

Estimate of Some Hormones in Patient Suffer from Impotence in Samarra City

Omar Thaer Jawad¹, Abdulillah Adel Khaddour²

¹University of Samarra/College of Applied Sciences/Department of biotechnology/Salah Al-din/Iraq.

²University of Samarra/College of Applied Sciences/Department of Pathological Analysis/Salah Al-din/Iraq.

*Corresponding author's E-mail: Pharmacistomarthaarjoad@gmail.com

Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 14 Oct 2023 CC License CC-BY-NC-SA 4.0	<i>Impotence is one of the commonness sexual healthy issues which influenced on more than one hundred fifty millions of males in worldwide in years of 1995 in addition to will be reported more than three hundred millions in years of 2025.</i> Objective: The current study aimed to-measurement of some hormones from serum of patients that suffered from impotence and compared these results with a healthy control group to find out how these hormones affect the sexual state. Methods: The study presented was included ninety respondents (250 cases with Impotence and 50 control), from the period of starting of October 2022 to end of December 2022, attended to Samarra General Hospital and some of outpatients-clinics. Results: The-presented study appear the Testosterone hormone level was higher in the serum for control group (6.2515 ± 1.88953 ng/ml) in comparison with the patients-group with Impotence (2.5861 ± 0.84982 ng/ml). While there is height in Prolactin-hormone-concentration-level in the serum of patient suffered from impotence, and was (21.1883 ± 7.89562 ng/ml) but the concentration level of this hormone in control-group was (4.5590 ± 1.35849 ng/ml). on the other side, there is little difference between study groups in the serum concentration level of Estradiol hormone, in control group-the Mean $\pm$ SD was (97.6870 ± 31.38880 ng/ml) while in Impotence group was (93.6653 ± 30.86834 ng/ml). Conclusions: Level of Testosterone hormone was higher in the-serum of control group other than the group of patients with impotence. While there is height in Prolactin-hormone-concentration-level in the serum of patient suffered from impotence. there is little difference between study groups in the serum concentration level of Estradiol hormone, Keywords: Impotence, Testosterone, Prolactin, Estradiol.

1. Introduction

Impotence also known as Erectile-dysfunction[ED] and defined as the persistent inability to attain and maintain a penile erection sufficient for satisfactory sexual intercourse¹. Impotence is one of the commonness sexual healthy issues which influenced on more than one hundred fifty millions of males in worldwide in years of 1995 in addition to will be reported more than three hundred millions in years of 2025. ED is related with essential opposite affects upon health (psychologically and physically) also act as freelance predictively factor men infertility and diseases of heart^{2,3}. The testosterone hormone in erectile have clinically and patho-physiologically functions and share in physiology-of-erections⁴.

Several of studies that found testosterone hormone in penis modulate and increase expressing of phospho-di-esterase-5 in addition to this hormone is necessary for endothelial-Nitric-Oxides-Synthase, and regulation the activity of phospho-di-esterase-5. Meanwhile these actions may assume paradoxical and androgens acting upregulation for signals of terminations (phospho-di-esterase-5) and signals of initiations for (Nitric-Oxides-Synthase) this may be interpreted that these mechanism of homeostasis is relatively retain on fixed ratio of enzymes that used for main pathways⁵.

Prolactin is hormone (polypeptide) that is administrator for several actions such as lactating and developing of breasts and others to maintaining of homeostasis ⁶. experimental and physiological estimation expect that Prolactin in males may be catalize steroidogenesis process of testis in men ⁷. Testosterone hormone catalyze Prolactin releasing in males, this hormone show to keep a specific level of testosterone hormone biochemically via two mechanisms, first mechanism: keep of cholesterol source pools. The cholesterol esters Gonadal-pool within cells of leydig supply the sources for process of steroid-genesis, additionally inducing enzymes of steroid ^{8,9}. Prolactin also height the activity of testis of few enzymes that needful for manufactuing of testosterone hormone ¹⁰.

Estradiol hormone is prevalent estrogen form, and has a special role in the sexual-function in men ¹¹. The hormone of Estradiol is necessary for lipido-modulation in males, the function of erectile, and process of spermato-genesis ¹². The hormone of Estradiol is able to causing ED during an inhibition effect on testosterone production. The integration administration of estrogen hormone cause reduction in level of testosterone and decreased corpus-cavernosum structure with low viability for the smooth-muscle in addition to acting on height the connective-tissue and this lead to decreasing in level of testosterone hormone ¹³.

