Most of the clients, 71 (51.4%) previously used injectable contraceptives, 26 (18.8%) did not use any form of contraceptives, 18 (13%) previously used barrier method and 12 (8.7%) used oral contraceptive pills (OCPs). The rest were postinor, 3 (2.2%), withdrawal method, 2 (1.4%) and intrauterine contraceptive device (IUCD), 1 (0.7%). This is shown in Table 2.

The side effects associated with the use of POICs which also contributed to the reasons for discontinuation of this contraceptive method are shown in Table 3. Ninety four (68.1%) clients did not have any complaints and did not discontinue the use of POICs. Eleven (25%) clients had irregular vaginal bleeding, 9 (20.4%) had secondary amenorrhoea, 7 (15.9%) had menorrhagia and 6 (13.6%) complained of weight gain. Two clients (6.1%) each had headache and lower abdominal pains respectively whereas 7 (15.9%) clients desired to get pregnant. Fig. 2 shows the discontinuation rate of POICs. Forty four women discontinued the use of POICs during the study period giving a discontinuation rate of 31.9%. Of these 44 women, 37 (26.8%) discontinued their use due to the side effects and complications of the contraceptives. Eleven (8.0%) and 33 (23.9%) clients discontinued the use of Norethisterone enanthate and DMPA respectively throughout the study period. There was no report of accidental pregnancy by any of the clients during the study period.

4. DISCUSSION

The acceptance rate of POICs in this study was 15.8%. This is comparable to 15.35% and 15.7% reported fromPort-Harcourt and Uyo [15,16] but higher than 12.6% and 14.2% reported in Ife and Jos [17,18]. However the study prevalence was lower than 26%, 45.17%, 23.3% and 21.55% reported from other parts of the country such as Isagamu, Port Harcourt, Calabar and Lagos [6,19-21]. These variations noted in various regions of Nigeria could be as a result of socio-cultural and religious beliefs as well as clients perception of the type of contraceptive [20]. The mean age of the acceptors was31.14± SD 5.81. This is similar to previous studies [6,20,22]. Majority (81.1%) of the acceptors were in the age group of 25-39 years. This is not surprising as this represents the reproductive age group which has been extended to late thirties because of delay in childbearing caused by education of the girl child in Nigeria.In this study, only one married adolescent used DMPA. Adolescents are not advised to use progesterone-only contraceptives

due to its effect on bone mineral density causing osteoporosis [1,5]. In this study more than 99% of the acceptors had formal education. This is not surprising as studies have shown that increase in uptake of contraceptives has been associated with formal education [6,14].

Table 1. Socio-demographic characteristics of the clients

Variable	DMPA	Norethisterone enanthate	POICs (%)	X^2 (d.f)	P-value
	No	No			
Age					
<20	1	0	1 (0.7)	21.824 (6)	0.698
20-24	11	2	13 (9.4)		
25-29	31	14	45 (32.6)		
30-34	29	12	41 (29.7)		
35-39	19	7	26 (18.8)		
40-44	9	1	10 (7.3)		
45-49	1	1	2 (1.5)		
Educational Status					
No formal education	1	0	1 (0.7)	4.425 (3)	0.219
Primary	6	1	7 (5.1)		
Secondary	37	8	45 (32.6)		
Tertiary	57	28	85 (61.6)		
Religion					
Christianity	99	37	136 (98.6)	0.743 (1)	0.389
Islam	2	0	2 (1.4)		
Parity					
Nullipara	4	4	8 (5.8)	8.173 (7)	0.318
Primipara	12	5	17 (12.3)		
Multipara	61	24	85 (61.6)		
Grand- multipara	24	4	28 (20.3)		
Marital Status					
Single	7	3	10 (7.2)	0.056 (1)	0.813
Married	94	34	128 (92.8)		

