Multidisciplinary

Studying the effect of prolactin disorder on sexual hormones in women in karbala governorate

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Abstract
This study was conducted at the Fertility and Sterility Center at Teaching Hospital in Al-Karbala for a period from (1/1/ to 1/2/ 2023), (25) samples were taken from women who suffered from high blood pressure during diagnosis. By the specialist doctor, blood was drawn and the serum was separated from it before taking any treatment, and the following parameters were measured that Measuring prolactin and comparing it with the control group, as there was a significant increase (p<0.05) (free)The level of this growth compared to control. The levels of hormone levels (FSH), the level (LH) and the inventory decreased significantly (p<0.05) at the level of these two in infected women compared to control. The levels of hormones (FSH) and (LH) were compared at different ages of females with increased hormone. Statistics were taken from the study samples, which numbered (25) samples for the number of cases of erythema before, and 20 % of women with high prolactin have become pregnant, meaning about 20% of women with of pregnancy occurred out of (25) compared to the control group, which had a pregnancy of 100%.

Keywords: prolactin, erythema, FSH hormone, Iraq

Introduction

The hormone prolactin (hormone milk) is secreted by anterior pituitary in the male or female. As for the male, he does not even know that his physiological function is a completely different matter now. He does not know what the physiological stage of secretion. It affects the growth of nuclear organs, especially AD, in combination with estrogen, which reduces prolactin and increases the metabolism. The aneurysm is low in the first half of A (follicular phases) and the arterial drainage is high Luteal phases (Uilenbroek and Linden, 1984) [17].

During pregnancy, the level of prolactin in the blood gradually increases to reach its maximum after birth, and this increase is used to fill the milk supply in order to feed the newborn, and prolactin gradually decreases after birth to reach its normal level within a period of approximately four weeks (Thorner and Besser, 1978) [15]. The prolactin hormone is one of the important hormones in women. It has another physiological role in regulating the lactation process in the natural state, but if any reduction occurs at the level of this frequency, we see disorders of female breast cancer, and the outcome of these disorders is infertility (Bevan *et al* 1992; Rebar, 1997) [2, 12].

Natural ovulation requires agreement and coordination of the menstrual system at all levels, the central axis, the hypothalamus, and all local responses in the ovary. An increase in blood prolactin is associated with the effect of milk, which is predominant, but there may be an increase in blood prolactin in isolation without the effect of milk, or an effect of milk without an increase in prolactin values Thorner and Besser, 1978 [15]. High prolactinemea in women leads to a decrease in hormonal disturbances in women. Hypothalamus (and the pituitary gland is a frequent risk factor in the level of progesterone and estrogen), which leads to a decrease in menstrual disorders in women who suffer from Increase in prolactin, lack of ovulation, and growth of ovarian follicles (McNeilly 1987; Choudhury & Goswami 1995) [11, 5].

Hyperprolactinemia, accompanied by lactation or not, is considered one of the most important factors that cause disruption in ovulation function, as hyperprolactinemia is seen in 20% of women with delayed childbearing, and mild forms can cause delayed childbirth, even if menstruation is regular. An increase in the concentration of prolactin in the blood leads to gradual changes from insufficiency, lack of ovulation, and then menopause due to the action of prolactin inhibiting the secretion of hormone released from the pituitary gland (GnRH).

Studying the effect of hyperprolactinemia, the effect of milk on ovulation, and the role of treatment with bromocriptine in anovulatory women enables us to provide part of the proposed solutions to solve this problem if we know that about 80% of patients with hyperprolactinemia become pregnant with treatment with bromocriptine (Corenblum, 1993; Jordan & Rydfors 1998) [4, 6]. Lack of ovulation constitutes an important cause of infertility in women, which in turn leads to serious social, psychological, and economic effects that affect the development and cultural growth of nations (Ben and Schenker, 1983) [1].

In this study, we tried to find the relationship between the prolactin hormone, the level of the stimulating hormone (FSH) and the luteinizing hormone (LH) with low fertility in women, and to calculate the number of pregnancies they have had to develop future solutions for this.

Materials and methods

1. Patients

This study included the follow-up of 25 cases of infertility who visited the fertility center at Karbala Governorate Hospital and

whose ages ranged between 20-40 years of female gender and whose sick condition was proven through hormonal tests, which included LH) & (FSH) & (Prolactin). The study continued. Between 1/1 and 3/1/2023, they were compared with normal women with 25 samples.

