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EVALUATION OF THE LEVEL OF RESISTIN HORMONE AND SOME BIOCHEMICAL VARIABLES IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

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Abstract: A study was conducted to determine the extent of the effect of the hormone resistin on polycystic ovary syndrome in women in the city of Tikrit, in addition to studying the changes occurring in each of the sex hormones such as follicle-stimulating hormone (FSH), ovulation hormone (LH), estrogen E2, and testosterone, and also studying the changes occurring in the hormone insulin and sugar levels. The results of the study showed A highly significant increase in the level of the hormone resistin, as well as variables (FSH, LH, E2, and insulin), and other variables, showed a significant increase in their levels (Testosterone and sugar level) in patients with polycystic ovary syndrome compared with the control group. The study results showed that body mass index (BMI) Levels significantly increased compared with the control group.

Key words: Resistin hormone, Hormones responsible for polycystic ovary syndrome, Lipid.

Introduction:

Polycystic ovary syndrome (PCOS).

Polycystic ovary syndrome is a prevalent gynecological disease that affects the ovaries and includes a disturbance in the natural ovulation process due to the presence of a hormonal imbalance in the body. This imbalance occurs in the lack of secretion of the hormone progesterone in the second half of the menstrual cycle. This is a hormone that specializes in removing the lining of the uterus and its descent, and this is called the menstrual cycle or Menstruation[1]

As for the ovarian cyst, it is medically known as a group of fluids surrounded by a fragile wall inside the ovary. This cyst may be small or large; in some cases, it may have more severe symptoms[2].

This syndrome is one of the most common disorders in the functioning of the endocrine glands in women with polycystic ovary syndrome. It is characterized by increased secretion of androgen and gonadotropin. Studies have found that the incidence of this disease ranges from 6 to 20 [3 [4].

The first to find this syndrome were researchers (Leventhal and Stein), and this syndrome was named after them, Leventhal and Stein, in 1935 AD.[5]

Resistin hormone

It is a protein-rich in cysteine that plays a vital role in fat metabolism, inflammation, and insulin resistance[6]. Its molecular weight is equal to 12.5 kilodaltons. It was discovered as an agent secreted in fat cells to combat insulin resistance, which is linked to diabetes and cardiovascular diseases associated with

obesity, as cysteine is a mediator and marker. It is an essential biology for diabetes and heart disease, so interest in it has increased in recent years.[7]

Effect of the hormone resistin

The hormone xerasesteine is a secretory factor specific to adipose tissue[8]. In humans, mononuclear cells in peripheral blood, macrophages, and bone marrow cells are the primary source of xerasesteine. Studies have shown that xerasesteine exerts many multidirectional effects through the endocrine glands and has a significant role in processes. Physiological and metabolic processes in the body, as it affects resistin [9]. In the function of the heart and blood vessels, it also affects cancer diseases[10]. Also, creatine is considered an essential link between obesity and inflammatory processes. Studies have also shown that there is a correlation between increased levels of creatine and cardiovascular diseases in the case of obesity. The mode of action and its effect may include: The inflammatory and immune pathways and metabolic disorders that resistin uses in its interactions with target cells affect oxidative and nitrosative stress, as resistin plays a significant part in the complications of obesity.[10]

Hormones responsible for polycystic ovary syndrome

1 Luteininzing Hormone (LH)

It is a hormone produced by beta cells in the pituitary gland's anterior lobe in response to hypothalamic-releasing hormone (GnRH) secretion.

Gonadotropin-releasing hormone from the hypothalamus. It is one of the glycoprotein hormones with a molecular weight of up to (26,000) daltons and consists of two parts: 15% carbohydrate and 85% protein.

2 Prolactin Hormone (PRL)

Prolactin is a protein hormone containing 198 amino acids and having a half-life of 20 minutes. It is not bound to plasma. Prolactin is secreted by acid cells called lactotrophs from the anterior pituitary gland and is responsive to estrogen hormones [11]. This hormone plays a significant role in the development and growth of cells and mammary glands**.**

3 The male hormone Testosterone

It is a steroid hormone. This hormone belongs to the group of androgens; its sources in the body are the testicles in males and the ovaries in females.[12]

4 Insulin Hormone

The molecular weight of insulin is 5734. It contains 51 amino acids arranged in two chains, A and B. Disulfide bridges connect the two chains. The first chain, A, consists of 21 amino acids, while the second chain, B, consists of 30 amino acids.

5 Follicle-stimulating hormone (FSH)

(TSH) and luteinizing hormone (LH)) [13]. It is secreted into the blood after being produced by gonadal cells (a type of basal cell) in the anterior pituitary gland and then acts on the corresponding target organs in mammals to exercise its biological functions since FSH is a central regulator in the pituitary gland [14[

6 Hormone Estrogen

It is the hormone that works to grow the female reproductive organs naturally, giving them the secondary features of femininity, such as the roundness of the body, the narrowness of the shoulders, the widening of the pelvis, the smoothness and suppleness of the skin, and the softness of the voice.

Lipid

Fats are natural compounds that cannot dissolve in water but dissolve in organic solvents. They are essential as they are involved in the composition of cell walls and are considered one of the most important means of obtaining and storing energy.

