WEIGHT REDUCTION AND LIFE STYLE MODIFICATION CAN IMPROVE THE OUTLOOK IN WOMEN WITH PCOS IN TERMS OF OBESITY OLIGOMENORRHOEA, AND SUBFERTILITY

Ghazala Shams

Abstract

Objectives: To find out the effect of weight reduction and life style modification in women suffering from polycystic ovaries with obesity, anovulation and subfertility.

Methodology: This is a prospective observational study conducted in maternity hospital Hashtnagri over a period of one year and hundred cases were included from (March 2011 to March 2012). All women of the reproductive age were included with clinical features of obesity oligomenorrhoea, hirsutism, and subfertility. After exclusion of other causes of subfertility e.g. male factor, blocked tubes etc. All patents were subjected to general healthy eating habits and moderate amount of low intensity exercise that is thirty minutes of activity every day and followed up monthly.

Results: A total of 100 patients were evaluated for the clinical and biochemical features of PCOS. After 12 months of enrollment in weight reduction and lifestyle modification program almost 73.5% of patients improved their clinical and biochemical features and 70%of patients conceived without ovulation induction after (5-10) kg weight loss.

Conclusion: Patient education, motivation, and lifestyle modification in obese PCOS not only improve their clinical features but also improve the out come in terms of subfertility and menstrual irregularities.

Key words: PCOS, Obesity, Lifestyle modification Hyperinsulinemia.

INTRODUCTION

Polycystic ovary syndrome is an exceptionally common disorder of reproductive age women characterized by oligomenorrhoea, anovulation, hirsutism, and subfertility.[1'2]

The disease has unknown etiology but it has important long-term health implications including Type 2 diabetes, hypertension and endometrial carcinoma. Polycystic Ovarian syndrome (PCOS) was first recognized in 1935 by two Chicago gynecologists Dr Irving Stein and Micheal Leventhal.[3'4]

Although there have been no specific population-based studies (5-10) %, prevalence of this disorder in women of reproductive age, there is a great concern at the high prevalence and the increasing trend of obesity worldwide, especially in western societies. Obesity has great implications on the health of young women especially in terms of their menstrual irregularities and subfertility and after the change in the life style and diet now this is the problem in our young girls too.[5'6]

In recent years as gynecologists we are facing the consequences of a change as a society that has changed its life style like westerns especially in terms of eating habits and more sedentary life style. Increase in BMI has led to increase in weight and a higher frequency of women diagnosed with disorders of menstruation, subfertility, diabetes mellitus in pregnancy higher birth weights in babies and other significant squeal in addition to earlier mentioned problem of polycystic ovarian syndrome.[7'8]

Ovulation is the process by which the maternal genetic material can be transferred by the oocyte, to the next generation. Regular menstrual cycles are usually the outward manifestation of cyclical ovarian activity and ovulation. The establishment of regular ovulatory cycles at puberty depends on a complex series of interactions involving the hypothalamus, anterior pituitary, and ovary (The HPO axis).

Obesity is increasing rapidly all over the world affecting more than one billon people worldwide. Waist to hip ratio is increased in PCOS. Waist circumference is measured by taking the average of 3 measurements (1 inch above iliac crest parallel) to ground. Fifty to seventy percent of PCOS are obese. Obesity is associated with the increase severity of PCOS and the risk for metabolic syndrome. Obesity worsens the insulin resistance as well[9'10]. World Health Organization considers body mass index (BMI) as abnormal if BMI is over 25.0-kg/ m2 and defines as obesity a BMI over 30-kg/ m2. The incidence of obesity in women of reproductive age is 12%. Obesity is a known risk factor for anovulation and current NICE fertility guidelines recommend that all obese women, regardless of their cycle characteristics, should be informed that they are likely to take longer to conceive.

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The objective of this study was to find out the effect of weight reduction and lifestyle modification (diet and exercise) on clinical features of oligomenorrhoea, subfertility, and obesity in women with PCOS.

MATERIAL AND METHODS

This study was carried out on women of the reproductive age who were suffering from oligomenorrhoea, hirsutism, obesity, and subfertility from March 2011 till March 2012 in Hashthnagri hospital. A total of hundred cases were included. Inclusion criteria was women of the reproductive age with all the features of oligomenorrhoea, subfertility, hirsutism and obesity with ultrasonographic morphology of ovaries i.e. presence of more than 8 small follicles measuring less than 10 mm in subcortical region and total ovarian volume of more than 10 ml in accordance with Rotterdam 2003 consensus workshop. The clinical, biochemical and ultrasonographic features of women with PCOS were recorded on data collection form with respect to age, BMI, type and duration of subfertility history of menstrual cycle, hirsutism and family history of diabetes mellitus. The biochemical hormonal Day 2 FSH, LH performed evaluation prolactin levels. Fasting blood sugar and Fasting insulin were also checked. Ultrasound for the ovarian morphology was done.

