World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 5.088

CORRELATIONS BETWEEN HYPERPROLACTINEMIA AND AZOOSPERMIC PATIENTS

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Article Received on 22/06/2018 **Article Revised on 12/07/2018** **Article Accepted on 02/08/2018**

ABSTRACT

Azoospermia, defined as complete absence of sperm from the ejaculate, is present in about 1% of all men, and in approximately 15% of infertile men. The evaluation of a patient with azoospermia is performed to determine the etiology of the patient's condition. **Aim of study:** To estimate the prevalence of hyperprolactinemia in azoospermic patients and show if hyperprolactinemia plays a role in male infertility. **Patient and method**: This study was conducted in private clinic of Assistant prof. Dr. Ali H. Alhussainy during the peroid from October 2014 to January 2015. The total number of patients taken in our study were 33 patients all of them azoospermic patients by multiple tests in different labs. **Result:** In this study (number of azoospermic patients were 33) all of patients submitted to laboratory screening for hormones (Prolactin, FSH, Testosterone), according to laboratory result of prolactin hormones 30 patients (90.90%) had elevated level of prolactin and only 3 patients (9.09%) had normal level of this hormone. And according to FSH result, 14 patients (42.42%) had elevated level of FSH, 16 patients (48.48%) had normal level and 3 patients(9.09%) had decrease level of FSH. According to testosterone level, 22 patients (66.66%) had normal level, 10 patients (30.30%) had decrease level and just one patient (3.03%) show increase level of FSH. Also in this study we classify the patients according to testicular size, 25 patients (75.75%) had good size of the testes and 8 patients (24.24%) had small size testes. Among (42.42%) smokers and 19 patients (57.57%) non smoker, in this study most of cases seen among second or third decade of life. **Conclusion:** Hyperprolactinemia plays an important role in male infertility and should be taken in consideration in the treatment program.

KEYWORDS: Azoospermia, Hyperprolactinemia, FSH.

INTRODUCTION

Azoospermia, defined as complete absence of sperm from the ejaculate, is present in about 1% of all men[1] and in approximately 15% of infertile men.[2] The evaluation of a patient with azoospermia is performed to determine the etiology of the patient's condition. This allows the physician to: A) establish whether the cause of azoospermia is amenable to therapy; B) identify appropriate treatment options; and C) determine whether a significant medical disorder is the underlying cause of the azoospermia. The numerous etiologies for azoospermia fall into three categories: pre-testicular, testicular and post-testicular.[2]

The initial diagnosis of azoospermia is made when no spermatozoa can be detected on high powered microscopic examination of centrifuged seminal fluid on at least two occasions.[3] Hyperprolactinemia, which is a common cause of infertility in males.[4,5] Hyperprolactinemia inhibits the pulsatile secretion of the gonadotrophin releasing hormone, which causes decreased pulsatile release of follicle stimulating hormone, luteinizing hormone, and testosterone, which in turn causes spermatogenic arrest, impaired sperm motility, and altered sperm quality. It later produces secondary hypogonadism and infertility.[6]

Investigations which needed in male infertility include Semen analysis At least two tests are performed, three weeks apart. This is the baseline investigation for male infertility, Semen culture which is indicated in the presence of chronic infections of the genital tract. This is indicated by genital pain, painful ejaculation or the presence of white blood cells in semen (>5 per high-power field).

Male reproductive genetic profile This includes karyotype, Y chromosome microdeletions and cystic fibrosis gene mutations, Hormonal profiles The basic hormones that are tested are FSH, prolactin and testosterone. Other hormones may be tested if there is a clinical indication, Imaging like Scrotal ultrasound and colour Doppler is done to assess the testes and epididymis to detect their dimensions and exclude the presence of tumours or varicocele.[7]

Treatment of azoospermia depends largely on getting a good diagnosis for the underlying cause. If there are hormonal issues, there are a number of medications that that have been shown to increase production. If there is a problem with the plumbing, surgery might be required. In case of testicular failure or bad genes there may be hope to pull a few sperm directly from the testicle to be used with artificial reproduction techniques.[8]

PATIENTS AND METHOD

This study was conducted in the private clinic of Assistant prof. Dr. Ali H Alhussainy / Diyala province/ Baqubah city, during the peroid from October 2014 to January 2015.Number of cases taken in our study was 33 cases all of them were azoospermic patients. We take information from patients with special questions including : Name, age, Job, Residence, weight, history of smoking, duration of infertility, and weather the infertility is primary or secondary, history mumps orchitis, How many semen analysis done and their results, also we ask about any surgical operation in genital tract like hernia, varicocelectomy, cryptorchidism surgery and weather the patients use antihypertensive, cytotoxic drugs, also exposure to radiation and history of impotence. The patients send for ultrasound to see the size of testes and also patients screened laboratory by special laboratory device named (Mini- VIDAS, Biomerieux, France) to see level of hormones (prolactin, FSH, Testosterone).

