*Afr. J. Med. med. Sci.* (1990) **19**, 15–22.

# A comparative study of three oral contraceptives in Ibadan: Norinyl 1/35, Lo-Ovral and Noriday 1/50

E. O. OTOLORIN, E. A. O. FALASE AND O. A. LADIPO
*Fertility Research Unit, Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Nigeria*

**Summary**

A study of three combined oral contraceptives, Norinyl 1/35, Lo-Ovral and Noriday 1/50, was conducted at the University of Ibadan Teaching Hospital, Ibadan, Nigeria, to determine if there were differences in continuation rates and reasons for discontinuation. This report includes analysis of 150 women, all of whom were interval patients, randomly allocated to one of the above oral contraceptives between May 1984 and February 1985. Follow-up visits were scheduled at 1, 4 and 8 months after admission. Significantly more women in the Norinyl 1/35 group ($P < 0.05$) reported intermenstrual bleeding, as well as an increase in the occurrence of intermenstrual bleeding compared to women in the Lo-Ovral group. There were no other differences between the groups for side-effects. The continuation rates at 8 months were 90.8% for the Norinyl 1/35 group, 94.4% for the Lo-Ovral group and 87.1% for the Noriday 1/50 group. The corresponding rates for those lost to follow-up were 26.0, 40.8 and 17.7. The rate for total discontinuations (all discontinuations including women lost to follow-up) was 34.0% for the Norinyl 1/35 group, 44.9% for the Lo-Ovral group and 29.4% for the Noriday 1/50 group. There was a significant difference in lost to follow-up rates between the Lo-Ovral group and the Noriday 1/50 group ($P < 0.05$). There were no other significant differences between the groups for life table rates ($P > 0.05$). There were no pregnancies reported during the study period.

Correspondence: Dr E. O. Otolorin, Department of Obstetrics and Gynaecology, University College Hospital, PMB 5116, Ibadan, Nigeria.

**Résumé**

L'étude de trois contraceptifs oraux: Norinyl 1/35, Lo-Ovral et Noriday 1/50, est entreprise au Centre Hospitalier de l'Université d'Ibadan, Nigéria, afin de déterminer s'il existes des différences de taux de continuation et des raisons de discontinuation. Ce rapport contient l'analyse de 150 femmes, toutes patients intervals et qui ont reçu au hasard l'un de ces trois contraceptifs entre les mois de mai 1984 et février 1985. Les visites d'examen sont fixées à un, quatre et huit mois après l'admission. Plus de femmes utilisant le Noril 1/35 (soit $P < 0.05$) ont signalé le saignement inter-menstruel et une augmentation de ce saignement par rapport à celles utilisant Lo-Ovral. Les femmes dèces deux groupes ne signalent que ce résultat secondaire. Le taux de continuation après 8 mois sont: Norinyl 1/35 (90.8); Lo Ovral (94.4); Noriday 1/50 (87.1). Les taux des femmes qui ont cessé leurs visites sont 26.0; 40.8; et 17.7. Le taux de discontinuations totales (ci-inclus la deuxième catégorie ci-dessus mentionnées) est ainsi: Norinyl 1/35 (34.0); Lo-Ovral (44.9) et Noriday 1/50 (29.4). Entre les groupes utilisant Lo-Ovral et Noriday 1/50, il existe une difference significative des femmes qui ont cessé leurs visites (soit $P < 0.05$). Aucune différence significative n'a été discerné en ce qui concerne les statistiques suivis de leurs vies. Life table rates (soit $P > 0.05$). Il n'y avait aucun cas de grossesse pendant la periode d'étude.

## Introduction

Even though oral contraceptives became available commercially over 30 years ago, they continue to be studied extensively with regard to their benefits and side-effects [1–5]. Most investigators are of the opinion that the incidence

and severity of adverse effects of combined oral contraceptives are dose-related and that the use of the low-dose oral contraceptives decreases the risks of rare and possibly fatal adverse effects of the high-dose formulations [6–8].