BMI was calculated by dividing the weight in kilograms from height in Meter Square. For BMI reference standards were in accordance with WHO. BMI>25 are taken as type 1obesity. In order to have more clear distinction between obese and lean PCOS BMI was categorized from18 or < to 35 or >. The normal cutoff for FSH, LH and fasting insulin was taken less than 10 IU /l. Prolactin was taken as normal if < then 25ng/dl. Women who have other causes of subfertility like male factor and tubal factors were excluded from the study. The association of different clinical, biochemical and ultrasonic features with BMI was analyzed at univariate and multivariate levels.

All patients were subject to diet and life style modification for twelve months and followed up on monthly basis. Patient's education on every follow up was emphasized. The emphasis was done on reducing central adiposity and improving metabolic fitness rather than simply on weight and BMI reduction. Diet charts and workup plans were provided.

RESULTS

Study population consisted of women of the reproductive age group. The mean age of women was 27.5+ _4.5. The **Table 1** describes percentage distribution of different characteristics of the sample studied. Out of 100 patients only 40 patients have normal BMI and rest of 60 patients were obese with BMI of >25. Hormonal assays revealed that out of hundred 75 patients have normal FSH and 70 patients have normal LH levels. In the population studied married patients were 60 out of which 40 (66.6%) had subfertility. Out of hundred 25 patients had ultrasonographic evidence of polycystic and 12 patients have abnormal GTT. After 12 months out of 40 patients who had subfertility and oligomenorrhoea. 28 patients had regular menstruation and conceived without any ovulation induction after (5-10) kg weight loss and BMI reduction. Drop out rate was 5 out of 100 who left the program.

Out of 34 patients who had BMI between (26.1-29) 25 patients that is (73.5%) of total sample reduced their BMI <25 have improve din there clinical presentation of oligomenorrhoea, hirsutism, acne and obesity, and they improved their hormonal profile as well.

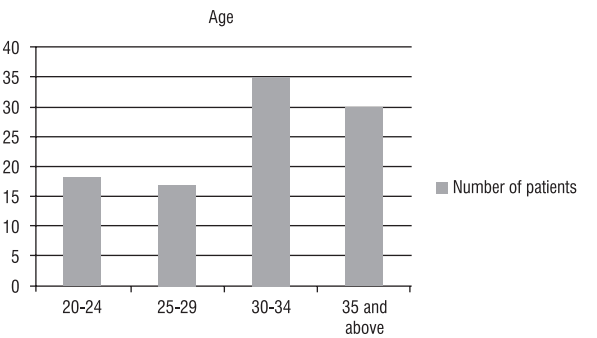
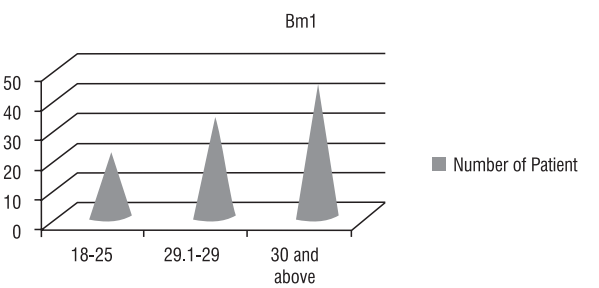


Figure 1:



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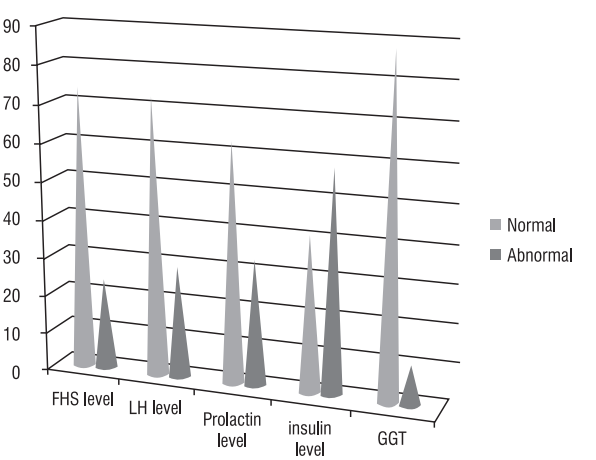