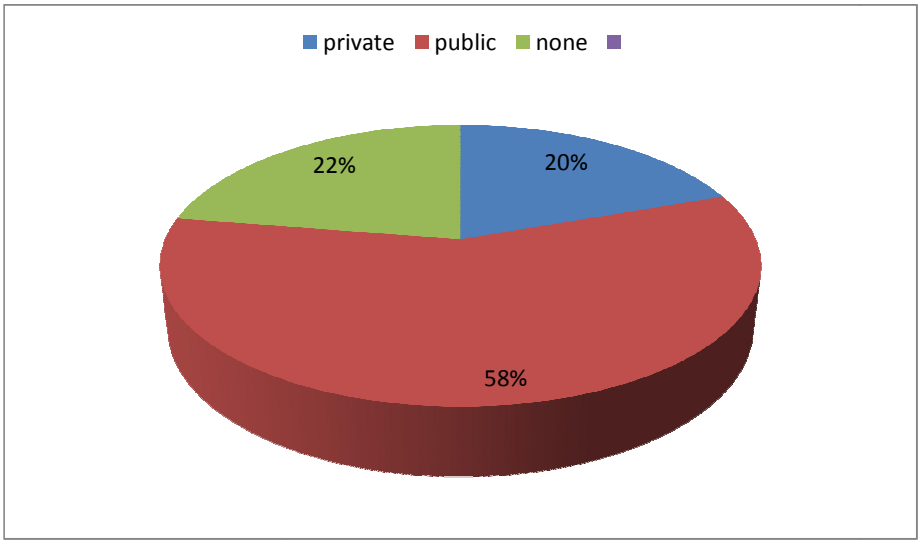

Fig. 1. Sources of procurement of previous contraceptives used by clients

Table 2. Previously used contraceptives by the clients

Methods	Frequency	Percentage
IUCD	1	0.7
Withdrawal	2	1.4
Calendar	3	2.2
Postinor	5	3.6
OCPs	12	8.7
Barrier	18	13.0
Injectable	71	51.4
No method	26	18.8

Table 3. Side effects and reasons for discontinuation of POICs (n=44)

Reasons and side effects	DMPA	NET-ET	POICs	Percentage
Headache	2	0	2	4.6
Lower abdominal pains	2	0	2	4.6
Weight gain	3	3	6	13.6
Menorrhagia	4	3	7	15.9
Desire to get pregnant	6	1	7	15.9
Irregular vaginal bleeding	8	3	11	25.0
Secondary amenorrhoea	8	1	9	20.4

NET-ET: Norethisterone enanthate

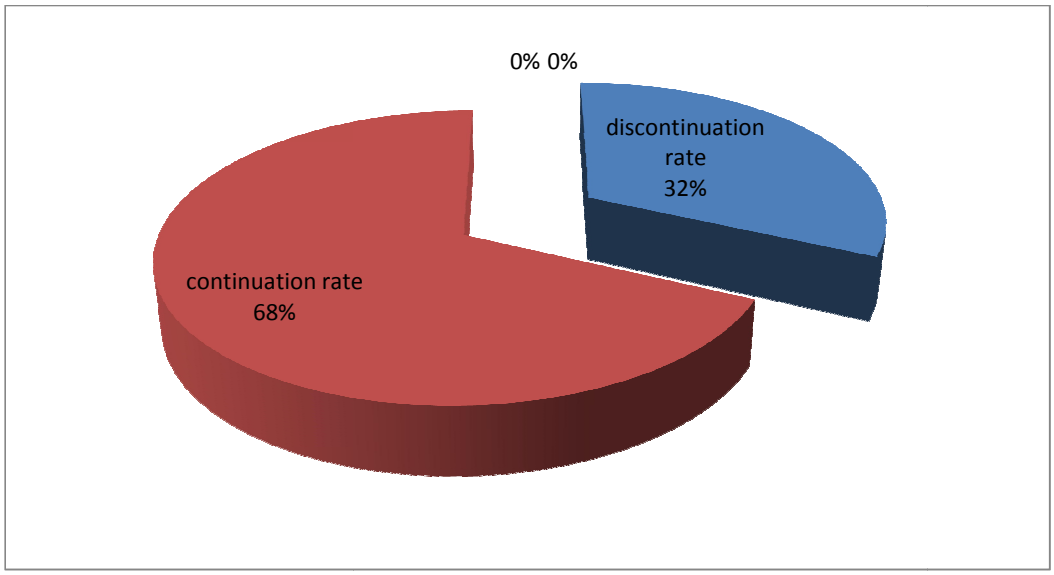

Fig. 2. Continuation and discontinuation rates of POICs

Most of the acceptors of POICs were primipara and multi para and 20.3% were grand multipara. This is in keeping with an earlier study done in Port Harcourt [6]. This finding in the study may be due to the fact that clients with higher number of children were likely to be older and also likely to have completed their family size. Hence the needs for longer acting contraceptives like implants and intrauterine contraceptive devices (IUCD). Christians constituted 98.6% of the acceptors of POICs in the study. This is also not surprising as majority of people in southern Nigeria are Christians.

