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ORIGINAL ARTICLE

An observational study of Yasmin® in the management of women with polycystic ovary syndrome

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Abstract

Background *Polycystic ovary syndrome (PCOS) is the commonest endocrine disturbance affecting women in the reproductive age group and encompasses signs of hyperandrogenism, menstrual cycle disturbances and obesity. Some of the symptoms of PCOS may be ameliorated by the combined oral contraceptive pill (COCP).*

Methods *A pilot observational study was carried out in a university teaching hospital setting to determine whether the clinical and biochemical features of PCOS are ameliorated by a new COCP, Yasmin®, which contains a new progestogen, drosperinone. Treatment with Yasmin was given for 6 months to 17 patients.*

Results *Thirteen patients (76%) completed 6 months of therapy. Good cycle control was achieved in all patients. Percentage body fat increased, with no overall change in body mass index. Fasting insulin and triglyceride concentrations rose significantly. Serum total testosterone concentrations fell with a concomitant rise in sex hormone binding globulin levels. Hirsutism scores did not change significantly in the 12 women who were clinically hirsute. There was, however, a significant improvement in the acne scores. Four of the 17 patients dropped out of the trial between Cycles 3 and 5 due to side effects.*

Conclusions *Yasmin provides good cycle control for women with PCOS, with an improvement in acne over 6 months but not in other symptoms of the syndrome.*

Key message points

- **Yasmin provides control of the menstrual cycle in women with polycystic ovary syndrome (PCOS).**
- **Acne improves, and hirsutism and BMI do not change, in women prescribed Yasmin for PCOS.**

Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disturbance affecting women of reproductive age.[1] Estimates of the presence of PCOS in the general population range from 15% to 25%[2,3] in Caucasians and are as high as 52% in Asians in the UK.[4] The features of PCOS include menstrual irregularities, infertility, hyperandrogenism (acne, hirsutism), obesity and the metabolic features of insulin resistance.[1] All symptoms are aggravated by an increase in body weight.[5]

Management of the symptoms of PCOS is orientated to the individual's symptoms, which may change over time. Young women with menstrual irregularity and hyperandrogenism have traditionally been treated with the combined oral contraceptive pill (COCP).[6] A frequently prescribed preparation is Dianette® (Schering Healthcare Ltd, Burgess Hill, UK), which contains ethinyl oestradiol 35 μg and the anti-androgen, cyproterone acetate 2 mg. Other medical treatments of the cutaneous aspects of PCOS include cyproterone acetate alone, spironolactone, flutamide and finasteride, but all take at least 3–6 months before an improvement is seen and may be associated with potentially toxic and adverse metabolic effects. A new combined oral contraceptive, Yasmin® (Schering Healthcare Ltd), has recently been developed, containing ethinyl oestradiol 30 mg and a new progestogen drospirenone (3 mg). Drospirenone is derived from 17-α-spironolactone, unlike most other current progestogens that are derived from 19-nortestosterone and therefore may have androgenic effects. Several studies have shown that drospirenone has a similar pharmacological profile to that of natural progesterone with clinically relevant anti-mineralocorticoid and anti-androgenic effects.[7–10]

We performed a pilot observational study to determine whether the clinical and biochemical features of PCOS are ameliorated by Yasmin.

Methods

Patients with PCOS were recruited from the gynaecology clinic in a university teaching hospital setting. PCOS was defined as the presence of polycystic ovaries on ultrasound combined with at least one of the following symptoms: irregular menstrual cycles, hirsutism, acne, elevated serum concentrations of luteinising hormone and testosterone.[1] Patients were selected on the basis of their willingness and suitability to be treated with a COCP. Exclusion criteria were obesity [body mass index (BMI) >35 kg/m^2], heavy smokers (>10 cigarettes/day) and other contraindications to oral contraceptive use.

Local research ethics committee approval was obtained prior to commencing the study and all patients gave written consent. Treatment continued for 6 months and patients were assessed at baseline and after 1, 3 and 6 months.

