CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1236749

Available online at: http://www.iajps.com Research Article

RELATIONSHIP OF TESTOSTERONE WITH BODY MASS INDEX IN INFERTILE MALES IN LOCAL COMMUNITY

[1]Dr. Aneeqa Ali, [2]Dr. Ruqayya Irshad, [3]Dr. Gulshan Rasheed

[1]WMO, BHU Mirza Tahir, Kharian, Gujrat.

[2]WMO Children Hospital, Faisalabad.

[3]WMO, THQ Hospital, Jampur.

Abstarct:

Objective: *To determine the relationship of high BMI to testosterone levels in infertile men.*

Material and Method: *It is a study by cross-sectional carried out from May 2016 to May 2017. The size of sample was 250 males (infertile 123 and healthy 127 and control cases of fertility) range from 30 to 60 years of age, taken from the Nishter Hospital, Multan. All volunteers were divide in groups according to the BMI criteria (WHO Ascia's Pacific region). After a thorough physical examination and medical history, were selected with intentional sampling. Analysis of semen was performed and samples of blood were taken to check testosterone in serum. analysis of Data was done using SPSS 14.0 with ANOVA and T test independently done to compare averages and to perceive the sensitivity of the tests and to assess the significant correlation in the group.*

Result: *There is a significant negative correlation between testosterone and BMI. High BMI appears to be associated with male infertility with reduced testosterone levels.*

Conclusion: Obesity has been confirmed for male infertility as a risk factor in the local community.

Keywords: *Azospermia, BMI, Testosterone, Male Infertility, Oligospermia.*

Corresponding Author:

Dr. Aneeqa Ali,
WMO,
BHU Mirza Tahir,
Kharian,
Gujrat

QR code

Please cite this article in press Aneeqa Ali et al., ***Relationship of Testosterone with Body Mass Index in Infertile Males in Local Community,*** *Indo Am. J. P. Sci, 2018; 05(04).*

INTRODUCTION:

Infertility is an important social and medical problem round the globe and the male factor accounts for about 8% to 15% of the couples. A woman is said to be sterile after a year of unprotected sexual intercourse when a couple is not conceived. Variations in rates and infertility etiology have been observed in terms of sexual history, gender, community lifestyle and cultural background. Men, women, or both can suffer from infertility. It has been discovered that inadequate spermatogenesis is responsible for 2-4% of infertility cases, although approximately 30% of infertile males do not cause any dysfunction. It is also attributed to socio-environmental and genetic factors as well as chronic infections, anti-sperm antibodies and anatomic malformations. It has also been suggested that there is a relationship between infertility and obesity. Studies have proven that the relation of many metabolic disorders is not only associated with excess weight of body, but is also dangerous for health of reproductive age. There are few studies confirming that there is a direct link between obesity and male infertility disorders. This is due to the significant focus of research on male infertility and its possible causes. No consideration has been given to male infertility. The incidence of overweight people directly linked to infertility has not increased significantly yet. Current studies have also shown increased risk of erectile dysfunction, biliary diseases and bone disorders in obese men. Weight gain and obesity are the major factors that transform a hormonal reproductive profile specify by reduced sex hormone binding globulin (SHBG) and testosterone levels or increased levels of estradiol in children. infertile men. Recently published data have shown that defective spermatogenesis of Sertoli cells is associated with overweight and obesity that can be observed with lower inhibin levels in infertile men. The magnitude of the effects caused by hormonal changes in the male reproductive potential has not yet been determined precisely.

METHODOLOGY:

The cross-sectional study of patients treated by Medical Center (OPD) at the Nishter Hospital, Multan . It was included in the study conducted by 123 healthy, fertile men, including a total of 127 study groups, for better comparison and fertile control group. Included in the study were exclusion criteria including 20 and 50 years of age and infertility testicular damage (torsion, trauma), obstructive azoospermine, idiopathic infertility elderly male patients (mumps orchitis, secondary infertility including uninjured infections, diabetic neuropathy patients with anabolic steroids, epididymitis), pelvic surgery or hernia repair by taking non-steroidal anti-inflammatory drugs (NSAIDs, sulfasalazine and nitrofuranciun ,), cimetidine and spironolactone (which can affect spermatogenesis) and patients affecting the treatment of sperm motility for at least 74 days as well as patients with psychiatric disorders were excluded from the study. The statistical package for social sciences (SPSS version 17.0) was used to analyze data using descriptive statistics to evaluate frequency distribution and percentages. Mean significant differences and p values were calculated. A detailed informed consent was obtained prior to the participation of the individuals and the confidentiality of the study subjects was provided and this research did not include any factors that could harm any human being. Semen analysis was performed with azoospermia according to WHO criteria and a 5-day absence in oligospermic men. The patient also received a hormonal evaluation that included only serum testosterone.

RESULTS:

Table 1 shows the descriptive characteristics of 250 healthy men with an average age of 33.30 ± 7.18 and 36.7 ± 6.03 and 153 healthy fertile men with a mean BMI of 26 and 147 primer infertile men. It was 7 ± 4.3 and 24.3 ± 3.7 respectively. The mean BMI among total infertile subjects was 26.8 ± 4.2 kg / m2. In healthy fertile subjects, mean VKI was found to be 23.99 ± 4.07 kg / m2.

