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formation about their age, parity, educational status and the number of doses of the Depo-Provera the patient had received were recorded. They were informed about the contraceptive agent, how it prevents conception, the side-effects to expect, and the need to report any side-effects to the clinical staff immediately.

The 3-monthly regimen of 150 mg Depo-Provera injected into the buttocks or the deltoid muscle, was used. The various side-effects the patients complained of were recorded at each visit. Where the patient decided to discontinue the use of the contraceptive agent, the reasons for the discontinuation of the agent were noted. This study did not include the follow-up of the patients for pregnancy after the discontinuation of the contraceptive agent.

## Results

### *Parity and age distribution*

The parity and age distribution of the patients in this study are as illustrated in Table 1. This shows that 90.5% of the patients were between the ages of 25 years and 39 years. Three per cent were below the age of 24 years, and 6.5% were 40 years and above.

Table 1 also shows that 83% were of parity between 3 and 6, while 1.9% were of parity 2 and below and 15.1% of parity 7 and above.

### *Educational status*

Table 2 illustrates the educational status of the patients: 44.7% had no formal education and about 44% attended the junior school (i.e. primary and modern schools), only 11.1% had higher education (secondary school and university education). This shows that the majority of the patients (88.9%) had little formal education.

**Table 2.** Educational status of 810 DMPA acceptors

| Educational status | No. acceptors | Percentages |
|---|---|---|
| No. education | 362 | 44.7 |
| Junior school | 358 | 44.2 |
| Higher school | 90 | 11.1 |
| Total | 810 | 100.0 |

### *Months of protection against pregnancy with DMPA*

The months of protection against pregnancy with the use of DMPA is illustrated in Table 3. This shows that 490 (60.5%) had protection for between 3 months and 12 months; 230 (28.4%) had protection for 13–24 months while only 90 (11.1%) had protection for 25–33 months.

**Table 1.** Parity versus age distribution in 810 DMPA acceptors

| Parity | Age (years) | | | | | Total (%) |
|---|---|---|---|---|---|---|
| | 20–24 | 25–29 | 30–34 | 35–39 | 40 | |
| 1 | 2 | 1 | — | — | — | 3 (0.4) |
| 2 | 3 | 4 | 4 | 1 | — | 12 (1.5) |
| 3 | 11 | 43 | 29 | 1 | 2 | 86 (10.6) |
| 4 | 5 | 64 | 85 | 32 | 5 | 191 (23.6) |
| 5 | 2 | 47 | 100 | 57 | 10 | 216 (26.7) |
| 6 | 1 | 14 | 73 | 73 | 18 | 179 (22.1) |
| 7 | — | 1 | 30 | 31 | 8 | 70 (8.6) |
| ≥8 | — | — | 15 | 28 | 10 | 53 (6.5) |
| Total (%) | 24 (3.0) | 174 (21.5) | 336 (41.5) | 223 (27.5) | 53 (6.5) | 810 (100.0) |

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# Experience with the use of depo-medroxyprogesterone acetate in a Nigerian population

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**Summary**

Eight hundred and ten patients who accepted to use depo-medroxyprogesterone acetate (DMPA) for contraception were studied over a period of 11 years (1976–1986). Important side-effects observed were amenorrhoea (36.3%), weight gain (15.8%), weight loss (10.6%), metrorrhagia (6.7%) and menorrhagia (6.0%). Amenorrhoea, menorrhagia and metrorrhagia were major reasons for discontinuation of DMPA in 11% of acceptors. There were no cases of pregnancy, genital or breast malignancies during DMPA use. Our experience indicates that DMPA as a contraceptive is effective and should be available for suitable clients who demonstrate oestrogen intolerance.

**Résumé**

Nous avons étudié pendant une période de 11 années (1976–1986) 810 patients qui ont accepté de se servir du dépo-medroxyprogestérone acétate (DMPA) comme contraception. Les résultats secondaires suivants ont été observés: l'aménorrhée (36.3%), la croissance du poids (15.8%), la perte du poids (10.6%), la métrorrhagie (6.7%) et la ménorrhagie (6.0%). Onze pourcent des participants ont cité l'aménorrhée, la ménorrhagie et la métrorrhagie comme raisons principales pour discontinuer l'utilisation du DMPA. Aucun cas de grossesse, des malignités génitales ou mammaires n'a été enregistré pendant cette période d'utilisation du DMPA. Notre expérience indique que le DMPA est un contraceptif éfficace dont pourraient se servir les clients convenables qui ont une intolérance pour l'oestrogène.