In the lab, we used withdraw a blood sample of (3cc) from each patient then centrifugation was done for (10 minutes), from the serum (200 microliter) was taken for screening of prolactin and FSH while only 100 microliter needed for screening of testosterone, after that the sample put with standard in Mini- VIDAS device for 40 minutes. The result will automatically be obtained and transferred to screening paper.

RESULT

Table 1: Prolactin level among azoospermic patients.

Prolactine level	No. of patients	%
Increased	30	90.90
Normal	3	9.09
Decreased	0	0
	Total=33	Total=100

Normal level of serum prolactin=0.2-9.4 ng/ml*

Table (1) shows classification of azoospermic patients in this study according to Prolactin hormone levels, it shows that most of the patients (90.90%) have had an increased level of Prolactin hormone, while only (9.09 %) shows normal level of prolactin also see figure (1).

Azoospermic patients

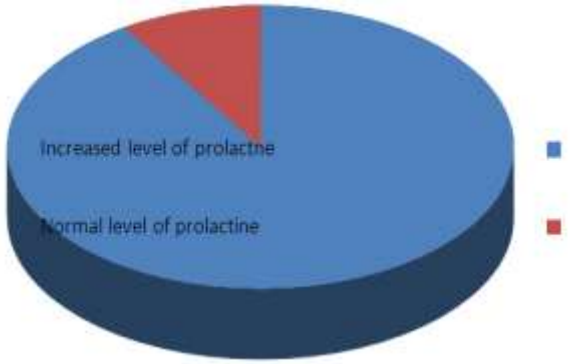

Figure 1: Prolactin level among azoospermic patients.

Table 2: FSH level among azoospermic patients.

Level of FSH	No. of patients	%
Increased	14	42.42
Normal	16	48.48
Decreased	3	9.09
	Total=33	Total =100

*Normal level of serum FSH=1.7-12.o m.IU/ml

Table (2) Shows a classification of patients according to FSH level, also see figure (2).

Azoospermic patients

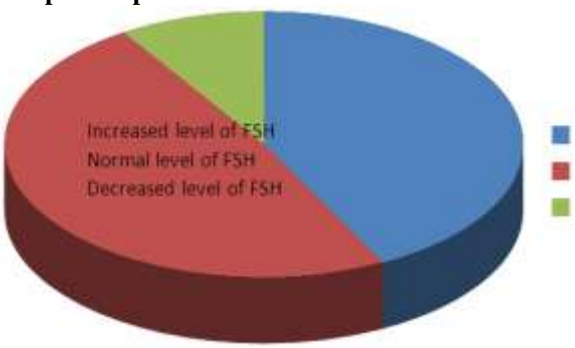

Figure 2: FSH level among azoospermic patients.

Table 3: Testosterone level among azoospermic patients.

Testosterone level	No. of patients	%
Increased	1	3.03
Normal	22	66.66
Decreased	10	30.30
	Total=33	Total=100

Normal level of serum Testosterone=3-10.6ng/ml*

Table (3) shows a classification of these 33 Azoospermic patients, according to the level of Testosterone hormone, and it shows that most of them (66.66%) were having a normal level of Testosterone, also see figure (3).

Azoospermic patients

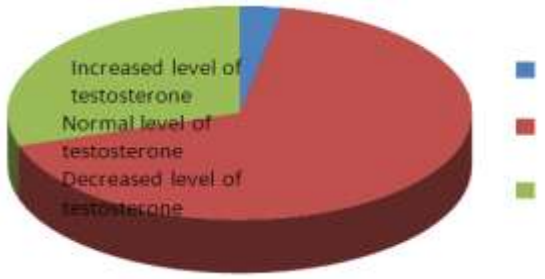

Figure 3: Testosterone level among azoospermic patients.

By classifying the patients according to the size of testes, there were 25 patients with good size testes (75.75%), and 8 patients have had small size testes (24.24%), see table (4), figure (4).

Table 4: Testicular size among azoospermic patients.

Good size testes	%	Small size testes	%
25	75.75	8	24.24
Total=33	Total = 100%	Total =33	Total =100%

Azoospermic patients

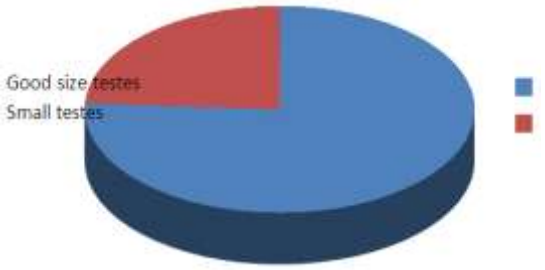

Figure 4: Testicular size among azoospermic patients.