Depot medroxyprogesterone acetate was more preferred by 73.2% of the clients which is in keeping with findings from other studies [6,17,22]. This may be due to the reduced frequency of visits associated with DMPA compared with NET-EN.

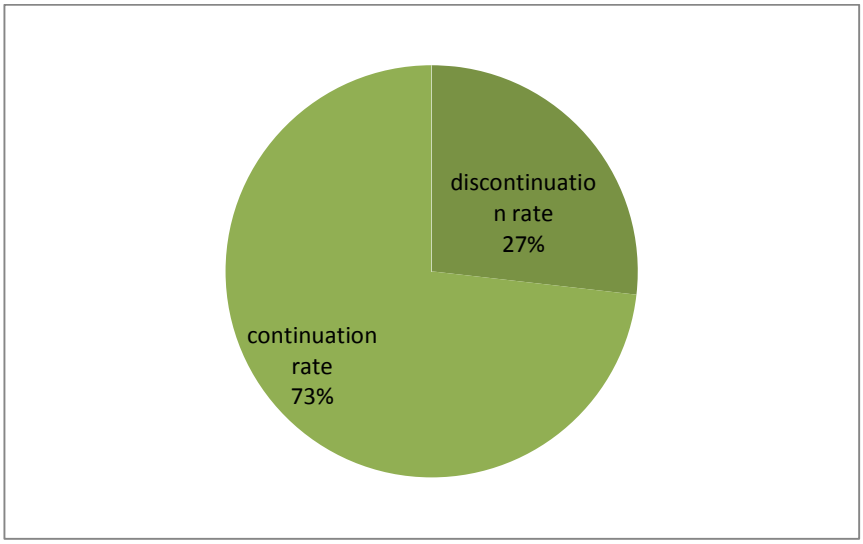

Fig. 3. Discontinuation rate caused by side effects and complications

Sixty eight percent of the clients had no side effects and complaints indicating a good safety profile of the contraceptives.

Menstrual disorders were the commonest complications experienced by the clients and also the reasons for discontinuation of the injectables, with most of them having secondary amenorrhoea and irregular vaginal bleeding. This is in keeping with results of several studies [6,7,15,16,20]. In this study irregular vaginal bleeding followed by secondary amenorrhoea and weight gain were the commonest reasons for discontinuation of these injectables. These menstrual disorders are due to the effect on ovarian function. Fluctuating endogenous production from irregular follicular growth leads to irregular bleeding whereas secondary amenorrhoea has been attributed to ovarian suppression and endometrial atrophy [1]. Secondary amenorrhoea may be beneficial to some women especially those that require reduced menstrual flow and those with sickle cell anaemia [9]. The weight gain may be due to improved appetite leading to increase in food intake. The injectables have also been found to cause slight water retention contributing to this weight gain [21].

The discontinuation rates of contraceptives vary by region, country and method of contraception [23]. The discontinuation rate of POICs in this study was 31.9%. This is similar to 32.7% seen in a study done in Senegal [23], less than 51.5%[7] and higher than 19.8% and 27.1% recorded by Njoku et al. and Danli et al. respectively [20,24]. Since these injectable contraceptives have side effects that can lead to discontinuation of the drug, it is important that health care providers should counsel the clients adequately on the benefits and side effects before and during use to reduce the discontinuation rate caused by the side effects. There was no report of accidental pregnancy while the clients were on POICs, buttressing the fact that injectable contraceptives are very effective. This finding is also similar to reports from other centres [15,16,19].

5. CONCLUSION

Progesterone only injectable contraceptives (POICs) are very effective and safe. Depot medroxyprogesterone acetate was more popular than Norethisterone enanthate. Menstrual disorders remain the major side effects of these contraceptives and could lead to discontinuation. Therefore adequate counseling before and during follow up visits will go a long way in reducing the discontinuation rate of this method of contraception.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval was given by the Hospital's Ethics committee.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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