

# Retrospective review of the prevalence and management of infertility in women in one practice over a five year period

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## SUMMARY

**Background.** Subfertility in general practice is a common problem. However, most treatment is initiated in hospital. There may be a role for general practitioners in the treatment of some infertile patients.

**Aim.** The aim of this study was to investigate the prevalence and management of infertility in women in general practice and to identify a specific cohort of patients potentially suitable for management in primary care.

**Method.** The general practice notes of all women patients between the ages of 16 and 42 years who presented to their general practitioner with an infertility problem in the five years preceding July 1993 were analysed retrospectively. The patients were identified from the computer database of one Durham general practice.

**Results.** Fifty four cases were identified over the five year period, giving a prevalence of infertility in women in the practice of 15 per 1000 women. Of those who had a definite diagnosis made, 27% had an ovulatory disorder. Women with an ovulatory disorder tended to have a low serum day 21 progesterone level (90%); to present with primary infertility (80%); and to receive clomiphene as first line therapy (80%). The majority of ovulation induction therapy (95%) was initiated in secondary care.

**Conclusion.** Ovulation induction therapy with clomiphene appears to be uncommon in general practice at present. Women requiring ovulation induction therapy may be a cohort of patients suitable for such management in general practice. These patients tend to present with primary infertility and to have a low mid-luteal progesterone level.

**Keywords:** infertility; management of disease; general practitioner role.

## Introduction

SUBFERTILITY is a common problem in general practice with a prevalence among men and women of reproductive age of 14%.<sup>1</sup> Recently, the role of the general practitioner in its management has expanded from merely making referrals, through giving initial support, guidance and counselling, to being a key figure in investigations, referral and administration of treatments.<sup>2,3</sup> This is part of a general trend of moving patient care into the community, fuelled by reforms such as fundholding, the National Health Service and community care act 1990 and the patient's charter.<sup>4</sup>

General practitioners are ideally suited to the management of infertility in men and women, having a unique opportunity for rapport with the patient, providing easy access and being able to impart important information in familiar surroundings. Trusting the clinician and being in a non-threatening environment may help reduce anxiety which can be an important contributory factor in subfertility.<sup>5</sup> Patients and their partners want to be involved in their management and be supported by a compassionate doctor.<sup>6</sup>

The aims of this study were to assess the prevalence and management of infertility in women in one practice over a five year period by means of a retrospective notes search, and to identify a specific cohort of patients presenting with this problem that could be managed more fully in general practice.

## Method

The study was conducted in an urban, fundholding, computerized practice in county Durham with a list size of approximately 14 000 patients and 6.5 whole time equivalent partners. The practice computer system was used to identify the study population.

Women aged 16 to 42 years with one or more of 31 computer codes relating to infertility over the five years preceding July 1993 were selected for the study. The codes used were verified by questioning the doctors and data manager. A random selection of one in 20 notes of 16 to 42-year-old women within the practice population was checked for anyone presenting with infertility in the study period who had not been identified by the computer search. None was found. Certain related, but non-specific codes, were excluded from the search. Codes relating to sperm and female sex hormones would have identified men who had had vasectomies and women in the menopause not presenting with an infertility problem. Serum progesterone was not used as a code as one doctor used this investigation for any woman presenting with oligomenorrhoea, amenorrhoea or menorrhagia, as well as with infertility.

Information on both hospital and general practice investigations, treatment and diagnosis was sought from the general practice notes. Anovulatory infertility was a diagnosis made by consultants as reported in a letter; in general practice it was based on a low, well timed, mid-luteal phase (day 21) progesterone level measurement (less than 30 nmol l<sup>-1</sup>). If any information was not found, it was coded as not done/missing.

Data were analysed using SPSS/PC+.<sup>7</sup> Descriptive statistics were examined, with comparisons of dichotomous variables using the chi square test with Yates correction and 95% confidence intervals where appropriate. A *P* value of 0.05 or less was considered significant.

## Results

A total of 57 women were identified. Two were no longer registered with the practice and one patient had received clomiphene for amenorrhoea rather than an infertility problem, thus 54 women were studied. Over the period there were approximately 3500 women registered with the practice between the ages of 16

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and 42 years, giving a five year period prevalence of infertility in the practice of 15 per 1000 women.

