UNIVERSITY OF SINDH JOURNAL OF ANIMAL SCIENCES
Vol. 2, Issue 4, Pp: (31-36), December, 2018
Email: editor.usjas@usindh.edu.pk
Website: http://sujo2.usindh.edu.pk/index.php/USJAS
ISSN (P): 2521-8328
ISSN (E): 2523-6067
Published by University of Sindh, Jamshoro
(USJAS)

THE EFFECT OF OBESITY ON INFERTILY RELATED HORMONES AMONGST YOUNG FEMALE IN HYDERABAD AND ADJOINT AREAS

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ARTICLE INFORMATION

Article History:
Received: 20th October 2018
Accepted: 4th April 2019
Published online: 5th July 2019

Author's contribution
TJU designed the study, RM collected the samples, JAK checked out the experimental procedure, SR, SR & SR complied the results & FS looked after the samples in lab.

Key words:
Obesity; Infertily; Related Hormones; Young Female; Hyderabad.

ABSTRACT

Obesity is a disorder and is an important health issue mostly occurs amongst the women of reproductive age. Obesity and overweight involves abnormal and negative effects on health if the Body Mass Index (BMI) is equal to or greater than 25kg/m², considered overweight, whereas equal to or greater than 30kg/m² considered as obesity. The Infertility is the failure of a couple to conceive a pregnancy after trying to do so for at least one full year with unprotected intercourse and without using any other method of contraception. This problem worldwide carried a value of 10-15% in every year. It was reported to be present in 21.9% of Pakistani population in 2003. Some factors that are influenced such as Ovulatory defects and unexplained cause account for >50% of infertile etiologies and overweight and obese women has topped in some developed countries more than 50 % also. In the present study data sampling was collected from LUMHS hospital OPD and ISRA hospital we collected 5ml fasting venous blood sample from 60 Obese Females on day 2 or day 3 of menstrual cycle. The distribution of frequency in obsesses and overweight 60 infertile females were 67% obsess and 33% were overweight according to BMI scale. The medically and biochemically analysis of data of overall 60 cases of infertile females were examined by BMI scale, Glucose, Blood pressure (systolic and diastolic), having to mean and standard deviation were 32.96 ± 4.4, 95.0 ±2 0.0, 120 ± 10.0 and 77.6 ± 10.18.

1. INTRODUCTION

Obesity, which is an important health issue, is a common problem among women of reproductive age. Obesity and overweight involves an abnormal and excessive fat accumulation that negatively affects the health of the body. According to the world Health Organization (WHO), if the body mass (BMI) equal to is greater than 25kg/m2, it is considered overweight, whereas if the BMI equal to is greater than 30kg/m2, it is considered obesity, World Health Organization Preventing and managing the global epidemic. Report of the World Health Organization on obesity. Geneva: World Health Organization, 1997. Infertility us a complex disorder with significant medical, psychosocial and economic aspects recognized as a public health issue by the world Health Organization (WHO) [1,2]. A critical mass of adipose tissue ids essential for the normal development of female reproductive function.

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Extremes of weight can influence fertility by affecting ovulatory function [3]. Studies from western countries suggest that intricate and complex hormonal balance of the hypothalamus-pituitary-gonadal axis is affected by an individual's BMI [4]. Obesity has been shown to produce menstrual disturbances and sub fertility.

Overweight and obese women have been shown to have poorer outcomes following fertility treatment [5]. The severity of obesity and the distribution of fat tissue are important factors that influence the female reproductive system. Obesity has been reported as an increasing problem.

Among women of child-bearing age leading to three times greater risk of infertility in developed countries [6]. An appropriate index for determining obesity is body mass index (BMI) and waist-hip ratio (WHR). Increased BMI is associated with ovulatory sub fertility and anovulatory infertility [5]. Hormones play an important role in the development of reproductive and in the normal regulation of the menstrual cycle. Disruption of the normal secretion of luteinizing hormone (LH) and follicular stimulating hormone (FSH) in response to pulsatile of gonadotrophin releasing hormone is evidenced in a number of reproductive disorders in women [7,8]. Traditionally, measurements of prolactin and thyroid stimulating hormone are considered important components of the evalution of women presenting with infertility [9]. International estimates on infertility prevalence and treatment seeking: potential need and demand for medical care. The main objectives to investigate the hormonal change in obese patients and to analysis obese hormonal markers and role/impact of infertility patients and which of the commonest markers that causes infertility in females [10].

The present research suggested that the obesity is associated and responsible for causing infertility in female according to BMI scale, blood sugar and Blood pressure reports along with causing factors for hormonal changes in young female. So the further hormones associated with infertility will be analyzed and will present in final seminar.