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## Introduction

Depo-medroxyprogesterone acetate (DMPA) is a long-acting injectable contraceptive agent. It has been approved for use as a contraceptive agent in over 80 countries [1]. Although it has not been approved for use as a contraceptive in the United States of America by the Food and Drug Administration (FDA) because of the concern that it may increase the risk of breast cancer, private obstetric and gynaecological offices in the communities have been known to use it as contraception for their patients [2].

The agent provides a long-acting protection against conception so it is given on a 3-monthly basis. It is therefore thought to be an ideal contraceptive agent for women as they would not fear getting pregnant for another 3 months when another dose is taken. When compliance with the use of daily oral contraceptives is poor, the use of a long-acting injectable contraceptive represents an ideal option.

This paper examines the result of our experience with 810 consecutive patients who had DMPA for contraception between 1 January 1976 and 31 December 1986.

## Patients and methods

Eight hundred and ten consecutive acceptors of DMPA for contraception were screened at the Family Planning Clinic of the University College Hospital, Ibadan, Nigeria. The patients' life-histories were recorded and they were thoroughly examined while cervical cytology was carried out on suspicious cases of cervical malignancies. Patients with hypertension, diabetes mellitus, positive cervical cytology, or irregular menstrual patterns were excluded from the study.

The patients were counselled at admission into the study and at each subsequent visit. In-

contraceptive it does not require the high degree of motivation expected of clients on daily oral contraceptives.

A major disadvantage of DMPA, as observed in this study, is a significant disturbance of menstruation, especially irregular menstruation and amenorrhoea usually due to endometrial atrophy. Amenorrhoea was the commonest side-effect, followed by metrorrhagia and menorrhagia in 6.7% and 6.0% of the clients, respectively. Approximately 40% of the DMPA users will experience scanty and infrequent bleeding, and another 20% will experience prolonged frequent or occasionally heavy bleeding [5].

The extreme disturbances of menstruation are a common reason for discontinuing DMPA use. In this study, amenorrhoea, menorrhagia and metrorrhagia were important reasons given for discontinuing the use of DMPA in 5%, 3.5% and 2.5%, respectively. In a similar study, one out of every 20 patients studied discontinued DMPA use because of menstrual disorders [6].

Amenorrhoea is now generally promoted as an advantage of DMPA and equated with lactational amenorrhoea. It is often emphasized that amenorrhoea is a convenience and a health benefit due to the reduction of menstrual loss and lowered incidence of anaemia [7]. Despite this advantage, it is notable that, in the traditional society, amenorrhoea may be a cause of profound anxiety as it implies accumulation of expected menstrual products that should be cyclically expelled while in the reproductive age. Such patients can be reassured by excluding cyesis by the β human chorionic gonadotrophin pregnancy test. If the patient is not satisfied, further use of DMPA can be discontinued. Withdrawal bleeding can be induced by using the combined pills. Culturally, metrorrhagia may not only prevent the sexual act but also prevent the client from participating in traditional and religious rites. Therefore, there is a need for effective counselling and education of couples that choose DMPA for contraception. A few of the patients will require long-acting courses of oral oestrogen (14–21 days) including combined pills to stop an episode of bleeding successfully. Dilatation and curettage is rarely necessary; except for diagnostic reasons [7]. The couple should be aware of the high contraceptive effectiveness of DMPA, and reassured that it is very uncommon for amenorrhoea to be due to an inadvertent pregnancy.

Although 15.8% of the clients gained weight, this side-effect was not a reason for discontinuation in this study. The reasons for weight gain in DMPA users is unclear. Weight gain after DMPA therapy had been observed by other workers [8–11]. A possible explanation is the glucocorticoid-like activity of DMPA. It may also be related to increase in the patient's food intake. In this study 10.6% had minimal weight loss, which was not significant for their age and height.

The use of DMPA is known not to carry any risk of thromboembolic or coagulatory changes. It is often proposed as an ideal hormonal contraceptive for women with a previous history of deep-vein thrombosis [12]. Only 0.2% of the patients discontinued its use due to varicose veins.

Recent World Health Organization [13] reports have shown that the relative risk of developing cervical cancer with the use of DMPA is insignificant and also that there is no evidence of DMPA increasing the risk of breast cancer in humans [14,15]. However, one major concern of the clients and some family planning practitioners is the potential delay in return of fertility among DMPA users. This speculation is unjustified since cumulative pregnancy rates of 92–97% approximately 18 months after the discontinuation of DMPA have been reported in a number of studies, which also show comparable pregnancy rates with oral contraceptive and IUD users at 18 months [16].