2. Collecting information

For this purpose, special lists were prepared in which the necessary information about the sample individuals was recorded, which included age, area of residence, and marital status associated with both excess and deficiency of the hormone prolactin.

3. Blood samples

Blood samples were taken in the morning and evening when patients suffering from infertility symptoms were seen in the fertility center. The specialist doctor examines the patient and sends it to the laboratory. Using medical syringes, 10 ml of venous blood is drawn and placed in a tube free of any clotting material, and the centrifugation process is carried out to obtain it. On blood serum.

4. Hormonal standards

This study included the determination of prolactin, follicular hormone (FSH), and luteinizing hormone (LH) in blood serum. The ELISA method was used to examine the immunosorbent enzyme link, which was described from each, respectively: Burger, 1977; Wiston,1976; Marshall J.C, 1975) [3, 19, 9].

In estimating the concentration of hormones, the absorption was read at the wavelength of 450 nm:

- Add 25-100 microliters, each according to his method, of significant standard solutions with different unit concentrations, the model and the control, in the holes of the newspaper with precise standards.
- Add 100 microliters of enzyme-binding reagent (the same addition for all hormones).
- Mixing is done for 10-30 seconds, each according to his method, and this step is very important to complete the mixing in this group.
- Incubation takes place at room temperature, 18-37 degrees Celsius, or in the incubator at this temperature, for 60-120 minutes, each according to his work.
- Wash the plate with fine standards on a dried or absorbent sheet of paper or absorbent paper to remove any remaining drops.
- Add 100 microliters of the base material in a constant manner to all working methods, then mix gently for 5-10 seconds, each according to his work.
- Incubation at room temperature and in a dark place for 20 minutes (the time is fixed in the working methods).
- Add 100 microliters of stop solution (1N HCL) stop solution, depending on its action.
- Mix gently for a constant 30 seconds for all working methods. This stage is very important and must be done exactly to complete the change from blue color to yellow.
- The absorption is read at a wavelength of 450 nm for 15 seconds.
- The standard curve is arranged by drawing the relationship between absorption and significant standard concentrations in different units for each hormone.
- The value of each of these hormones is extracted from the special curve for each hormone.

Statistical analysis

The results were analyzed statistically using the statistical program SPSS, version 1999, which includes calculating the arithmetic mean and the standard error Mean ± S.E., and comparing the means at the probability level of $p<0.05$, in addition to listing the percentage in the tables.

Results

It is clear from Table 1 that there was a significant increase, $p<0.05$, in the level of the hormone prolactin, which reached 36.4 in patients, compared to the control group, which reached 12,792. The table also shows a significant decrease, $p<0.05$, in the level of both hormones (FSH) & (LH). It reached 9.543 & 6.631, respectively, compared to the control group, which reached 17.245 & 3.809.

Table 1: The effect of high prolactinemia on FSH and LH levels in women

	Prolactin (NG\ML)	FSH (NG\ML)	LH (MIU\ML)
Patients	2.13±36.4*	6.631*±0.1	9.543*±0.12
Control	0.36±12.792	13.809±0.41	17.245±0.51

*It indicates a significant difference at the probability level of $p<0.05$ with the control group

Table 2: The effect of different ages of high prolactin in women on the levels of stimulating hormone (FSH) and luteal hormone (LH)

Age	Prolactin (NG\ML)	FSH (NG\ML)	LH (MIU\ML)
20-25	2.53±40.3*	8.731±5.113	9.583±0.19
25-30	2.76±42.5*	7.543±0.110	9.101±0.188
30-35	3.54±5.44*	6.322±0.091	8.844±0.165
Control	0.41±14.621	15.342±0.43	16.531±0.49

* It indicates a significant difference at the probability level ($p<0.05$) with the control group

It is noted in Table No. 2 that there was a significant increase $p<0.05$ in the level of the hormone prolactin with increasing age in women, as it reached its highest level at the ages of 30-35, with a significant value of 55.4 compared to the control group, which amounted to 14.621. The same was true for (FSH) & (LH), respectively, as it decreased significantly ($p<0.05$) with increasing age and was highest at the ages of 30-35 compared to the control group.