2. Materials And Methods

The current study was included 90 respondents (250 cases with impotence and 50 controls) attended to Samara General Hospital and some of-outpatients-clinics from the period (start of October 2022 to end of December 2022). After taking the oral concept of the participants, it was withdrawn 5ml of serum from each participant and placed in gel tubes and left for 10 minutes to coagulate, after which the serum was separated using a Centrifugation at 3000 r/min for ten minutes. The free lysis serum of blood was withdrawn via micropipettes then distribution the isolated serum within Eppendorf-tube (4 tubes), each of the tubes contain a quantity of serum (300 - 400) ul of serum for every sample then the isolated serum of blood was preserved at (-20) C° unto performed all required tests. The following tests were performed using kits from Enterprise International (Finecare, China): Testosterone, Prolactin, Estradiol hormones.

3. Results and Discussion

Measurement of Testosterone hormone in Serum of Impotence patients and control groups

The results of Table (1) showed that the level of Testosterone hormone was higher in the serum of controls group (6.2515 ± 1.88953 ng/ml) in comparison with group of patients suffered from impotence (2.5861 ± 0.84982 ng/ml).

Table (1) Mean of Concentration Serum Level of Testosterone Hormone in the Study-Groups.

Parameters	Mean±Standard Deviation	
	Controls group Number= 50	Impotence patients group Number = 250
Testosterone hormone ng/ml	6.2515 ± 1.88953	2.5861 ± 0.84982

The results of current study were agreement with the findings of ¹⁴, which indicated that the level of Testosterone hormone in healthy people (control group) gave a significant superiority compared to those with dysfunction, and the reason for the decrease in Testosterone hormone in people with dysfunction was attributed to the lack of hormone production from the testis due to Damage or weakness of Leydig cells or due to testicular insufficiency, as well as the reason may be due to a lack of stimulating hormones.

The testosterone conversion to estrogen-estradiol is partly accountable for the impact of-testosterone hormone on function and sexual feel in males. The reduction of Testosterone hormone for di-hydro-testosterone that considered as most effective androgens in contributions for impact of-testosterone hormone on function and sexual feel in males. di-hydro-testosterone involving weakened estrogen hormone and nervous steroids, may also be involved in male dysfunction, while ¹⁵ suggest Low level of Testosterone hormone caused by Leydig cell aplasia, also known as Leydig cell aplasia, is an autosomal adenocarcinoma syndrome characterized by the body's inability to respond to luteinizing hormone or luteinizing hormone, a gonadotropin normally responsible for the induction of Leydig cells in The testicles produce testosterone and other androgenic sex hormones. The testicular-atrophy is

determined via un development (partly or totally) of reproduction organs, and hypo-gonadism-with-hyper-gonado-tropinism (deminished or minimum output of sexual steroids via the-gonad , even with heightened levels from gonado-tropin inside the circulations, as showed via ¹⁶ where reported that Erectile-dysfunctions occur as output of increasing pressure of blood and diseases of heart. It is a common occurrence in diabetes. Although age is associated with the onset of erectile dysfunction, it often occurs earlier in men with diabetes. May males experiment dysfunctions in erectile before diagnosed as diabetic mellitus or cardiac disease , meanwhile ¹⁷ appear diminished production and cortisol disturbance, which adjust the response of body to mineralo-corticoid and disease or tension, such-as-aldosterones which adjust levels of potassium and sodium in addition to catalyze the cells in the output of androgen such-as men sexual hormones (testosterone) which essential for development and growing and development organs of the body- and these outputs were agreement with results of¹⁸, which mentioned that the loss outputs of (testosterone) hormone happen because the-illness, accordingly the researchers indicated that the increased temperature of the body will impact on cells of testis involving cells of leydig which acting weaknesses to ability of these cells to make sexual hormones such as Testosterone.

Measurement of Prolactin Hormone in Serum of Impotence patients and Controls Groups

The results of the presented study showed a higher concentration level of Prolactin hormone were appear in serum of Impotence patient group, reaching (21.1883 ± 7.89562 ng/ml) while the values of Prolactin hormone in the serum of controls group was (4.5590 ± 1.35849 ng/ml) as-shown-in-Table (2).

