

Study of BMI and Waist / Hip ratio in PCOS cases in Jharkhand

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Abstract

Introduction

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in the of women in general population. PCOS is viewed as a heterogeneous disorder of multifactorial etiology. It is also associated with increased metabolic and cardiovascular risk factors. These risks are compounded by the common occurrence of obesity. The waist hip ratio is a better predictor of obesity as compare to BMI, and is closely related with obesity-related risk factors also. (6,7,8) WHR (>0.8) indicates obesity which is one of the important feature of PCOS. The role of obesity in the development of PCOS is still not very clear but there is increase in the prevalence of PCOS with increasing BMI.

Aims and objectives

The confirmed relation of obesity and PCOS is there. The screening of obesity will help in early detection of PCOS and management of obesity and PCOS with other associated problems like infertility and malignancy

Material and methods

The study was conducted in the department of physiology, RIMS, Ranchi from February 2018 till August 2018, on females with PCOS and for control normal both of the same age group. With the consent of patients attending Obs and Gynae OPD and postgraduate and nursing students (without history of any other disease or on steroids) at RIMS. The BMI of PCOS 100 subjects and 80 control subjects was considered and compared

Results

The confirmed relation of obesity and PCOS is there, and it was observed that PCOS subjects were obese with BMI 26.688 ± 3.42 kg/ m² and control were non obese with BMI 25.001 ± 2.52 kg/m². The W/H ratio in PCOS subjects was 0.854 ± 0.099 and in control it was 0.814 ± 0.066 .

Conclusion

The confirmed relation of obesity and PCOS is there. In adolescence, the obesity must be managed very carefully. The screening of obesity will help in early detection of PCOS and

management of obesity and PCOS with other associated problems like infertility and malignancy.

Key words:- Adolescence Body mass index ,Obesity, Polycystic ovarian syndrome., waist hip ratio

Introduction:

There is increased incidence of PCOS and is commonly associated with overweight or obesity during adolescence. More than 80% of females with PCOS are obese. The close association between PCOS and obesity, it may be due to interrelated genes predisposing obesity in affected women.(1) . It has been also suggested that PCOS is more due to inherited than to environmental factors.

The adolescence is a period of life when personality of a female starts developing but with PCOS related obesity, it starts with negativity. Females with obesity must be managed carefully specially during adolescence.

The worldwide increase in the incidence of obesity and with that there is increase in obesity related diseases are of clinical concern. More than 50 diseases are related to obesity like diabetes (type 2), hyperinsulinemia due to insulin resistance, metabolic syndrome with dyslipidaemia and hypertension, cardiac diseases, infertility, cancer (endometrial is commonest), PCOS and many others. (2) Several studies support the relation of obesity or overweight with PCOS in about 88%.(3)

There is remarkable increase in number of PCOS cases nowadays. The reason is not very clear might be due to genetic factors, food habits or obesity. There are also possibilities of environmental factors (high-caloric diets and reduced exercise) to play a major role in the high prevalence of obesity in women with PCOS.

The disease is of reproductive age in females mostly during adolescence. Common features are obesity, acne, menstrual irregularities and subfertility. Subfertility is again a major problem and can be tackled if proper management is started during adolescence.

It is observed that PCOS is more common in obese females as compare to non obese ones.(4,5) . The WHR is a better predictor of obesity as compare to BMI, and is closely related with obesity-related risk factors also. (6,7,8) WHR (>0.8) indicates obesity which is one of the important feature of PCOS.

The introduction of physical activities for obesity in females with PCOS significantly improves the reproductive functions like menstrual cycle, ovulation and fertility. (8, 9, 10)

The exercise should not be more than 60 minutes a day which might has adverse effect on ovulation. (11) The physical activities and exercise is to reduce sedentary habits and to take care of cardio-respiratory fitness and metabolic health.

Material and methods

The study was conducted in the department of physiology, RIMS, Ranchi from February 2018 till August 2018, on females with PCOS and for control normal both of the same age group and living in different areas of Jharkhand. With the consent of patients attending Obs and Gynae OPD and postgraduate and nursing students (without history of any other disease or having steroids) at RIMS case and control selection was done. PCOS subjects were taken with history of menstrual disturbances, hirsutism, and infertility. finally PCOS was confirmed by USG study.