Cholesterol

It is a fatty organic compound of the class of steroids consisting of 27 carbon atoms. It contains a nucleus called phenanthrene. Four rings are linked together, and the side chain is connected to a carbon (17). Cholesterol is found in the human body either in free form or in free form. Cholesterol ester is of great biological importance.

Triglycerides

It is called triacylglycerol, which consists of fatty acid esters with glycerol alcohol to form glycerides. Neutral fats are called neutral fats because they have no charge. They do not dissolve in water due to their inability to form hydrogen bonds.[15]

Low-density lipoprotein (LDL)

This type of fat contains 20% protein and 80% fat. It is smaller and denser than VLDL and has a higher density. It is the primary cholesterol carrier from the liver to the outer tissues.

Very Low-Density Lipoprotein Cholesterol (VLDL): These proteins are made inside the medium-sized liver, which has a low protein content.

High-Density Lipoprotein Cholesterol (HDL_C)

It consists of a high percentage of protein, close percentages of phospholipids and cholesterol, and a small number of triglycerides, where the rate of fats equals the percentage of proteins.[16]

The method of work:

Sample preparation

The samples were collected by drawing blood. Five mL of blood was drawn from a vein using a disposable syringe, which is sterile and single-use. The blood was then emptied into clean, sterile plastic gel tubes with a tight cap and free of EDTA. Coagulation: The blood was left at room temperature for 5-10 minutes until it coagulated.

To obtain the blood serum, the tubes were placed in a centrifuge for five minutes at a speed of 3000 rpm. After that, the blood serum was withdrawn using a micropipette and placed in other small, clean, sterile plastic tubes with a tight cap and a size of 1.5 ml. The serum was divided into several sections and then stored in the freezer until biochemical tests were performed[17].

Determination of resistance level

The level of the resistin hormone was measured using the enzyme-linked immunosorbent assay (ELISA) measurement kit prepared by the Chinese company Bioassay Technology. It was calculated according to the sandwich principle using a plate that previously contained antibodies specific to the resistin hormone Human Retn. The Retn present in the model is added and binds with antibodies in the holes of the microscopic plate prepared in advance.

Action Steps :

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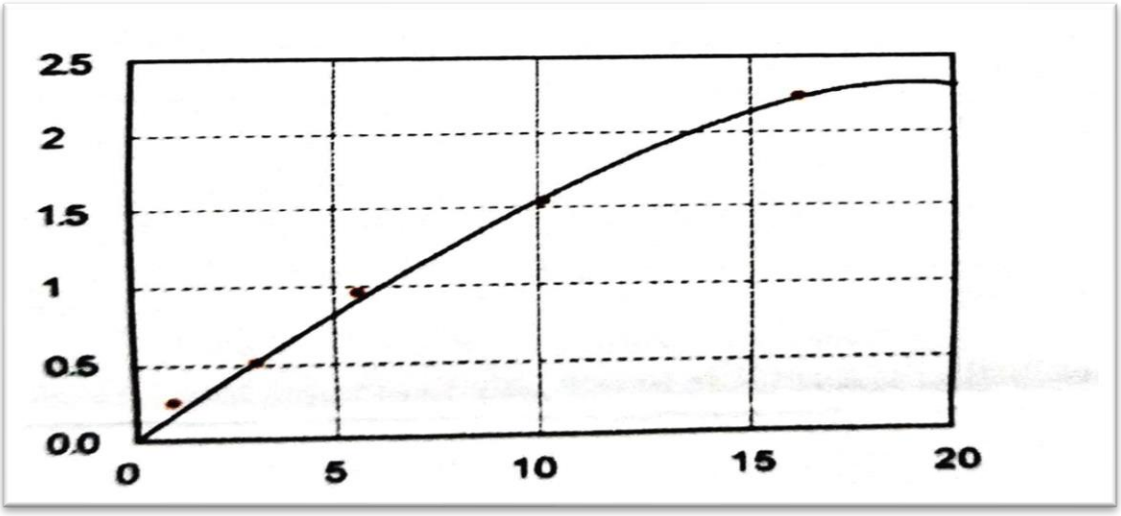
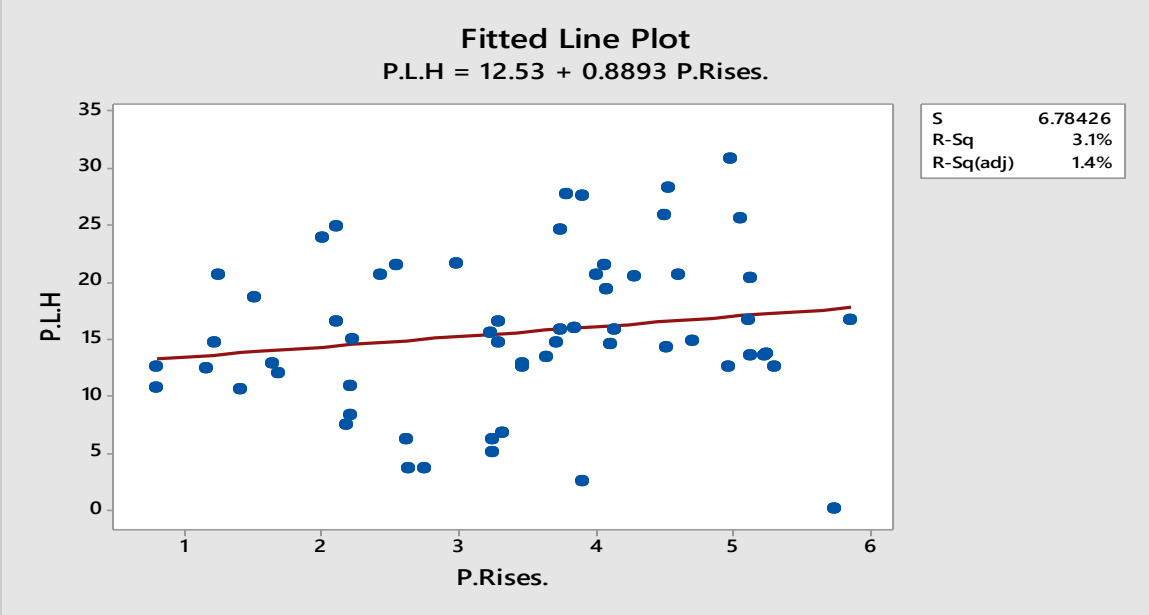
Calculation of Result