The introduction of low-dose oral contraceptives was, however, observed to have resulted in a high rate of spotting and breakthrough bleeding, which had the potential of limiting the acceptability and continuation rates of the low-dose formulations [9]. In the light of this a comparative study of three combined oral contraceptives (OCs) was conducted at the University of Ibadan Teaching Hospital, Ibadan, Nigeria. This study was designed to determine if there were differences in the continuation rates between Norinyl 1/35 (Syntex), Lo-Ovral (Wyeth) and Noriday 1/50 (Syntex) as well as the frequency of selected symptoms including breakthrough bleeding, nausea and headaches, which might contribute to discontinuation. The oral contraceptives studied were selected so that a comparison could be made between the standard dose pill provided by the clinic and two low-dose pills with similar oestrogen but different progesterone doses.

## Subjects and methods

### *Oral contraceptives evaluated*

Each of the OCs administered in this study was provided in 28-day packs of 21 active steroid tablets and 7 inert tablets. Norinyl 1/35, a low-dose combination OC, has a composition of 1.0 mg morethindrone and 35 μg ethinyl oestradiol. Lo-Ovral, another low-dose combination pill, has a composition of 0.30 mg norgestrel and 30 μg ethinyl oestradiol. Noriday 1/50, a standard-dose combination OC, has a composition of 1.0 mg norethindrone and 50 μg mestranol.

### *Study procedure*

Women were admitted to the study from May 1984 to February 1985. A total of 150 women were randomly allocated to receive either Norinyl 1/35, Lo-Ovral or Noriday 1/50 according to pre-printed, sealed envelopes opened at the time of admission; 50 women were given Norinyl 1/35, 49 women were given Lo-Ovral and 51 women were given Noriday 1/50. One woman who was allocated to receive Norinyl 1/35 was accidentally given Noriday 1/50, and another who was to receive Lo-Ovral was inadvertently given Norinyl 1/35. Both women continued to use the pills allocated on admission to the study. All of the women were interval patients (≥42 days since last pregnancy termination). Four women (8%) in the Norinyl 1/35 group, one woman (2%) in the Lo-Ovral group and one woman (2%) in the Noriday 1/50 group were breast-feeding at admission. Follow-up visits were scheduled at 1, 4 and 8 months after admission to the study. Data from this study were recorded on standard forms by the clinic staff and were sent to Family Health International (FHI) for processing and analysis.

## Results

### *Socio-demographic characteristics*

Selected patient characteristics are presented by group in Table 1. There were no significant differences between the groups for any characteristic at admission. The mean age in years was 29.4 for the Norinyl 1/35 group, 29.1 for the Lo-Ovral group and 29.6 for the Noriday 1/50 group. The mean education level was 7.9 years for the Norinyl 1/35 group, 8.5 years for the Lo-Ovral group and 7.8 years for the Noriday 1/50 group. The mean total live births in the Norinyl 1/35, Lo-Ovral and Noriday 1/50 groups was 3.5, 3.3 and 3.7, respectively.

### *Contraceptive practice*

Table 1 also presents a summary of the contraceptive practice of the women prior to admission to the study. Forty-four women (88.0%) in the Norinyl 1/35 group and 41 women in both the Lo-Ovral (83.7%) and Noriday 1/50 (80.4%) groups reported having used no contraception in the month prior to admission. The predominant method used in all groups prior to admission was IUDs — by three women (6.0%) in the Norinyl 1/35 group, four women (8.2%) in the Lo-Ovral group and six women (11.8%) in the Noriday 1/50 group.

