Impact of Weight Loss by Group Therapy in Over Weight Women with Polycystic Ovarian Syndrome

Christina James, Dhanasundari Bhaskariah, Anitha Solomon, Herman V. Fernandes, Susan George and Korula George

Reproductive Medicine Unit, Department of Obstetrics and Gynaecology, Christian Medical College, Vellore 632 004, Tamil Nadu.

Summary

Obesity is associated with anovulation and infertility. In this preliminary study, a weight loss programme organized by regular group therapy was conducted, to determine if significant weight loss can take place. Moreover whether this weight loss could help an over weight woman with polycystic ovarian syndrome to establish ovulation and assist in achieving pregnancy. Forty one over weight women with PCOS were enrolled into the programme. A group treatment format, emphasizing on dietary changes in conjunction with regular exercise was used. Thirty one women attended the programme over the 6th period. An average weight loss of 4.9kg was seen in this group, when compared to less than 1kg loss in the 10 women who were termed as 'drop outs'. Seven out of 31 PCOS who completed the programme conceived spontaneously (22%) and 11 (35.5%) established regular cycles in contrast to none in the drop out group. Thus weight loss with resultant improvement in ovulation and pregnancy outcome is the first therapeutic option for women who are over weight with PCOS.

Introduction

The relationship between obesity, menstrual disorders and infertility are well known (Roger and Mitchell 1932). A great number of women with polycystic ovarian syndrome (PCOS) are over weight or obese. Various forms of treatment for over weight women with PCOS have been described, such as ovulation induction, use of metformin, ovarian drilling and weight reduction. Clark et al in 1995 and 1998 have reported that even a small weight loss in anovulatory obese infertile women, achieved in a group setting, resulted in improvement in ovulation, pregnancy rate and pregnancy outcome. Foreyt and Goodrick have also suggested that group treatment programmes are likely to be more successful than individual treatment programmes.

The aim of this study was to test the above principle, which was to determine if organized regular group therapy sessions for over weight women with PCOS resulted in significant weight loss, improvement in anovulatory status and spontaneous conception.

Materials and Methods

Subjects

Inclusion criteria for the weight reduction programme were infertility for >2 years duration, body mass index (BMI) ≥ 28, PCOS diagnosed on ultrasound finding or hormonal assessment, and those being able to attend the group therapy sessions on a weekly or at least fortnightly basis for a minimum of 3 months. Subjects with medical complications were excluded. A

total of 41 women with PCOS, attending the Reproductive Medicine Unit of the Christian Medical College Hospital, Vellore, for treatment of infertility were enrolled into the programme. Ten women with PCOS were unable to complete the 3 months study programme and were termed as 'drop outs'. They were included for comparison with those who completed the programme.

Treatment

A group treatment format, emphasizing dietary changes in conjunction with regular exercises, was used. Both partners were encouraged to attend these sessions on a weekly or fortnightly basis. Advice and counseling formed an integral part of this programme. Subjects were started on a low calorie diet, calories calculated according to ideal body weight. Women were taught to increase their activity level and gradually increasing goals for calorie expenditure were prescribed with, walking or skipping being emphasized as an appropriate form of exercise. Initially women were instructed to walk briskly for at least one hour everyday for the first month: subsequently stretching and bending exercises were incorporated. Group interaction, support and cohesion were also encouraged. Sessions included short discussions and seminars on a wide range of weight related topics including diet, nutrition and various adverse effects of obesity.

Assessment

A weekly or fortnightly assessment was made, which included monitoring of weight, calculation of BMI, and close follow up for spontaneous onset of regular menstrual cycles and spontaneous conceptions.

Results

Characteristics of the subjects are shown in Table I. Women averaged 27.5 years of age, with a range of 21-28 years. Mean duration of infertility was 3.6 years (range 3-11) and mean BMI was 31.2.

Table I. Characteristics of the patients recruited for the study (n=41)

	Mean		SD
Age (years)	27.6	±	4.3
BMI	31.15	±	2.2
Duration of infertility (years)	3.6	±	1.8

A significant weight loss occurred in women attending the programme over the 3 months period, 4.94kg, when compared to the 'drop outs' where there was only a loss of 0.5 kg (Table II).

Table II: Comparison between those completed and those who did not complete the study

	Completed N=31	Drop out n=10
Mean weight loss (kg)	4.94 ± 3.3	0.5
Resumed spontaneous menstrual cycle (%)	35%	nil
pregnancy (%)	22%	nil

Amongst those who achieved spontaneous resumption of menstrual cycles and spontaneous pregnancies the mean weight loss was 5kg in comparison with a mean weight loss of 2.55 kg. in those who continued to have irregular cycles (Table III).

Table III: Weight loss in the different subgroups in those who completed the study

	Mean (kg)
Spontaneous pregnancy group	5.286
Spontaneous onset of regular cycle group	5
Irregular cycle group	2.55

Seven out of the 31 women who completed the programme conceived spontaneously (22%) and 11 (35.5%) of them established regular cycles, in contrast to none in the drop out group.

The data are presented as a mean ± SD and as percentages. As this was a preliminary study with no true comparison group, tests of significance were not employed.

Discussion

Polycystic ovary syndrome is a complex disorder and its etiology is still unknown (Insler and Lunnenfeld 1991, Franks 1995). Associated metabolic disturbances include insulin resistance with compensatory hyperinsulinemia, elevated androgen concentrations and decreased sex hormone binding globulin (SHBG) (Dunaif et al, 1988). Although comparisons of the hormonal status between obese and non obese women with PCOS have yielded conflicting results (Pasquali and Casimirri, 1993), there are numerous studies indicating that obese women with PCOS may have more severe hyperandrogenism and lower (SHBG) concentrations with respect to their obese counter parts. It is now well recognized that there is an inverse correlation of serum SHBG with body mass index (BMI) (Plymate et al 1981, Kiddy et al 1989) and there is increasing evidence that insulin plays an important part in this inter relationship.

Our study demonstrates that loss of weight in obese women with PCOS improves the ovulatory status and pregnancy rates, and the results are comparable with previous studies (Pasquali et al, 1989). Kiddy et al (1989) have shown that even a moderate weight loss of 5kg in obese women with PCOS improves both anovulation and fertility rates. Conversely no significant benefit was observed in women who lost <5kg, maintained their excess body weight or increased it. This is similar to what was demonstrated in our study, where the mean weight loss was 5kg in women who achieved regular cycles and spontaneous pregnancies. Women who completed more than 3 months of the weight reduction programme but continued to have irregular menstrual cycles had a mean weight loss of only 2.33kg. In addition to an improvement in pregnancy and ovulation rates, Clark et al using a similar group treatment approach, have demonstrated a reduction in the need for the use of high technology treatment options. (Clark et al, 1993, 1998). The programme was also cost effective when compared with conventional medical treatment for this group of infertile women. Group treatment methods are likely to be more effective than individual programmes because of factors such as group support, cohesion, sharing and encouragement from one another. Exercise and weight loss enhances psychological well being, improves motivation and reduces insulin resistance (King and Tribble 1991, Foreyt and Goodrick 1993). Thiering et al in 1993 reported an association between mood state and fertility.

Although this preliminary study has methodological limitations, the results are never the less striking.

This study suggests that there is a significant improvement in ovulatory status and fertility in obese women with PCOS who lose weight. Group therapy appears to be beneficial in achieving this goal. Loss of weight should be a prerequisite for all obese women with polycystic ovarian syndrome prior to initiation of any form of treatment for infertility.

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