The mean age of the 54 women when they presented was 31 years (standard deviation (SD) five years) and 45 patients (83%) were presenting to their general practitioner for the first time. These women had been trying to become pregnant for a mean of 2.9 years (SD 2.6 years) and 33 patients (61%) were presenting with primary infertility (those who had never achieved a pregnancy). Just over half the women (56%) had a normal menstrual cycle length (a regular 28-day cycle). The median time from presentation to referral was less than one month (interquartile range <1–3 months). It took a further mean of 3.7 months (SD 2.4 months) to be seen in the gynaecology outpatient department of the local hospital.

Considerable numbers of investigations were carried out by the general practitioners (Table 1). The general practice data exclude those patients who were not presenting for the first time. Eleven patients were excluded from the data on hospital investigations because they had not been referred, had defaulted or had not been seen in the outpatient department at the time of the study. The hospital data include patients presenting for the second time or more. Two thirds of the patients (30/45) presenting for the first time to their general practitioner had their day 21 serum progesterone level estimated. Of these, one third had a value less than 30 nmol l<sup>-1</sup> suggesting an ovulatory disorder. Similar results were found by hospital investigation. There was considerable duplication of day 21 progesterone level estimation by general practitioner and hospital: of the 46 patients who had their day 21 progesterone level estimated, 26% had it done by both general practitioner and hospital. Serum follicle stimulating hormone level and luteinizing hormone level, although relatively popular investigations were normal in the vast majority of cases. Rubella immune status was rarely investigated.

Fifteen patients had a low day 21 progesterone level as estimated by the general practitioner or hospital. When compared with those with a normal day 21 progesterone level they tended to be presenting with primary infertility (13/15 versus 16/31, respectively,  $\chi^2 = 3.9$ ,  $P < 0.05$ , 95% confidence interval (CI) for difference in proportions 0.1 to 0.6); to have irregular periods (11/15 versus 7/28, respectively,  $\chi^2 = 7.5$ ,  $P < 0.01$ , 95% CI for differ-

ence in proportions 0.2 to 0.8); ultimately to be diagnosed as having an ovulatory disorder (9/15 versus 0/31, respectively,  $\chi^2 = 19.5$ ,  $P < 0.001$ , 95% CI for difference in proportions 0.4 to 0.9) and to receive clomiphene as first line therapy (10/15 versus 8/31, respectively,  $\chi^2 = 5.5$ ,  $P < 0.05$ , 95% CI for difference in proportions 0.1 to 0.7). Of the 20 patients who received clomiphene, 16 (80%) had primary infertility and four (20%) became pregnant.

Ten patients were diagnosed as having an ovulatory disorder. When comparing this group with patients who had alternative diagnoses they were significantly more likely to be presenting with a low day 21 progesterone level (9/9 versus 6/37, respectively,  $\chi^2 = 19.5$ ,  $P < 0.001$ , 95% CI for difference in proportions 0.7 to 1.0) (one patient had anovulatory infertility diagnosed when the day 21 progesterone level was not recorded) and to receive clomiphene therapy (8/10 versus 12/44, respectively,  $\chi^2 = 7.6$ ,  $P < 0.001$ , 95% CI for difference in proportions 0.3 to 0.8). This group of patients were also more likely than those with other diagnoses to have presented with primary infertility (8/10 versus 25/44) but this difference was not significant.

The diagnosis, frequency of general practitioner and hospital led treatments and outcome of the study group are shown in Table 2. Temperature charting was a popular treatment initiated by general practitioners. Over two fifths of patients seen in hospital had ovulation induction therapy initiated. Anovulatory infertility accounted for 27% of those where a definite diagnosis was made.

Overall, there were 13 pregnancies, five of which were spontaneous and four which occurred with clomiphene therapy only.

## Discussion

This study identified a five year period prevalence of infertility in women of 15 per 1000 women. Of those with a definite diagnosis, 27% had anovulatory infertility which is similar to the 21% quoted by Bromham<sup>8</sup> and they were significantly more likely than those with other diagnoses to have a low day 21 progesterone level and to receive clomiphene as first line therapy. Where the day 21 progesterone level was low, patients tended to receive clomiphene as a first line therapy, to be presenting with primary infertility, to have irregular periods and ultimately