**Table 1.** Selected socio-demographic characteristics

| Characteristic | Norinyl 1/35 ($n$=50) ($n$) | (%) | Lo-Ovral ($n$=49) ($n$) | (%) | Noriday 1/50 ($n$=51) ($n$) | (%) |
|---|---|---|---|---|---|---|
| Age (years) | | | | | | |
| < 20 | 0 | 0.0 | 3 | 6.1 | 1 | 2.0 |
| 20–24 | 6 | 12.0 | 9 | 18.4 | 8 | 15.7 |
| 25–29 | 16 | 32.0 | 12 | 24.5 | 16 | 31.4 |
| 30–34 | 22 | 44.0 | 17 | 34.7 | 19 | 37.3 |
| 35+ | 6 | 12.0 | 8 | 16.3 | 7 | 13.7 |
| Mean | 29.4 | | 29.1 | | 29.6 | |
| Education (years) | | | | | | |
| None | 9 | 18.0 | 7 | 14.3 | 11 | 21.6 |
| 1–6 | 16 | 32.0 | 14 | 28.6 | 15 | 29.4 |
| 7–12 | 16 | 32.0 | 18 | 36.7 | 13 | 25.5 |
| 13+ | 9 | 18.0 | 10 | 20.4 | 12 | 23.5 |
| Mean | 7.9 | | 8.5 | | 7.8 | |
| Total live births | | | | | | |
| 0 | 3 | 6.0 | 4 | 8.2 | 3 | 5.9 |
| 1 | 5 | 10.0 | 7 | 14.3 | 3 | 5.9 |
| 2 | 8 | 16.0 | 5 | 10.2 | 5 | 9.8 |
| 3 | 10 | 20.0 | 7 | 14.3 | 9 | 17.6 |
| 4+ | 24 | 48.0 | 26 | 53.1 | 31 | 60.8 |
| Mean | 3.5 | | 3.3 | | 3.7 | |
| Contraceptive method used in month prior to admission | | | | | | |
| None | 44 | 88.0 | 41 | 83.7 | 41 | 80.4 |
| IUD | 3 | 6.0 | 4 | 8.2 | 6 | 11.8 |
| Orals | 3 | 6.0 | 2 | 4.1 | 3 | 5.9 |
| Condoms | 0 | 0.0 | 2 | 4.1 | 0 | 0.0 |
| Injectables | 0 | 0.0 | 0 | 0.0 | 1 | 2.0 |

*Pre-existing medical conditions and complaints*

None of the women reported any pre-existing medical condition at admission.

*Regularity of use*

Regularity of use data were collected on a patient summary follow-up form at 1, 4 and 8 months after beginning oral contraceptive use. Follow-up visit data indicated that two women (5.0%) in the Norinyl 1/35 group, one woman (2.3%) in the Lo-Ovral Group and three women (6.3%) in the Noriday 1/50 group missed at least one pill. There was no significant difference ($P > 0.05$) between the groups in the number of women who missed pills.

*Side-effects*

No women reported serious complications during the study period. A summary of menstrual complaints reported at all follow-up visits is shown in Table 2. A total of 10 women (25.0%) in the Norinyl 1/35 group, two (4.5%) in the Lo-Ovral group and seven (14.6%) in the Noriday 1/50 group reported at least one menstrual complaint during the study period. Significantly more ($P < 0.05$) women in the Norinyl 1/35 group (17.5%) reported intermenstrual bleeding than women in the Lo-Ovral group (2.3%).

A summary of typical pill-related problems reported at all follow-up visits is shown in Table 3. Six women in the Norinyl 1/35 (15.0%) and Lo-Ovral (13.6%) groups and three (6.3%)

**Table 2.** Menstrual complaints since admission

| Complaint | Norinyl 1/35 ($n$=40)* ($n$) | (%) | Lo-Ovral ($n$=44) ($n$) | (%) | Noriday 1/50 ($n$=48) ($n$) | (%) |
|---|---|---|---|---|---|---|
| Intermenstrual bleeding | | | | | | |
| None | 33 | 82.5† | 43 | 97.7† | 42 | 87.5 |
| Staining/spotting | 3 | 7.5 | 0 | 0.0 | 1 | 2.1 |
| Moderate | 4 | 10.0 | 1 | 2.3 | 5 | 10.4 |
| Primary other menstrual complaint | | | | | | |
| None | 37 | 92.5 | 42 | 95.4 | 47 | 97.9 |
| Scanty menses | 3 | 7.5 | 0 | 0.0 | 1 | 2.1 |
| Dysmenorrhoea | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 |
| Intermenstrual pelvic discomfort or cramps | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 |
| Total women with ≥1 menstrual complaints | 10 | 25.0† | 2 | 4.5† | 7 | 14.6 |

*$n$ represents number of women followed up. Multiple symptoms may be reported for each woman.
†$P < 0.05$ Norinyl 1/35 vs Lo-Ovral.