Results

The BMI of PCOS 100 subjects and 80 control subjects was considered. The subjects mean age was (26.68±5.05) and that of control was (26.88±5.42). The age was almost similar. 53 % of PCOS subject were having a BMI between (25-29.9kg/m²) and in rest was between BMI (≥30) as compared to control subjects having BMI of (25-29 kg/m²) and it was observed that PCOS subjects were obese with BMI 26.688±3.42 kg/ m² and control were non obese with BMI 25.001±2.52kg/m². The W/H ratio in PCOS subjects was 0.854±0.099 and in control it was 0.814±0.066.

Table 1

BODY MASS INDEX (BMI)	NO OF INDIVIDUAL CASE	PERCENTAGE OF CASE	NO OF CONTROL	PERCENTAGE OF CONTROL
NORMAL (18.5-24.9)	10	10	50	62.5
OVERWEIGHT (25-29.9)	34	34	30	37.5
OBESE ≥30	56	56	0	

Table 1: shows the percent distribution according to BMI (normal 18.5—24.9, overweight 25-29.9, obese ≥30) . These are normal 10% overweight 34% and obese 56% in subjects and normal 62.5%, overweight 37.5% and obese 0% in control .

Table 2

W/H RATIO	NO OF CASE	%OF CASE	NO OF CONTROL	%OF CONTROL
<0.8	37	37	51	63.75
>0.8	63	63	29	36.25

Table 2: shows the percent distribution of with < 0.8 and >0.8 WHR, in subjects <0.8 are 37% and >0.8 are 63% that in control <0.8 are 63.75% and >0.8 are 36.25%.

Table 3

Parameters	Mean and SD of subjects	Mean and SD of control	p-value	p-value <0.005 is significant
Age	26.68±5.05	26.88±5.42	0.7986	Not significant
BMI	26.688±3.42kg/m ²	25.001±2.52kg/m ² .	0.0003	significant
WHR	0.854±0.099	0.814±0.066	0.0022	significant

Table 3: compares mean with SD and p value in subjects and control of different parameters age, BMI and WHR. comparisons in both groups that of age is not significant , BMI is significant and WHR is significant,

Discussion:

PCOS women are there in all regions of India. Keeping this in back of mind study was undertaken with the aim to estimate status of PCOS patients in Jharkhand.

The present study was conducted among 100 patients of PCOS in the age group of 18-35 years. A total of 110 patients with menstrual abnormalities, infertility, acne and hirsutism were screened. PCOS was diagnosed in 100 patients according to Rotterdam classification of PCOS and rest were eventually excluded from this study. Several clinical characteristics and laboratory parameters were compared among these study population and a control group of age matched healthy women not on contraceptive steroids.

In present study obesity was observed in 57% of cases and 33% were with overweight. these results are almost similar to the observation by Najem et al with 57% prevalence of obesity in PCOS cases and in another study by Gomathi et al 54% were overweight.

This study the comparison of mean Waist / Hip ratio was done between PCOS subject 0.854±0.099 and control 0.814±0.066. There was significant variation between the groups. This shows that the distribution of fat is different in control and cases having PCOS. The overall mean W/H ratio was 0.854 in PCOS subjects and 0.814 in control.

In different studies, presence of central obesity (waist-hip ratio >0.85) were identified as risk factors for metabolic syndrome.(13) In present work it has analysed that influence of WHR value in PCOS women with WHR ≥ 0.8, and there was significant statistical difference in Waist/Hip ratio. According to mOran LJ et al obesity worsens the presentation of PCOS. Present finding of obesity correlates with earlier study by Janssen *et al.*, who concluded that waist circumference, is closely related with obesity-related risk factors as compared with the BMI.

Conclusion:

The confirmed relation of obesity and PCOS is there. The adolescence is a very delicate period of life when a female starts developing personality with negativity due to PCOS related obesity. Especially during this period of life the obesity must be managed very carefully. The screening of obesity will help in early detection of PCOS and management of obesity and PCOS with other associated problems like infertility and malignancy.

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