BMI was calculated as kilograms per square metre (kg/m^2). Waist:hip ratio was calculated from waist circumference at the level of the umbilicus and maximal hip circumference. Body fat was measured by the method of Durnin and Womersley.[11] The coefficient of variation (CV) was 6%. Blood pressure was measured with the subjects seated after a period of 15 minutes' rest. Hirsutism was scored by the Ferriman and Gallwey score, with a CV of 4.2%.[12] Acne scores were scored on an arbitrary scale of 0–3 (0 = no symptoms, 1 = mild, 2 = moderate, 3 = severe). The ovarian morphology was assessed at Time 0 and 6 months by transvaginal ultrasound (HDI 3000, ATL

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Table 1 *Anthropometric analysis (t-test)*

Parameter	Timing of analysis		p
	0 months	6 months	
Body weight (kg)	79.50 ± 13.05	82.04 ± 15.10	0.43
Body mass index (kg/m^2)	29.20 ± 3.78	29.00 ± 3.70	0.4
Percentage body fat	18.40 ± 2.74	20.06 ± 3.64	0.004
Right ovarian volume (cm^3)	8.30 ± 5.32	7.27 ± 5.56	0.38
Left ovarian volume (cm^3)	8.07 ± 3.66	6.43 ± 3.61	0.16

Ultrasound Inc., Bothell, WA, USA). Polycystic ovaries were defined as having at least 10 cysts per ovary (2–8 mm diameter) and an echodense stroma.[13] Laboratory evaluations included biochemistry, endocrinology and haematology as previously described.[14] The data are presented as mean ± SD (normal distribution) and as median and range (not normal distribution). Parametric (paired t-test) and non-parametric statistics (Wilcoxon signed rank test) are reported using the Analyse-it^{TM} add-in statistics package (Analyse-It Software Ltd, Leeds, UK) for Microsoft Excel.

Results

Seventeen women with PCOS aged 26.4 ± 5.3 years were recruited. The presenting symptoms were: hirsutism (12/17), acne (10/17), irregular cycles (10/17) and progressive weight gain (9/17). The mean duration of symptoms was 4.4 ± 3.5 (median, 4; range, 1–14) years. Thirteen patients (76%) completed 6 months of therapy. Good cycle control was achieved in all patients. Intermenstrual spotting was reported by two patients.

Anthropometric and biochemical measurements are recorded in Tables 1 and 2. Percentage body fat increased, with no overall change in BMI. There was an insignificant change in the mean blood pressure from 124/72 to 122/70 mmHg at the end of six cycles. Fasting insulin and triglyceride concentrations rose significantly. Serum total testosterone concentrations fell with a concomitant rise in sex hormone binding globulin (SHBG) levels. Hirsutism scores did not change significantly in the 12 women who were clinically hirsute (baseline Ferriman–Galleway score>10, p = 0.17). There was, however, a significant improvement in the acne scores (Table 3).

Four of the seventeen patients dropped out of the trial between Cycles 3 and 5 due to side effects. In general the side effects were worst in the first month of treatment. After six cycles the incidence of side effects was minimal (Figure 1).

Discussion

The COCP, Yasmin, provides good cycle control for women with PCOS. After 6 months of therapy, acne was

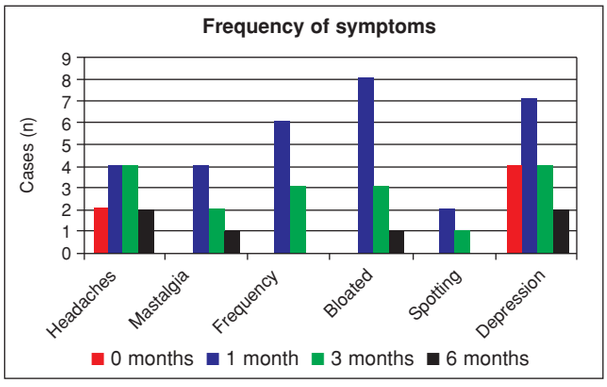

Figure 1 *Graphical representation of the side effects experienced by subjects in the study*

Table 2 *Biochemical data*

Parameter	Timing of analysis		p
	0 months	6 months	
Cholesterol (mmol/l)	5.18 ± 1.23	5.31 ± 0.98	0.3
HDL-cholesterol (mmol/l)	1.62 ± 0.42	1.77 ± 0.26	0.17
LDL-cholesterol (mmol/l)	3.08 ± 1.09	2.93 ± 0.93	0.5
Triglycerides (mmol/l)	1.21 ± 0.51	1.57 ± 0.57	0.03
Fasting glucose (mmol/l)	4.71 ± 0.28	4.76 ± 0.34	0.5
Fasting insulin (median range) (IU/l)	17.0 (3–74)	58.0 (20–84)	0.008
Testosterone (nmol/l)	2.40 ± 0.72	1.96 ± 0.81	0.003
SHBG (median range) (nmol/l)	31.0 (7–93)	173.5 (63–200)	0.0002
Leptin (median range) (ng/l)	34.9 (10.4–93.4)	31.0 (10.3–100)	0.21