Depo-medroxyprogesterone is therefore considered to be an ideal contraceptive agent that will be especially useful in the developing countries, where children are breast-fed for a longer duration, and also for patients in whom the use of other contraceptives is contra-indicated, e.g. patients with a high risk of thromboembolic phenomenon and oestrogen intolerance. Another important factor is the potential benefit of DMPA in sickle cell anaemic patients, as earlier speculated by Isaacs and Hayhoe [17]. DeCeulaer *et al.* [18] reported a beneficial effect of DMPA in Jamaican women of reproductive age who are homozygous for sickle cell anaemia.

The number of patients that were lost to follow-up (132: 16.2%) is quite significant. Most of these patients probably decided not to

**Table 3.** Months of protection against pregnancy with DMPA in 810 DMPA acceptors

| Months of protection | No. acceptors | Percentages |
|---|---|---|
| 3–12 | 490 | 60.5 |
| 13–24 | 230 | 28.4 |
| 25–33 | 90 | 11.1 |
| Total | 810 | 100.0 |

*Side-effects observed or complained of by the patients*

Table 4 shows the side-effects observed during use of Depo-Provera. Two hundred and ninety-four (36.3%) patients complained of amenorrhoea; 15.8% of the patients gained some weight while 10.6% lost weight; 12.7% had abnormal bleeding pattern, mainly metrorrhagia and menorrhagia, while 3.8% developed a rise in blood pressure during the period of use. Of the latter, the highest recorded blood pressure was 160/100 and the lowest was 140/90 mm Hg. Twenty (2.5%) patients complained of headache, while 3.9% complained of minor symptoms such as dizziness, abdominal pain, palpitation and post-coital bleeding. The only patient that complained of post-coital bleeding had negative cervical cytology. No patient became pregnant during the course of study.

**Table 4.** Side-effects among DMPA acceptors

| Side-effects | No. acceptors | Percentages |
|---|---|---|
| Amenorrhoea | 294 | 36.3 |
| Weight gain | 128 | 15.8 |
| Weight loss | 86 | 10.6 |
| Metrorrhagia | 54 | 6.7 |
| Menorrhagia | 49 | 6.0 |
| Hypertension | 31 | 3.8 |
| Headache | 20 | 2.5 |
| Dizziness | 12 | 1.5 |
| Abdominal pain | 10 | 1.2 |
| Palpitations | 9 | 1.1 |
| Post-coital bleeding | 1 | 0.1 |

*Reasons for discontinuation*

Table 5 illustrates the various reasons the patients gave for discontinuing DMPA as a contraceptive method. One hundred and thirty-two patients could not be traced to specify their reasons for withdrawing from the study. Amenorrhoea was the reason given by 41 patients while 48 discontinued because of abnormal bleeding patterns (menorrhagia and metrorrhagia). Eighteen patients (2.2%) discontinued because they developed hypertension, while 16 (2%) desired to get pregnant, and another 16 had recurrent headaches.

**Table 5.** Reasons for discontinuing DMPA

| Reasons | No. acceptors | Percentages |
|---|---|---|
| Loss to follow-up | 132 | 16.2 |
| Amenorrhoea | 41 | 5.0 |
| Menorrhagia | 28 | 3.5 |
| Metrorrhagia | 20 | 2.5 |
| Hypertension | 18 | 2.2 |
| Desire for pregnancy | 16 | 2.0 |
| Headache | 16 | 2.0 |
| Social (e.g. husband's disapproval) | 9 | 1.1 |
| Palpitations | 8 | 1.0 |
| Change to other methods | 3 | 0.4 |
| Dizziness | 3 | 0.4 |
| Varicose veins | 2 | 0.2 |

## Discussion

Our experience with DMPA at the University College Hospital, Ibadan, is similar to that of others who have used DMPA for contraception. Noteworthy is the convenience of administration and the exposure of the client to discuss any related or unrelated health problems. Depo-medroxyprogesterone is a contraceptive unrelated to the sexual act. The contraceptive effectiveness in this review was 100%. It is indeed an effective option for women who cannot tolerate the oestrogen-related side-effects of oral contraceptives, or the pain and bleeding of intrauterine devices.

Earlier studies in lactating mothers indicate that DMPA does not inhibit lactation, and that it enhances lactation [3,4]. It is therefore a suitable contraceptive in the post-partum period, when compliance with the traditional post-partum abstinence is poor. As an injectable

come for follow-up because they desired to get pregnant. A similar finding was made by Basnayake *et al.* [6] where 20% were lost to follow-up.

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