Table 1: Descriptive Statistics of Fertile and Infertile Study Subjects

Variables	P value	Infertile subjects			Fertile study subjects		
		Mean ± S.D	95% Confidence Interval		Mean ± S.D	95% Confidence Interval	
			Lower	Upper		Lower	Upper
Age(years)	0.448	33.35±7.18	32.18	34.53	36.7±6.03	35.7	37.68
Weight(kg)	< 0.01	75.4±12.6	73.4	77.5	70.5±12.5	68.05	72.0
Height(m^2)	0.962	1.67±0.07	1.66	1.68	1.7±0.7	1.68	1.71
BMI	< 0.01	26.7±4.3	26.0	27.5	24.3±3.7	23.6	25.1
T (ng/ml)	< 0.01	3.6±3.6	3.0	4.2	15.9±5.9	15.0	16.9

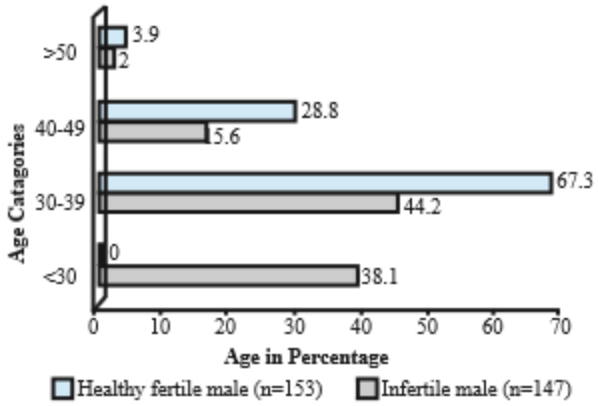

Figure 1 Shows distribution of study subjects (Infertile and fertile group) according to their age.

Among study group 38.1% of infertile has < 30 year of age, 44.2 were between 30-39 and 15.6% were 40-49 and 2% were > 50 years of age. Where as seem in healthy fertile group 67.3% were between 30-39, 28.8% were 40-49, and 4.6% were > 50 years of age.

DISCUSSION:

Although BMI did not distinguish between body fat ratio and gynecological fat distribution, BMI provided a variety of studies as a marker of body fat, although waist-to-hip ratio was a better predictor of outcome. VKI is not an excellent measure of body fat and may be reliable because it questions the predictive value of body fat, its validity and thresholds for excess body fat or obesity, but recently has estimated fat and obesity in the body. Deurenberg in the Netherlands found that BMI has a certain age and gender formula as a predictor of delicate body fat. In France, Wittemer and colleagues used BMI to measure the outcome of the procedure. the ratio of IVF and follicle stimulating-luteinizing hormone in women was significantly increased compared to BMI levels.

Another study by Jorge and colleagues in Boston determined the association of BMI with DNA integrity and sagittal quality23. In 2007, with a systematic review, Maheshwari and colleagues concluded that obesity is a major reproductive health problem and that BMI is associated with a reduction in the rate concept.18 Various physiological and psychological factors, healthy lifestyle, diet and age, chronic diseases have an effect on the level of individual reproductive hormones. Similarly, the effects on the male reproductive hormone levels of excess body weight can not be neglected. By reducing body weight, T levels can be brought to normal, studies show that obesity has a great influence on the reproductive hormone. In 2006, Pasquali reported a similar relationship between high BMI and serum T levels. We did in Lahore, but their studies also show that high BMI is associated with high estrogen and sex hormone binding globulin, which we do not include because of budget constraints. Obese men with a low T level suggest a defective function of Leydig cells. Studies show an inverse relationship between reproductive hormones and azoospermic obesity and oligospermic men. It also concludes with a few studies showing that BMI plays a crucial role in regulating the hypothalamic axis of the pituitary, presumably suggesting that the production of impaired sperm originates from the unreversed feedback of the hypothalamus in Leydig cells. The data also show that there is no association between VKI and steroid hormones, but our study shows a decrease in T levels in men with high VKI.

Although FSH and LH are relatively small in the range of serum levels, RA and AR are comparable to those of rats, genetically obese rats are found in lower levels of FSH, and obese rats have a normal workout to determine LH and T levels. Leydig cells are genetically obese rats that are hypertrophic and contain a large number of fat globules. T and sex hormone binding globulin concentrations were measured by Kely et al in obese subjects. It is a decrease in levels of serum estrogen in obese individuals with elevated serum estradiol levels in Canada, a decrease in serum concentration of 0.94 to 0.72 ng / mL serum androstenedion in individuals with obesity in Canada, and the relationship between insulin resistance in obese individuals and total TKI. The results showed a decrease in total testosterone and SHBG levels in obese men. The study also concluded that the correlation between negative T BMI (r = -0.447, p <.01) and SHBG r = -0.334; p & lt; 0.01). The results also show that total serum T levels are inversely related to high VKI. These results are consistent with our study, with small variations in serum levels resulting from ethnic and geographical variations. LH Lower in men with BMI = 35 kg / m2: A strong inverse relationship was also found between BMI and inhibin B levels and T.

In Canada, Tchernof et al. Showed a positive correlation between estrogen and a negative correlation between 80 obese male sterile, visceral body fat and globulin (SHBG) sex hormone binding.

Computed tomography (CT) was used to determine the relationship between body fat and fat tissue distribution, and hormone profile was measured by radioimmunoassay.

In 2009, Macdonald et al. They wrote a systematic review with a meta-analysis that included 31 studies. Although this agreement with the evidence results is not sufficient to support the relationship between syllable parameters and high BMI, it is our study that this review concludes that there is an inverse relationship between BMI and free T levels. Kley and colleagues studied significant associative statistics ($p < 0.001$) related to ideal body weight between T and estradiol (80) and estradiol ($r = 0.75$) between table insurance companies Metropolitan Life and extreme body weight found at r = ratios of estradiol / T ($r = 0.86$). This shows that in the adipose tissue, aromatization of androgens is responsible for estradiol at high levels.

A study shows that obesity, serum insulin and globulin in steroid hepatocytes are the main contributors to high insulin resistance, a high level of resistance at low levels of binding to hormones and obes due to lower T levels in males with more body fat. increased estrogen level inhibitory gonadotropin secretion probably testes, pituitary axis.

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