NB. The *t*-test was used for biochemical parameters (i.e. lipid profile, fasting glucose, testosterone) and the Wilcoxon signed rank test for SHBG, fasting insulin and leptin.
HDL, high-density lipoprotein; LDL, low-density lipoprotein; SHGB, sex hormone binding globulin.

significantly improved but there was no improvement in the hirsutism score.

Yasmin is anticipated to have a beneficial effect on the pilo-sebaceous unit since drospirenone competitively binds to the androgen receptor. The reduction in the acne scores of greater than 50% after 6 months is comparable to other reports.[10,15,16] The failure to affect hair growth is disappointing, particularly as 6 months is usually sufficient time to observe some benefit in body and limb hair. It is, however, the symptoms of facial hair that are most distressing and may take a couple of years of anti-androgen therapy to show improvement.

After 6 months of therapy there was an improvement in the hormonal profile with a fall in total testosterone concentration and a rise in SHBG consistent with oral oestrogen therapy. Yasmin appears to impair insulin resistance in common with other COCPs.[17] We noted a marked rise in insulin to maintain normoglycaemia and this is further reflected by the rise in the triglyceride concentration. This once again raises the question as to the whether COCPs should be used in patients with PCOS. The change in the lipoproteins with elevation in the high-density lipoprotein-cholesterol and lowering in the low-density lipoprotein-cholesterol did not reach significance but the trends are in keeping with previous reports[15] and are similar to those seen with cyproterone acetate and desogestrel-containing oral contraceptives.[18–20]

The subjects in our study showed an insignificant increase in weight over the 6-month period. This finding contrasts with other studies[15] that show a loss in weight and may be a reflection of the relative obesity of our group of patients and the small sample size.

Four of the seventeen patients dropped out of the trial between Cycles 3 and 5 due to the intensity of side effects which are similar to those seen with other contraceptive pills. The side effects appeared to have an

Table 3 *Acne and hirsutism scores*

Parameter	Timing of analysis	
	0 months	6 months
Acne score (median range)	2.0 (0–3) (n = 17)	1.0 (0–2) (n = 13)[a]
Hirsutism score	18.5 ± 2.74 (n = 17)	20.1 ± 3.65 (n = 13)

[a]Improvement in acne after six cycles of treatment, p = 0.008 (Wilcoxon signed rank test).

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increased intensity at the end of the first cycle but eventually were minimal. This is also reflected by the fact that 12/13 patients who completed the study have continued to take Yasmin subsequently. We were therefore unable to assess the changes in the metabolic profile and return of symptoms after completion of the trial.

Conclusions

Yasmin provides good cycle control and relief of acne without having a beneficial effect on hirsutism after 6 months' therapy. BMI and mean blood pressure were unchanged, although percentage body fat and fasting insulin concentrations increased. We are currently performing a prospective, randomised controlled trial of Yasmin vs Dianette and further randomised studies are required to compare the efficacy of Yasmin with other preparations for the treatment of PCOS.

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Competing interests. None identified.

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ORIGINAL ARTICLE

Pregnancy counselling clinic: a questionnaire survey of intimate partner abuse

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Abstract

Context *Intimate partner abuse has a significant and detrimental impact on the mental and physical health of a woman. Physical abuse is often associated with sexual abuse.*
Objective *To examine the prevalence and nature of physical and sexual partner abuse experienced by women who request a termination of pregnancy (TOP).*
Design *Quantitative data collection using an anonymous, self-completed questionnaire.*
Setting *A pregnancy counselling clinic located within a large district general hospital in the north west of England.*
Participants *A sample of 312 women attending the clinic.*
Results *Three hundred and twelve questionnaires were returned (96.7% response rate). The prevalence rate of intimate partner abuse at some stage in the woman's life was 35.1%; 19.5% had experienced actual physical abuse in the past year; and 3.7% had experienced forced sexual intercourse in the past year. Of the latter, in over half of the*

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