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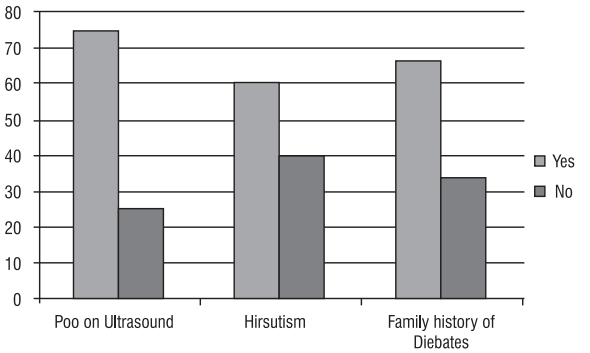

Figure 4:

Table 1: Percentage distribution of different characteristics.

Age	number of patients
20-24	18
25-29	17
30-34	35
35and above	30

Table 2:

BMI	Number of patient
18-25	22
29.1-29	34
30 and above	44

Table 3:

Levels	Normal	Abnormal
FHS level	75	25
LH Level	70	30
Prolactin level	65	35
Insulin level	40	60
GGT	88	12

Table 4:

Characteristics	Yes	No
Pco on Ultrasound	75	25
Hirsutism	60	40
Family history of Diabetes	66	34

Table 5:

Characteristics	Yes	No
Pco on Ultrasound	75	25
Hirsutism	60	40
Family history of Diabetes	66	34

DISCUSSION

Obesity is increasing rapidly all over the world affecting more than one billion people worldwide. PCOS is the commonest endocrine disorder in women and is the major cause of anovulation. Obesity amplifies the symptom and biochemical abnormalities of PCOS.

The current obesity pandemic results in a greater proportion of the population with polycystic ovaries becoming symptomatic, or in the case of those who already have symptomatic development of a more severe clinical picture.[11]

The aim of my study was to emphasize on the obesity the only modifiable factor and basis of hormonal imbalance in young women and to change their lifestyle through diet and exercise only.

Exercise and lifestyle modification has tremendous effect on the out come in terms of regular menstrual cycles ovulation subfertility and hirsutism.[12]

WHO estimates that (9 to 25 %) of women in developed countries are obese and many obese women conceive with out assistance with weight reduction (the ESHER Capri Workshop Group). Another study shows that overweight BMI (25-29.9 kg/m2) and obese (BMI>30 kg/m2) women have reduced chances of spontaneous conception and lower success rates with fertility treatment (Gensik Law et al., 2007 Maheshwari et al., 2007; Ramlau-Hansen et al, 2007; van der Steeg etal. 2008; Belver et al., 2010) it has been shown that losing weight can improve the chance of conception in this specific patient category (Clark et al., 1998; Huber Bucholz et al., 1999; Miller et al., 2008). Modest weight loss of 10% in obese women have been demonstrated to be effective in improving hormonal profiles, menstrual regularity, ovulation and pregnancy rates (Falsetti etal.,1992; Kumae et al.,1993;Clark et al.,1995[13'14] Gallety et al;1996 Hollmann et al .,1996 Norman and Clark, 1998).Interventions as little as 4 weeks with weight losses of(5-10%)of initial body weight can reduce hyper -androgenism and circulating insulin. (Hamilton-Fairley et al., 1993;Clark et al., 1995; Wahrenberg et al.,1999).In comparison to my study studies of weight loss through lifestyle modification have indicted that improvements in fertility occur with modest weight loss (5% of initial body weight).[15] Kiddey et al.,1992; Hollmann et al.,1996 showed that there is parallel improvement in anthropometric indices, ovarian physiology and fertility rate induced by diet. Forety and poston (1998) also suggested that modest weight loss of (10%) of initial weight are effective in improving hormonal profiles, menstrual regularity, ovulation and pregnancy rates[16'17]

Studies have shown that the patients who have been started on the Metformin alone with out restricted calorie diet does not lead to weight loss.[18'19]. But when combined metformin with restricted calorie diet, there is significant weight loss[20'21]. Attenuating insulin resistance

has become a target in normalizing hyperandrogenism and anovulation in PCOS. Weight loss improves insulin sensitivity and short and long- term reproductive fitness in over weight women and PCOS subjects and is additionally crucial for improving short and long -term metabolic health. This can be accomplished through dietary control and exercise.

CONCLUSION

Life style modification and dietary changes can improve the out come for those young obese women who get treatments for menstrual irregularity and anovulation without any effort or emphasis for their weight reduction. Only 5-10 kg weight loss not only improves their anovulatory cycles but also the chance of spontaneous conception.

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