Among the 33 Azoospermic patients taken in this study, there were 19 smokers (57.57%) and 14 non-smoker patients (42.42%), see table (5), figure (5).

Table 5: Smoking among azoospermic patients.

Smokers	%	Non-smoker	%
14	42.42	19	57.57
Total=33	Total=100%	Total =33	Total =33

Azoospermic patients

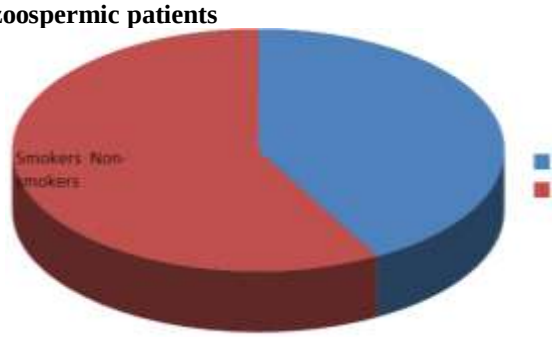

Figure 5: Smoking among azoospermic patients.

Classification of Azoospermic patients taken in this study according to age, see table (6), figure (6).

Table 6: Age distribution in azoospermic patients.

Age	No. of patients	%
20-30	22	66.66
31- 40	8	24.24
41-50	2	6.06
51-60	1	3.03
	Total =33	Total =100%

Azoospermic patients

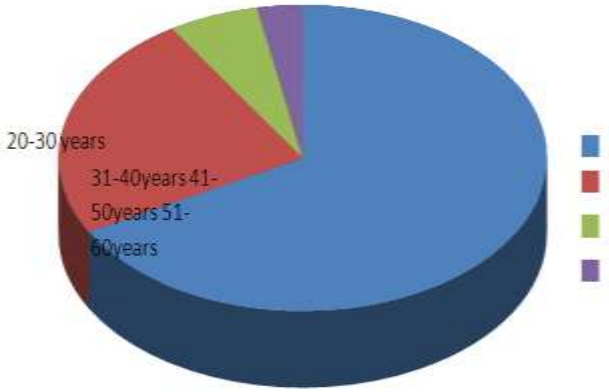

Figure 6: Age distribution in azoospermic patients.

DISCUSSION

The endocrine milieu on which spermatogenesis and sperm mainly depend was evaluated quantitively with simultaneous measurement of FSH, prolactin, and testosterone concentration in serum.

The mean prolactin level and FSH were found to be higher in azoospermic patients. This might indicate some disturbance in spermatogenesis processes, since FSH has a direct role in maintenance of spermatogenesis.[10] The balance of these hormones can help determine specific problem are present.

Very high FSH levels, for example with normal level of other hormones indicate abnormalities in initial sperm production.
Some references reported that hyperprolactinemia was relatively uncommon cause of male infertility.[11] However, there is strong evidence suggesting that serum prolactin has a direct effect on sperm motility.[12]

Expermental studies revealed the presence of specific receptors of prolactin in prostate, so higher concentration of prolactin resulted in an inhibition on growth of prostate.[13,14]

A detectable increase in the level of prolactin was observed in azoospermic case show in figure (1). Similarly some report found higher levels of serum prolactin in azoospermic men.[15]

Other finding that only 9% of cases have normal prolactin level. Merino et al[16] recorded that two thirds of azoospermod patients have normal prolactin level.

Very high level of FSH was found in 14 patients (42.4%) of examined patients. The rise of FSH in accordance with the theory of inhibition release during the maturation of sperm. The ocurrance of deppressed spermatogensis and elevated FSH levels seems to be relatively good indicators of presence of certain disorder in the testis(abnormal, atrophic) or absent (24% of cases). its called testicular azoospermia which may be due to genetic condition like (Klinfilter syndrome, Cryptorchidisim, Orchitis).[16]

Low level FSH (9.09% of cases) indicate in adequate stimulation of normal testicles. (75.7% of patients) have good size testes which may be due to hypopitutarisim hyperprolactinemia and exogenous FSH suppression by testosterone. Testosterone elevated in [3.03%] of cases and this patients known to have pretesticular azoospermia.[17]

Those with normal FSH (42.4%) and normal testosterone (66.6%) Known to have obstruction (post-testicular azoospermia) sperms are produced but no ejaculate.

The most common cause is vasectomy, agenesis of vas deference seen in cystic fibrosis or ejaculatory disorder.[17]

The percentage of smoker in our study was (42.4%) was therefore; not different from Austrian mal population between (20-60) years, which was reported to be [44.2] during the study period (langgassner, 1999) a possible involvement of red cells and leukocytes, which were significantly elevated in smokers compared with non-smoker, was also reported in a previous investigation (close et al, 1990).[18]

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