2. MATERIALS AND METHODS

5ml fasting venous blood sample was drawn from 60 obese females on day 2 and 3 of menstrual cycle using standard vein puncture techniques. The material was accumulated from Civil Hospital Hyderabad, Jamshoro and ISRA Gynecology Departments. 1ml blood was dispensed in vacutainer containing sodium fluoride for estimation of plasma glucose.

While 4ml blood sample was dispensed in aliquot for assessment of Hormones, Serum LH, FSH, Prolactin and TSH simultaneously. In addition the BMI, index was used to determine whether individuals are underweight, overweight or obese. Further BP of obese patients was also recorded. The blood samples of 60 patients were also passes through serological markers for TSH, LH and Prolactin evaluations.

Fig. (1-2) Sample 5ml blood of each 60 obese patients is processing in the lab.

3. RESULTS

Obesity is a disorder and is an important health issue mostly occurs amongst the women of reproductive

age. Obesity and overweight involves abnormal and negative effects on health if the Body Mass Index (BMI) is equal to or greater than 25kg/m², considered overweight, whereas equal to or greater than 30kg/m² considered as obesity. The Infertility is the failure of a couple to conceive a pregnancy after trying to do so for at least one full year with unprotected intercourse and without using any other method of contraception. This problem worldwide carried a value of 10-15% in every year. It was reported to be present in 21.9% of Pakistani population in 2003. Some factors that are influenced such as Ovulatory defects and unexplained cause account for >50% of infertile etiologies and overweight and obese women has topped in some developed countries more than 50 % also. In the present study data sampling was collected from LUMHS hospital OPD and ISRA hospital we collected 5ml fasting venous blood sample from 60 Obese Females on day 2 or day 3 of menstrual cycle. The distribution of frequency in obsesses and overweight 60 infertile females were 67% obsess and 33% were overweight according to BMI scale as shown in fig.3. The medically and biochemically analysis of data of overall 60 cases of infertile females were examined by BMI scale the results are shown in table.1, as Glucose, Blood pressure (systolic and diastolic), having to mean and standard deviation were 32.96 ± 4.4, 95.0 ±2 0.0, 120 ± 10.0 and 77.6 ± 10.18 and 95% CI lower and upper limit is also shown in the same table. Medically and biochemically analysis of data of 40 infertility obese group females division of BIM cases and their results are shown in table.2. Medically and biochemically analysis of infertility OVERWT cases group division by BMI as presented in table.3. Comparative Study of OVERWT and Obese Cases Division of BMI is given in table.4. When the results of Infertility Control Group compared with 20 Normal Controls and analysis is given in table.5. While comparative study of infertility and control group of obese patients were also examined and results shown in table.6.

4. DISCUSSION AND CONCLUSION

Obesity is going very commonly burning issue globally which is an important health issue regarding women of reproductive age. Obesity and overweight involve an abnormal and excessive fat gathering around the whole body that destructively affects the health of the body. According to the world Health Organization (WHO),[1] The Infertility is the failure of a couple to conceive a pregnancy after trying to do so for at least one full year with unprotected intercourse and without using any other method of contraception. This problem worldwide carried a value of 10-15% in every year[11]. It was reported to be present in 21.9% of Pakistani population in 2003. if the body mass (BMI) equivalent to is more than depending on kg/m2. In this study different age group women's blood samples taken for observing the plasma glucose and also blood sample was bestowed in aliquot for assessment of Hormones, Serum LH, FSH, Prolactin and TSH evaluations. In addition, the BMI, index was used to determine whether individuals are underweight, overweight or obese. Further BP of obese patients was also recorded.

It is concluded that Some factors that are influenced such as Ovulatory defects and unexplained cause account for >50% of infertile etiologies and overweight and obese women has topped in some developed countries more than 50 % also. In the present study data sampling shows the distribution of frequency in obsesses and overweight 60 infertile females were 67% obsess and 33% were overweight according to BMI scale as shown in fig.3. The medically and biochemically analysis of data of overall 60 cases of infertile females were examined by BMI scale the results are shown in table.1, as Glucose, Blood pressure (systolic and diastolic), having to mean and standard deviation were 32.96 ± 4.4, 95.0 ±2 0.0, 120 ± 10.0 and 77.6 ± 10.18 and 95% CI lower and upper limit is also shown in the same table. Medically and biochemically analysis of data of 40 infertility obese group females division of BIM cases and their results are shown in table.2. Medically and biochemically analysis of infertility OVERWT cases group division by BMI as presented in table.3. Comparative Study of OVERWT and Obese Cases Division of BMI is given in table.4. When the results of Infertility Control Group compared with 20 Normal Controls and analysis is given in table.5. While comparative study of infertility and control group of obese patients were also examined and results shown in table.6.

