

Polycystic Ovarian Syndrome in Obese Adolescent Girls

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ABSTRACT

Objective: To study the lifestyle intervention on feature of polycystic ovarian syndrome in obese adolescent girls.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Obstet and Gynecology Department, Jinnah Hospital Lahore and Sardar Begum Teaching Hospital Sialkot during Jan 2019 to April 2020.

Materials and Methods: One twenty five patients of polycystic ovarian syndrome in obese adolescent girls were selected for recent study. The informed consent of every patient was taken before history examination and Ultrasonography. The permission of Ethical Committee was taken before collecting data and get publishing in Medical Journal. The data was analyzed for results by SPSS verison20.

Results: One hundred twenty five girls (mean age fourteen point nine \pm zero point eight yr) reduced their Body Mass Index Standard Deviation Status higher than zero point two in the lifestyle intervention, whereas fifty girls demonstrated an increase of Body Mass Index Standard Deviation Status or a reduction of Body Mass Index Standard Deviation Status less than or equal to zero point two (mean age fifteen point one \pm zero point seven yr).

Conclusion: The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Key Words: Lifestyle intervention, polycystic ovarian syndrome, fatty adolescent girls

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INTRODUCTION

Polycystic ovarian syndrome is a common disorganization affecting as many as five to ten percent of female of reproductive age^{1,2,4}. Being a complex functional disorganization, Polycystic ovarian syndrome is furthermore associated with the metabolic syndrome^{1,5-9}, perhaps predisposing to heart and blood vessels diseases^{1,9,10}.

Lifestyle intervention is regarded as treatment of choice for both Polycystic ovarian syndrome and related to metabolism syndrome^{1,11-15,16, 17}.

A further benefit of examinations of adult girls is that there is usually no capacity uncertain with other sickness or drugs.

Therefore, we determined the benefit of a one-yr style of life stopping on the features of Polycystic ovary

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syndrome (increase androgen in blood and cycles of menses) and related to metabolism syndrome (damaged tolerance of glucose, increase lipid in blood, high blood pressure, and increased circumference of waist).^{18,14,19,20}

MATERIALS AND METHODS

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RESULTS

One hundred twenty five girls (mean age fourteen point nine \pm zero point eight yr) reduced their Body Mass Index Standard Deviation Status higher than zero point two in the lifestyle intervention, whereas fifty girls demonstrated an increase of Body Mass Index Standard Deviation Status or a reduction of Body Mass Index Standard Deviation Status less than or equal to zero point two (mean age fifteen point one \pm zero point seven yr) (Table 1).

The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Table No. 1: Factor of the metabolic syndrome and carotid Immune Modulated Thrombocytopenia in the course of one year in seventy five girls with and fifty girls without successful weight loss in a one year lifestyle intervention

Variable	Successful weight loss (Body Mass Index Standard Deviation Status reduction>0.2)			No Successful weight loss(increase or reduction≤0.2 of Body Mass Index Standard Deviation Status)		
	Baseline	1year later	P value	Baseline	1year later	P value
BMI (kg/m ²)	32.1 (3.7)	28.2 (3.4)	<0.001	33.8 (6.8)	34.4 (6.9)	0.031
BMI-SDS	2.54 (0.50)	1.91 (0.60)	<0.001	2.64 (0.74)	2.74 (0.75)	0.011
Waist circumference (cm)	96.8 (16)	94.9 (10)	0.033	97.98 (11)	101.99 (11)	NS
Triglycerides (mg/dl)	137.99 (39)	111.98 (39)	0.022	135.98 (67)	147.96 (77)	NS
HDL-cholesterol (mg/dl)	44.9 (9)	52.94 (13)	<0.001	45.96 (9)	47.98 (15)	NS
Fasting glucose (mg/dl)	84.96 (7)	84.98 (6)	NS	85.96 (9)	87.98 (9)	NS
Insulin (mU/liter)	22.96 (15)	16.98 (10)	0.037	24.96 (14)	32.99 (13)	NS
HOMA	4.7 (3.7)	3.56 (2.0)	0.049	4.7 (3.3)	4.7 (3.1)	NS
2-h glucose in oGTT (mg/dl)	129.96(23)	107.98 (19)	0.009	125.96 (24)	127.98 (28)	NS
Systolic blood pressure (mm Hg)	122.96 (15)	113.98 (11)	0.016	124.97 (16)	124.96 (16)	NS
Diastolic blood pressure (mm Hg)	73.96 (12)	65.95 (13)	0.029	69.96 (9)	70.99 (12)	NS
Metabolic syndrome (IDF definition)	34.96%	3.98%	0.008	35.98%	38.96%	NS
Intima-media thickness (cm)	0.066 (0.005)	0.054 (0.002)	<0.001	0.063 (0.008)	0.064 (0.008)	NS