Table (2): Mean of Concentration the Serum Level of Prolactin Hormone in the Study-Groups.

Parameters	Mean±Standard Deviation	
	Controls group Number= 50	Impotence patients group Number= 250
Prolactin Hormone ng/ml	4.5590± 1.35849	21.1883± 7.89562

Obviously, the results of the study presented show that there is a relation of elevated prolactin related with reduction in testosterone hormone during estimation of patients group suffered from erectile dysfunctions and this explain cause of increased prolactin in Impotence patients group. This is identical to what was mentioned by¹⁹ where it was mentioned that the cause for the rise in prolactin may be due to a disorder in the endocrine, which is considered one of rare causes.

However, when endocrine disorder affects dysfunction, it always occurs due to insufficiency Gonadal, this leads to increase in the level of prolactin, which is released from the node inside the glands of pituitary. As it was mentioned by²⁰, the height of prolactin leads to lowering of gonads via intervene with secretion hormone (Gonadotropin/releasing /hormone/) from hypothalamic gland, although there is final organic impact for prolactin on the failure of penis, therefore patients serum prolactin elevation and falling levels of testosterone should be corrected. While these findings also did agree with the findings of ²¹ which mentioned that the elevation of prolactin is common cause for Impotence (dysfunction in sex for men), therefore men who have high levels of prolactin , also have high incidence of dysfunction in sex. Also, the same researchers reported that patients with ED are more likely to be cured than patients with more significant high levels of prolactin once they do so.

While ²² have to mention that there are several drugs that cause an increase in the level of prolactin and this may be done in conjunction with erectile function of men, that study also mentioned that those patients took some drugs belonging to the group of dopamine antagonist and this in turn prevent the secretion of prolactin from the pituitary gland by prolactin inhibition factor because the natural regulation of prolactin in humans is mainly inhibited by dopamine that is secreted from the hypothalamic gland and this forms the basis of treatment medicinal drugs for high prolactin in blood, including dopamine agonists such as bromocriptine which works in an anti-prolactin manner by inhibiting the secretion of prolactin by the cells that secrete prolactin in the pituitary gland, and thus this causes an increase in hormone prolactin in the blood. If the cause of high prolactin in the blood is

taking these medications, when you stop taking them, the levels of testosterone and prolactin will return to normal and thus the sexual erection in men will return to the normal level.

When compared with other studies, ²³ mentioned that there are causes other than the pituitary gland that led to erectile dysfunction, which may be due to irregular of dopamine or some other chemical causes that lead to an increase in the prolactin hormone.

Measurement of Estradiol Hormone in Serum of Impotence patients and control groups

The results of the current study showed that there is slight difference between study groups in the serum concentration level of Estradiol hormone, in control group the Mean $\pm$ SD was (97.6870 $\pm$ 31.38880 ng/ml) while in Impotence group was (93.6653 $\pm$ 30.86834 ng/ml) as shown in Table (3).

Table (3) Mean of Concentration Serum Level of Estradiol Hormone in Study Groups

Parameters	Mean $\pm$ Standard Deviation	
	Controls group Number= 50	Impotence patients' group Number = 250
Estradiol hormone ng/ml	97.6870 $\pm$ 31.38880	93.6653 $\pm$ 30.86834

These results are in agreement with the findings of ²⁴, who reported that there were no significant differences between due to the effect of estradiol hormone and erectile dysfunction in men.

While the results of our current study did not match what was mentioned by ²⁵ who said that there is significantly high difference in the Estradiol hormone in men who suffer from Impotence and this is similar to what was mentioned by other researchers, they pointed out that the rise in the level of Estradiol hormone, is usually due to either advancing age or due to taking some medical drugs such as cortico-steroids (prednisone) that leads to increase in pharmacologically and toxically impact of cortico-steroid. Also, Phenytoins drug may be decrease spasm control in addition lower the impact of estrogen hormone.

One study reported that a significant increase in estradiol and indicated that an increase in this hormone causes Stabilization of the action of Estradiol hormone, which causes erectile dysfunction in men ²⁶.

4. Conclusion

1. It Testosterone hormone levels were lower in the patients with Erectile disease compared to control group.
2. Prolactin hormone levels were higher in the patients with Erectile disease compared to control group.
3. There is little difference between study groups in the serum concentration level of Estradiol hormone.

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