**Table 3.** Complaints since admission

| Complaint | Norinyl 1/35 ($n$=40)* ($n$) | (%) | Lo-Ovral ($n$=44) ($n$) | (%) | Noriday 1/50 ($n$=48) ($n$) | (%) |
|---|---|---|---|---|---|---|
| Nausea | | | | | | |
| None | 39 | 97.5 | 43 | 97.7 | 48 | 100.0 |
| Sometimes | 1 | 2.5 | 1 | 2.3 | 0 | 0.0 |
| Often | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Headaches | | | | | | |
| None | 37 | 92.5 | 40 | 90.9 | 45 | 93.7 |
| Sometimes | 3 | 7.5 | 3 | 6.8 | 2 | 4.2 |
| Often | 0 | 0.0 | 1 | 2.3 | 1 | 2.1 |
| Dizziness | | | | | | |
| None | 38 | 95.0 | 43 | 97.7 | 48 | 100.0 |
| Sometimes | 2 | 5.0 | 1 | 2.3 | 0 | 0.0 |
| Often | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Vaginal discharge | | | | | | |
| None | 39 | 97.5 | 44 | 100.0 | 48 | 100.0 |
| Sometimes | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Often | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Other complaints | | | | | | |
| Weight loss | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Fatigue | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Depression | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 |
| Total women with ≥1 complaints | 6 | 15.0 | 6 | 13.6 | 3 | 6.3 |

*$n$ represents number of women followed-up. Multiple symptoms may be reported for each woman.

in the Noriday 1/50 group reported at least one complaint at a follow-up visit. There were no significant differences ($P > 0.05$) between the groups for any complaint. Headache was the most frequently reported complaint in all groups. One woman in the Norinyl 1/35 group reported a combination of weight loss and fatigue. One woman in the Lo-Ovral group reported depression.

A summary of changes in other complaints since admission is presented in Table 4. A significantly higher percentage of women ($P < 0.05$) in the Norinyl 1/35 group (17.5%) reported an increase in the occurrence of intermenstrual bleeding compared to the Lo-Ovral group (2.3%). There were no other significant differences between the groups for changes in complaints.

*Discontinuation rates and reasons*

A summary of all reasons for discontinuation is presented in Table 5. A total of five women (12.5%) in the Norinyl 1/35 group, two (4.5%) in the Lo-Ovral group and six (12.5%) in the Noriday 1/50 group discontinued during the 8-month study period. Irregular use was the primary reason for discontinuation in all groups. There were no pregnancies reported during the study period.

Eight-month gross cumulative continuation and event rates are presented in Table 6. Eight-month continuation rates were 90.8% for the Norinyl 1/35 group, 94.4% for the Lo-Ovral group and 87.1% for the Noriday 1/50 group. There was no significant difference ($P > 0.05$) between the groups for continuation rates.

**Table 4.** Changes in complaints since admission

| Changes in complaints | Norinyl 1/35 ($n$=40)* ($n$) | (%) | Lo-Ovral ($n$=44) ($n$) | (%) | Noriday 1/50 ($n$=48) ($n$) | (%) |
|---|---|---|---|---|---|---|
| Intermenstrual bleeding | | | | | | |
| Never reported | 33 | 82.5 | 43 | 97.7 | 42 | 87.5 |
| No change | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Decrease | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Increase | 7 | 17.5† | 1 | 2.3† | 6 | 12.5 |
| Nausea | | | | | | |
| Never reported | 39 | 97.5 | 43 | 97.7 | 48 | 100.0 |
| No change | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Decrease | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Increase | 1 | 2.5 | 1 | 2.3 | 0 | 0.0 |
| Headaches | | | | | | |
| Never reported | 37 | 92.5 | 40 | 90.0 | 45 | 93.7 |
| No change | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Decrease | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Increase | 2 | 5.0 | 4 | 9.1 | 3 | 6.3 |
| Dizziness | | | | | | |
| Never reported | 38 | 95.0 | 43 | 97.7 | 48 | 100.0 |
| No change | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Decrease | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Increase | 2 | 5.0 | 1 | 2.3 | 0 | 0.0 |
| Vaginal discharge | | | | | | |
| Never reported | 39 | 97.5 | 44 | 100.0 | 47 | 97.9 |
| No change | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Decrease | 0 | 0.0 | 0 | 0.0 | 1 | 2.1 |
| Increase | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |

*$n$ represents the number of women followed-up.
†$P < 0.05$, Norinyl 1/35 vs. Lo-Ovral.