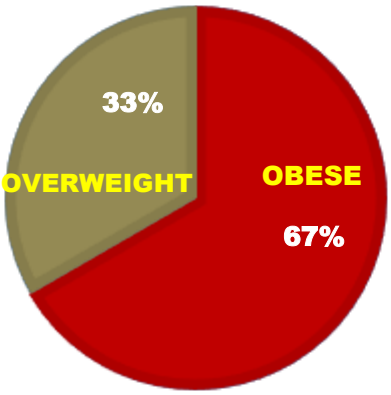

Fig. 3 Frequncies Distribution of 60 Infertility Cases Divided Two Groups By Bmi Scales

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TABLE.1 MEDICALLY AND BIOCHEMICALLY ANALYSIS OF 60 INFERTILITY CASES

VARIENTS	**NO. OF CASES**	**MEAN ± SD**	**95% CI LOWER –UPPER LIMIT**
BMI	60	32.96±4.47	31.81-34.12
GLUCOSE	60	95.0±20.50	89.72-98.21
SYSTOLIC(BP)	60	120.50±10.1	120-127
DIASYTOLIC(BP)	60	77.66±10.18	75-80

TABLE.2 MEDICALLY AND BIOCHEMICALLY ANALYSIS OF 40 INFERTILITY OBESE GROUP DIVISION OF BMI CASES

VARIANTS	**NO. OF CASES**	**MEAN±STD. DEVIATION**	**STD. ERROR MEAN**

OBSUGAR	40	91.47±22.99	0.630
OBBMI	40	34.75±3.91	0.618
OBSYS(BP)	40	124.50±8.45	0.330
OBDIASYS(BP)	40	76.75±10.22	0.610

TABLE.3 MEDICALLY AND BIOCHEMICALLY ANALYSIS OF INFERTILITY OVERWT CASES GROUP DIVISION BY BMI

VARIANTS	NO. OF CASES	MEAN±STD.DEVIATION	STD.ERROR MEAN
SUGOVERWT	20	95.85±17.0	3.82
OVERWTSYS(BP)	20	123.00±11.28	2.52
OVERWTDIAS(BP)	20	81.75±7.93	1.78
OVRWTBMI	20	28.1500±1.26	0.28

TABLE.4 COMPARATIVE STUDY OF OVERWT AND OBESE CASES DIVISION OF BMI

VARIENTS	# OF CASES	MEAN± STD. DEVIATION	STD. ERROR MEAN
SUGOVERWT	20	95.85±17.0	3.82325
OVERWTSYS(BP)	20	123.0±11.2	2.524
OVERWTDIAS(BP)	20	81.75±7.99	1.787
SUROBSES	40	93.62±30.0	4.75579
OBSYS(BP)	40	124.50±8.445	1.337
OBDIASYS(BP)	40	76.75±10.22	1.617
OBBMI	40	34.75±3.91	0.418
OVRWTBMI	20	28.15±1.26	0.28

TABLE.5 INFERTILITY CONTROL GROUP (20 Normal Controls)

VARIANTS	NO OF CASES	MEAN±STD.DEVIATION	Std. Error Mean
CONT:SUGAR	20	82.80±4.71	1.05
CONT:SYSTO(BP)	20	119.50±5.10	1.14
CONT:DIASYS(BP)	20	79.25±4.94	1.10
CONT:FSH	20	4.63±1.55	.34
CONT:TSH	20	1.56±.65	.14
CONT:LH	20	3.79±1.56	.35
CONT:PROLACTIN	20	12.29±5.14	1.15
CONT:BMI	20	22.05±1.60	.35

TABLE. 6 COMPARASION OF INFERTILITY AND CONTROL GROUP IN OBESE PATIENTS

VARIANTS	NO OF CASES	MEAN± STD. DEVIATION	STD. ERROR MEAN
Systolic	60	120.50± 10.80	1.39
Dystolic	60	77.67±10.18	1.31
CONTSYSTO	20	119.50±5.10	1.14
CONTDIASYS	20	79.25±4.94	1.10
LH Level	60	13.58±9.64	1.24
CONTLH	20	3.79±1.56	.35
TSH level	60	3.10±3.70	.47
CONTTSH	20	1.56±.65	.14
Glucose Level	60	95.02±20.64	0.647
CONTSUGAR	20	82.80±4.71	0.05
BMI	60	32.96±4.47	0.57
CONTBMI	20	22.05±1.60	0.35