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Table No. 2: Factors of the polycystic ovarian syndrome in the course of one year in seventy five girls with and fifty girls without successful weight loss in a one year lifestyle intervention

Variable	Successful weight loss (Body Mass Index Standard Deviation Status reduction>0.2)			No Successful weight loss(increase or reduction≤0.2 of Body Mass Index Standard Deviation Status)		
	Baseline	1year later	P value	Baseline	1year later	P value
Testosterone (nmol/liter)	1.97 (0.7)	1.49 (0.5)	0.036	1.79 (0.7)	1.59 (0.6)	NS
DHEA-S (µg/liter)	1681 (861)	1824 (757)	NS	2078 (166)	2152 (1277)	NS
SHBG (nmol/liter)	16.98 (9)	24.98 (11)	<0.001	13.96 (5)	12.99 (4)	NS
Androstendione (ng/ml)	2.7 (1.3)	2.7 (1.6)	NS	3.59 (2.1)	3.29 (1.4)	NS
Free testosterone index	34.96 (14)	25.98 (10)	0.004	36.87 (10)	34.96 (21)	NS
LH (mU/ml)	9.49 (7.5)	5.19 (4.3)	0.005	10.5 (7.4)	7.78 (4.0)	NS
FSH (mU/ml)	4.49 (2.7)	5.29 (3.1)	NS	5.59 (2.7)	4.69 (2.1)	NS
LH/FSH	2.29 (1.5)	1.09 (0.8)	0.002	2.29 (1.6)	1.89 (1.2)	NS
Amenorrhea (%)	68.99	26.96	<0.001	60.99	54.98	NS
Oligomenorrhea (%)	30.98	11.96		38.98	35.96	

Table No. 3: Age distribution

Sr. #	Age (years)	Number of cases	Percentage %
1	12-14	75	60%
2	15-17	50	40%
Total		125	100%

The prevalence of ovarian syndrome was maximum 75(60%) at age group 12-14 and was minimum 50(40%) at age group 15-17 as shown in table no 3

DISCUSSION

Loss of weight due to style of life stoppage was associated with an provement of steroid hormones and irregularities of blood loss during menstrual period. These results are in resemblances with studies in adults^{14,15}. Ornstein and colleagues¹⁹ also showed in a small study an development of irregularities of menses in weight loss of fatty girls with Polycystic ovary syndrome. Hoeger et al¹⁴ noted a decrease of testosterone and an increase of Sex hormone-binding globulin in twenty four adolescent fatty girls treated with lifestyle prevention.

The recent study resulted that, testosterone levels lowered and SHBG concentration elevated notably in the females with PCOS and decrease in weight, so that independent testosterone levels decreased, on the other hand DHEA-S concentration was unchanged. The results of current research were in collaboration with previous studies in which it was indicated that females having PCOS, indicated that decrease in body weight caused a relieve in clinical features of hyper androgenism but caused no effect upon DHEA-S¹⁵. The results of these studies indicated that testosterone and SHBG are basic important criteria to diagnose PCOS. The previous studies have concluded that both these hormones are linked to increased insulin levels. Testosterone increases and SHBG decreases when insulin increases¹. So it can be concluded that levels of insulin either decreased or increased leads to increased levels of sex hormones in the polycystic ovary syndrome^{1,2}. Insulin and Leutnizing Hormone both co act to elevate the levels of sex hormones. Another action of Insulin is not letting the liver cells to form Sex hormone-binding globulin, which is the most important factor to carry the male sex hormone. This leads to elevated levels of independent male sex hormone. The results of this research also prove it correct that insulin immunity has connection with between obesity and polycystic ovary syndrome and not mass of fat¹.

On the other hand, the androstenedione hormone concentration was not changed in females in whom the weight had decreased level as compared to concentrations of testosterone as explained in previous researches.¹⁵⁻²⁰

CONCLUSION

The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Author's Contribution:

Concept & Design of Study: Mahwish Pervaiz
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 Final Approval of version: Mahwish Pervaiz

Conflict of Interest: The study has no conflict of interest to declare by any author.

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