**Table 5.** Primary reasons for discontinuation within 8 months after admission

| Reason | Norinyl 1/35 ($n$=40)* ($n$) | (%) | Lo-Ovral ($n$=44) ($n$) | (%) | Noriday 1/50 ($n$=48) ($n$) | (%) |
|---|---|---|---|---|---|---|
| Side-effects | | | | | | |
| Headaches | 0 | 0.0 | 1 | 2.3 | 1 | 2.1 |
| Combination of weight loss and fatigue | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Other personal | | | | | | |
| Irregular use | 2 | 5.0 | 1 | 2.3 | 2 | 4.2 |
| Husband objects | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| Desires change | 0 | 0.0 | 0 | 0.0 | 2 | 4.2 |
| Method-unrelated | | | | | | |
| Moving/travel | 0 | 0.0 | 0 | 0.0 | 1 | 2.1 |
| Total terminations | 4 | 10.0 | 2 | 4.5 | 6 | 12.5 |

*$n$ represents the number of women followed-up.

**Table 6.** Gross cumulative life table rates

| Termination reason | Norinyl 1/35 ($n$=40)* | Lo-Ovral ($n$=44) | Noriday 1/50 ($n$=48) |
|---|---|---|---|
| Side-effects | | | |
| 1 month | 0.0 ± 0.0 | 0.0 ± 0.0 | 0.0 ± 0.0 |
| 4 months | 2.7 ± 2.7 | 2.6 ± 2.6 | 0.0 ± 0.0 |
| 8 months | 2.7 ± 2.7 | 2.6 ± 2.6 | 2.6 ± 2.6 |
| Other personal | | | |
| 1 month | 6.7 ± 3.7 | 0.0 ± 0.0 | 6.3 ± 3.5 |
| 4 months | 6.7 ± 3.7 | 0.0 ± 0.0 | 6.3 ± 3.5 |
| 8 months | 6.7 ± 3.7 | 3.1 ± 3.1 | 8.6 ± 4.1 |
| Method–unrelated | | | |
| 1 month | 0.0 ± 0.0 | 0.0 ± 0.0 | 2.2 ± 2.1 |
| 4 months | 0.0 ± 0.0 | 0.0 ± 0.0 | 2.2 ± 2.1 |
| 8 months | 0.0 ± 0.0 | 0.0 ± 0.0 | 2.2 ± 2.1 |
| Continuation | | | |
| 1 month | 93.3 | 100.0 | 91.7 |
| 4 months | 90.8 | 97.4 | 91.7 |
| 8 months | 90.8 | 97.4 | 87.1 |
| Lost to follow-up | | | |
| 1 month | 20.0 | 10.2 | 5.9 |
| 4 months | 20.0 | 20.4 | 11.8 |
| 8 months | 26.0 | 40.8+ | 17.7† |
| Total discontinuations | | | |
| 1 month | 22.0 | 10.2 | 7.8 |
| 4 months | 26.0 | 20.4 | 19.6 |
| 8 months | 34.0 | 44.9 | 29.4 |

*$n$ represents the number of women followed-up.
†$P < 0.05$, Lo-Ovral vs. Noriday 1/50.

Eight-month lost to follow-up rates were 26.0% 40.8% and 17.7% for the Norinyl 1/35, Lo-Ovral and Noriday 1/50 groups respectively. There was a significant difference ($P < 0.05$) in the lost to follow-up rates in the Lo-Ovral group compared to the Noriday 1/50 group. The corresponding rate for total discontinuations (all discontinuations including women lost to follow-up) was 34.0% for the Norinyl 1/35 group, 44.9% for the Lo-Ovral group and 29.4% for the Noriday 1/50 group, but the differences between rates were not significant ($P > 0.05$).

## Discussion

In this study the clinical performance of two low-dose oral contraceptives (Norinyl 1/35 and Lo-Ovral) was compared with a 50 μg formulation (Noriday 1/50). On the whole, all three oral contraceptives were very well tolerated and highly effective — no pregnancies were reported during the period.