Table 3: Report of a case of high prolactin during pregnancy and its percentage

Samples	Delayed pregnancy (number of samples)	Percentage
Patients	20 from 25	20%
control	25 from 25	100%

Table No. 3 indicates the observation of delayed pregnancy in patients who suffer from high prolactin hormone, as it reached 20% compared to the control group in which 100% pregnancy occurred.

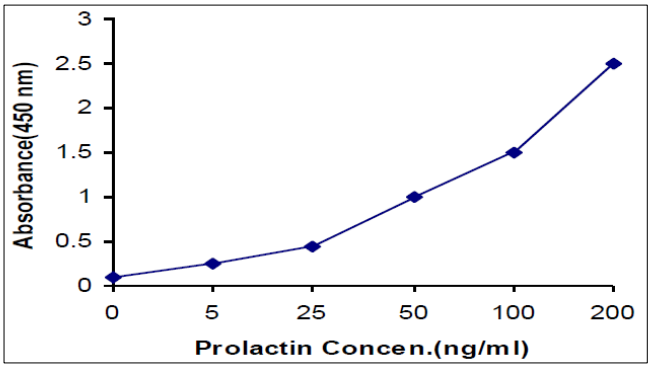

Fig 1

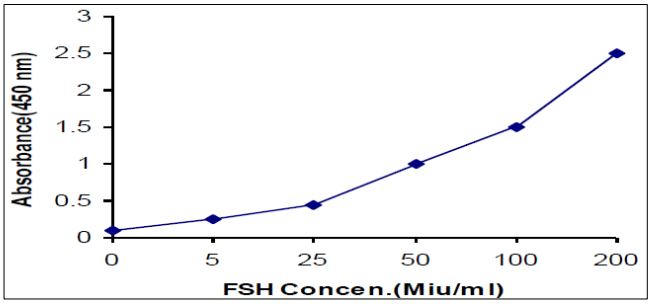

Fig 2

Discussion

An increase in the prolactin hormone has an effect on the level of the stimulating hormone and the luteal hormone. The significant increase in the level of the prolactin hormone compared to the control group led to a decrease in the level of the FSH hormone. This result is attributed to the effect of the hormone prolactin secreted from the hypothalamus, which inhibits the release of stimulating hormones from the gland. Pituitary McNeilly, 1987 [11] the decrease in the level of the hormone (FSH) may be attributed to the effect on the anterior lobe of the pituitary gland, which inhibits the release of gonad-stimulating hormones (FSH). As a result of this decrease in the hormone FSH, it may work to prevent the development of the ovarian follicles, which may prevent their access to the mature follicle of Graffia, and this is one of the reasons leading to Lack of ovulation and pregnancy and a decrease in fertility in women who suffer from high prolactin (Uilenbroek and Linden, 1984) [17].

The relationship between high prolactin and luteal hormone (LH) is due to the effect on the level of LHRH from the hypothalamus, which may cause prolactin to reduce its secretion, and this result affects the pituitary gland, causing the level of LH to decrease (Tjeerdsma *et al*., 1996) [16]. Low levels of the LH hormone prevent or reduce the ovulation process, causing a decrease in the fertility of women (Yamaguchi *et al*., 1991; Tjeerdsma *et al*., 1996) [22. 16].

The disturbance in the menstrual cycle is attributed to the effect of the hormone Progesterone, as the increase or decrease of the hormone prolactin causes an imbalance in pregnancy, and this hormone, Progesterone, leads to disturbances in the ovulation process and directly affects the fertilization of the egg, and as a result, a decrease in fertility and failure to obtain pregnancy. Wuttke and Meites, 1971; Corenblum, 1993; Goren *et al*., 1998) [20, 4, 7].

High prolactin works to prevent pregnancy through its effect on the estrogen hormone, as it works to reduce it (Ratchev and Dokumov, 1995) [14]. The state of high prolactin in women causes a medical condition called polycystic ovary syndrome, which is one of the cases of infertility in women (Rebar, 1997) [12]. Delayed pregnancy in women who suffer from high prolactin means a decrease in female fertility as a result of influencing the ovulation process and influencing it through influencing the level of the pituitary and hypothalamus (Rolland *et al*., 1975) [13].

The increase in the secretion of the hormone prolactin with age is related to the number of childbearing cases and the psychological state that increases with age, in addition to the women suffering from menstrual disorders with age and ovulation disorder (Morris and Sauer, 1993) [10].

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