The absorbance of each of the measured models was calculated using a standard curve plot of the absorbance of standard solutions on the Y-axis versus their concentrations on the



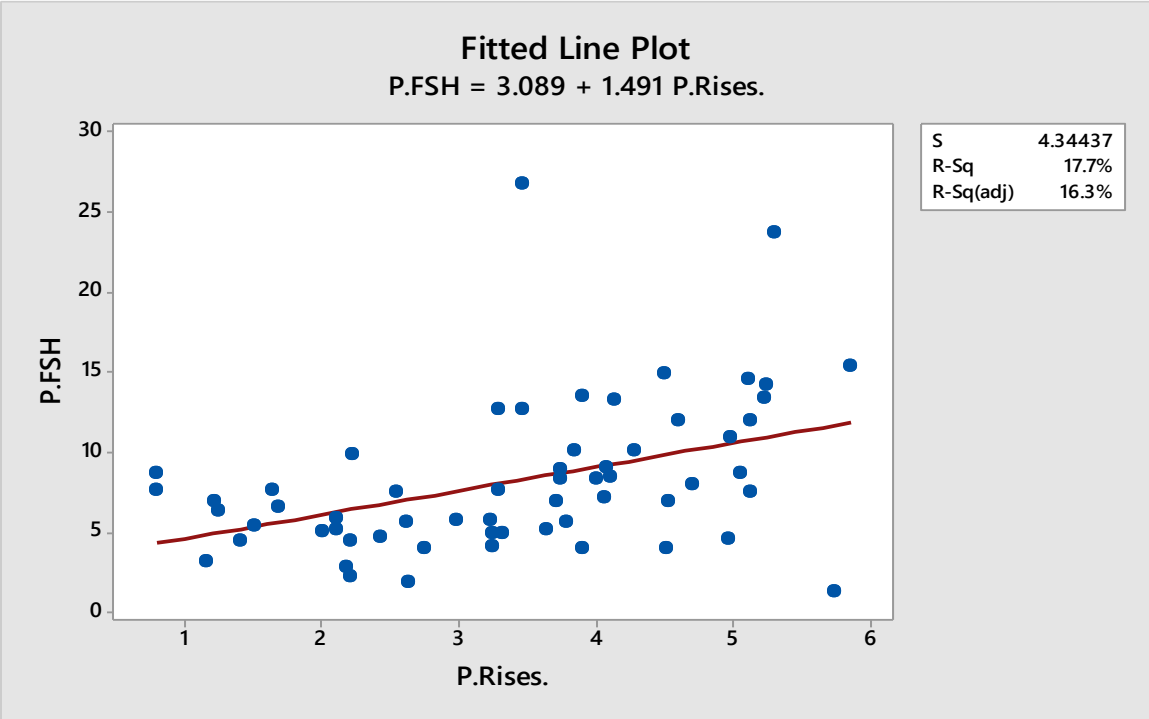
Liner correlation between Resistin and LH levels

The current study showed that there is no correlation between the hormone resistin and the LH hormone, as the value of the correlation coefficient was r=0.175, as in the following figure:



Liner correlation between Resistin and FSH levels

There is a correlation between the hormone resistin and the hormone FSH, where the relationship is direct, and the value of the correlation coefficient is positive, r = 0.421. The figure below shows the linear relationship between the hormone resistin and the follicle-stimulating hormone:



Conclusions

The study showed the following conclusions:

High levels of the hormones resistin, insulin, and sugar levels in women with polycystic ovary syndrome compared to the control group due to insulin resistance.

High levels of the hormones testosterone, estrogen, LH, and FSH in women with polycystic ovary syndrome compared to the control group, and this indicates the presence of an ovarian defect.

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