There were no statistically significant differences between the groups with regard to side-effects, except in respect of the number of women reporting intermenstrual bleeding. Significantly more ($P < 0.05$) women in the Norinyl 1/35 group reported intermenstrual bleeding, as well as an increase in the occurrence of intermenstrual bleeding compared to women in the Lo-Ovral group. This observation is particularly important as breakthrough bleeding/spotting is the most frequent medical reason for women discontinuing oral contraceptive use.

The aetiology of breakthrough bleeding and/or spotting is thought to be the failure of the synthetic sex steroids in the pill to provide adequate stimulus to the endometrium and its vessels following menstruation, or to maintain the endometrium and vessels until the end of the active pill cycle [10]. In general, bleeding which starts in the early part of the menstrual cycle (days 1–9) is thought to be due to oestrogen deficiency while bleeding which starts in the latter half of the pill cycle (days 10–21) is due to progesterone deficiency [10]. Bleeding may also be the result of drug interaction.

The two low-dose pills in this study contained similar doses of oestrogen (30 μg and 35 μg of ethinyl oestradiol respectively) but different progesterones (1.0 mg norethindrone and 0.30 mg norgestrel respectively). Even though the study did not differentiate between early and late cycle intermenstrual bleeding it may be that the observed difference in the incidence of intermenstrual bleeding among women taking Norinyl 1/35 and those taking Lo-Ovral may be due to the differences in the progresterone component.

The fact that there was no difference in the continuation rates at 8 months for the three oral contraceptives shows that the difference in the observed incidence of intermenstrual bleeding among women using the low-dose formulations did not constitute a major reason for discontinuation.

In conclusion, the results of this comparative study have demonstrated the reliable contraceptive efficacy of Norinyl 1/35, Lo-Ovral and Noriday 1/50. In addition, the three oral contraceptives were well-tolerated and showed good cycle control. Given the fact that the current trend in contemporary contraceptive management is to prescribe effective pills with the lowest hormonal contents, one would like to recommend that the low-dose oral contraceptive pills should be the drugs of choice, particularly for women just starting on oral contraception.

## Acknowledgments

The authors are grateful to Mrs Olowe and other family planning nurses of the Fertility Research Unit, University College Hospital, Ibadan, for their assistance with this project and to Mr H. Lawoyin for secretarial assistance. Partial support for this study was provided by Family Health International (FHI) with funds from the U.S. Agency for International Development (AID).

## References

1. Royal College of General Practitioners' Oral Contraception Study. Incidence of arterial disease among oral contraceptive users. J R Coll Gen Pract 1983;33:75–82.
2. Vessey MP. Female hormones and vascular disease — an epidemiological overview. Br J Fam Plan 1980;(suppl 6):1–12.
3. Hulka B, Chambless L, Kaufman D, *et al.*

Protection against endometrial carcinoma by combination-product oral contraceptives. J Am Med Assoc 1982;247:475–7.
4. Sattin RW, Rubin GL, Wingo PA, *et al*. Oral contraceptive use and the risk of breast cancer. N Engl J Med 1986;315:405–11.
5. Paul C, Skegg DCG, Spears CFS, Kaldor JH. Oral contraceptives and breast cancer: a national study. Br Med J 1986;293:723–6.
6. Mishell D. Safety and effectiveness of low-dose oral contraceptives. From a panel discussion on oral contraception today. J Reprod Med 1982; 27(suppl 4):251–73.
7. Larsson-Cohn D. Lipoproteins and the estrogenicity of oral contraceptives In: Haspels AA, Rolland R, eds. Benefits and Risks of Hormonal Contraception. Lancaster: MTP Press, 1982:95.
8. Briggs HH. Comparative investigation of oral contraceptives using randomized, prospective protocols. In: Haspels AA, Rolland R, eds. Benefits and Risks of Hormonal Contraception. Lancaster: MTP Press, 1982:115.
9. Centre for Disease Control. In: Family Planning Methods and Practice: Africa. Atlanta: CDC, Centre for Health Promotion and Education. Division of Reproductive Health, 1983:144.
10. Dickey RP. In: Managing Contraceptive Pill Patients. Minneapolis: Anderberg-Lund Printing Co , 1980:46–7.

(*Accepted* 11 *May* 1988)