**Table 1.** Frequency of investigations for infertility carried out by general practitioners and hospitals.

Investigation	% of women having investigation, by outcome					
	Attending GP (n = 45)			Attending hospital (n = 43)		
	Normal	Abnormal	Not done/missing	Normal	Abnormal	Not done/missing
Prolactin level	58	0	42	35	0	65
Thyroid function test	51	0	49	21	0	79
Semen analysis of partner	47	7	47	23	7	70
Day 21 progesterone level	44	22	33	42	21	37
Full blood count	40	2	58	0	0	100
Follicle stimulating hormone level	31	2	67	33	0	67
Luteinizing hormone level	31	2	67	33	0	67
Rubella immune status	18	0	82	7	0	93
Oestrogen level	13	0	87	0	0	100
Testosterone level	13	0	87	7	0	93
Chlamydia serology	4	0	96	0	0	100
High vaginal swab	4	4	91	5	0	95
Random blood sugar level	4	0	96	0	0	100
Chlamydia swab	2	0	98	5	0	95
Hysterosalpingogram	NA	NA	NA	5	9	86
Laparoscopy and dye hydrotubation	NA	NA	NA	44	33	23
Post-coital test	0	0	100	0	0	100

n = number of women. NA = not applicable.

**Table 2.** Frequency of diagnosis, treatments initiated by general practitioners and hospital, and outcome.

	% of women (n = 54)
<i>Diagnosis</i>	
Ovulatory disorder	19
Tubal damage	19
Sperm problem in partner	6
Tubal damage and endometriosis	6
Premature menopause	2
No diagnosis yet made	31
Unexplained infertility	19
<i>Treatment initiated by GP</i>	
Temperature charting only	35
Ovulation induction therapy only	2
None	63
<i>Treatment initiated by hospital<sup>a</sup></i>	
Ovulation induction therapy	44
Other <sup>b</sup>	23
None/still under investigation/defaulted	33
<i>Outcome</i>	
<i>Pregnant</i>	
Ovulation induction therapy only	7
Spontaneous	9
In vitro fertilization/gamete intrafallopian transfer	7
<i>Not pregnant and &lt;12 months from 1st outpatient appointment</i>	
	37
<i>Not pregnant and &gt;12 months from 1st outpatient appointment</i>	
	28
Defaulted/lost to follow up	9
Premature menopause	2

n = number of women. <sup>a</sup>n = 43. <sup>b</sup>Other includes tubal surgery, in vitro fertilization, gamete intrafallopian transfer, artificial insemination by donor, or artificial insemination by husband.

to be diagnosed as having an ovulatory disorder. It is this cohort of patients requiring ovulation induction therapy that may be targeted for treatment in general practice.

This study has several limitations. First, the data are from only one practice, and may be incomplete. Secondly, care must be taken in interpreting the rate of investigation by the hospital. This may have been influenced by poor communication between hospital and general practice. Finally, the high numbers of patients with no diagnosis is probably a reflection on the numbers waiting to be seen in the outpatient department or currently undergoing investigation.

Ovulation failure represents a cause of infertility that is relatively easy to correct.<sup>9</sup> The majority of these patients have a functional ovulatory disorder which is treatable with ovulation induction therapy.<sup>10</sup> This group of subfertile patients also have the highest chance of success.<sup>1,9-11</sup> Easily-applicable urine testing kits which are both sensitive and specific can help confirm ovulation in clomiphene stimulated cycles,<sup>12</sup> but temperature charting, either generally or during clomiphene treatment, is of little value.<sup>13-15</sup>

Five of the 13 pregnancies achieved were spontaneous pregnancies while either waiting for an outpatient appointment or under investigation. This high level of spontaneous pregnancy, similar to that found by Martin,<sup>16</sup> may merely represent a group of patients at the extreme of fecundity<sup>17</sup> or may represent a group with a subtle ovulatory disorder who would be amenable to ovulation induction therapy. There appears, however, to be little point in a general practitioner giving a woman clomiphene who has a normal menstrual rhythm<sup>18</sup> and a normal day 21 progesterone level.

Infertility guidelines in general practice have been shown to improve management.<sup>19</sup> Recently published guidelines<sup>15,20</sup> can help primary care to direct its resources effectively and closer collaboration with gynaecological colleagues will avoid unnecessary duplication of investigations.

It would be appropriate as a next step to evaluate the cohort identified in this study with regard to their suitability for ovulation induction therapy in general practice given suitable guidelines, including precise indications, contraindications and risks of such treatment.

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