

Review Article

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Prolactin Hormone

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Abstract: Prolactin (PRL) is mainly produced by pituitary lactotrophs and is tonically inhibited by the hypothalamus by the neurotransmitter dopamine. The discovery of multiple extra pituitary sites of PRL secretion also increases the range of known functions of this hormone. Prolactin is a 23 kDa single chain protein of 199 amino acids synthesized and released principally by autotrophs in the anterior pituitary gland. The secretion is mainly under inhibitory control by hypothalamic dopamine and regulated in a negative feedback manner, with prolactin itself providing the afferent signal: short-loop feedback. The main function of prolactin is during pregnancy and lactation in the development of mammary glands, milk synthesis and maintenance of milk secretion. Serum prolactin levels rise rapidly during pregnancy with increase in the size and number of lactotrophs. During lactation suckling induces rapid secretion of prolactin via a neuroendocrine reflex pathway. In the absence of pregnancy, hyperprolactinemia may present with symptoms of hypogonadotropic hypogonadism including menstrual disturbance and infertility or visual symptoms from a pituitary mass effect by a prolactinoma, the most common pituitary tumour. Hyperprolactinaemia is diagnosed by laboratory measurement of serum prolactin. There is considerable variability in routinely available prolactin immunoassays as a result of differing reactivity towards monomeric prolactin and macro prolactin and lack of commutability of the WHO 3rd International Standard between routine methods. Macroprolactinaemia is a relatively common cause of interference in the prolactin assay that may lead to incorrect diagnosis and unnecessary investigations. Measurement of prolactin post polyethylene glycol precipitation (PEG) when prolactin levels are above the reference interval is routinely used to identify macro prolactin, however harmonization of PEG precipitation process and reporting may improve clinical care.

Keywords: Diabetes Mellitus, Neutrophil-lymphocyte ratio, HbA1c, glycemic control, Inflammation

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INTRODUCTION

Hormone The Milk prolactin, which is secreted by the anterior lobe of the pituitary gland, is one of the important hormones in the female body due to its close relationship with breastfeeding because it acts as a stimulant for the secretion of milk from the mammary glands.

The hormone is secreted in the female body in relatively small quantities in both the uterine lining and the mammary glands, and the endocrine nervous system plays the role of controlling the production of these glands due to their location under the hypothalamus, where the nerves of the arcuate nucleus release dopamine to stimulate the neurotransmitter to stop the secretion of the hormone. Milk in the pituitary gland, and in case of excessive secretion, pain this hormone has many complications and side effects, so in our

study we will focus on the signs of excessive secretion the hormone prolactin and its causes [1].

The prolactin analysis measures the amount of the hormone prolactin in the bloodstream. It is known that this hormone rises automatically in females during pregnancy and breastfeeding, as the body produces more prolactin in response to the child's need for food when breastfeeding.

It should be noted that the role that this hormone plays in male bodies is not yet precisely known, but it has become clear that the hormone prolactin is important for maintaining reproductive health for both sexes.

Hyperprolactin is part of the changes that occur in the body during pregnancy and breastfeeding. It may be caused by a disease that affects the

hypothalamus and the pituitary gland. Or as a result of a defect in the natural system of prolactin levels resulting from taking medications, medicinal herbs, and heavy metals.

Excessive prolactin secretion may also be caused by: A malfunction in one of the body's organs, such as the thyroid, liver, or kidney or ovaries.

Previous Studies Literature Review

2007, Tharwat Ali Fouad conducted a study that dealt with the relationship between high prolactin and delayed childbearing in a sample of women that included 60 cases. The proportionality was direct in the cases of the study, and it showed that there is a close relationship between high prolactin and nullification of ovulation, as an increase in prolactin leads to a lack of estrogen. Consequently, symptoms of aging and bone weakness appear [10].

In the year 2009 Laila Abdel Hakim studied the relationship between high prolactin and hormones derived from fatty hormones [11].

In a study conducted by Abdullah Al-Araban at the University of Basra in 2017, it addressed the relationship between the pituitary gland and the defect in the secretion of the hormone prolactin in terms of excessive secretion, as it proved the existence of a close relationship between the gland's defect and the excessive secretion of the hormone prolactin, which leads to delayed childbearing [12].

A study conducted by Thomas Wilson on the relationship of hyperprolactin secretion to cancerous tumors sought to identify the level of the hormone that leads to an increased incidence of cancerous diseases. The study was conducted on twenty cases infected in a hospital. Dusseldorf University in Germany in 2013 AD, where questionnaire questions were distributed to the cases, then personal interviews were conducted with the treating doctors, and the study concluded:

The continuous increase in the prolactin hormone for long periods leads to the occurrence of cancerous tumors that are difficult to control except through surgical intervention.

There are no direct genetic causes for the disease or a hereditary family history of the disease. There is no relationship between hormone hypersecretion and menopause.

In 2009, Alia Al-Halabi conducted a study at the University Hospital of Damascus University to find out the effect of medicinal herbs and folk remedies on high levels of the hormone prolactin. The study was conducted on 45 cases of women with high prolactin who had previously been treated with herbs. A

questionnaire was distributed to these cases and the records of some of them were followed up for a study. The effect of using medicinal herbs and other traditional treatments. The study concluded:

The failure of most of the study sample to access effective treatment, the high level of hormones causing cancerous diseases, the collapse of the psychological state of some patients as a result of delayed treatment and the replacement of treatment every time.

A study was conducted at the Faculty of Technology, Brak Al-Shati, Sebha University, in 2012, on the hormone prolactin, its relationship with menstrual disorders, and the hormones luteinising hormone (LH) and follicle-stimulating hormone (FSH), and the extent of the effect of its increase in the hormone in nullifying ovulation by reducing the level of the hormones FSH and LH, which are responsible for ovulation and the production of pregnancy hormones, and its effect on fertility in women using the assay method. Fluorescent immunofluorescence for enzyme. Enzyme linked fluorescent assay (ELFA). The results showed that 91 samples out of the total samples, or 70%, had a normal concentration of the hormone prolactin, with an average concentration of 10.7 ± 7.1 ml/ng, and 39 samples out of the total, or 30%, suffered from an increase in prolactin concentration, with an average concentration of 51.6 ± 41.4 ml/ng. Statistical analysis was shown using T-test. There are significant differences between the normal and abnormal prolactin hormone.

The concentration of the FSH hormone and the LH hormone were measured for the samples for which prolactin was measured. The results showed an increase in the concentration of the FSH hormone for the normal samples, with an average concentration of 14.2 ± 22.9 ml/ng. The results showed that the FSH hormone for the abnormal samples is normal, low, and its average concentration is 7.3 ± 5.4 ml/ng. Statistical analysis using the T-test showed significant differences. Also, the average concentration of the LH hormone for the normal samples was normal, and its average concentration was 5.7 ± 8.4 ml/ng, and the average concentration of the hormone LH for the abnormal samples was normal, 5.4 ± 8.02 ml/ng.

When conducting T-test between them, it was found that there were no significant differences. As for the average ages in the normal prolactin group, it was 7.8 ± 29.3 years, and the average age for the abnormal prolactin group was 28.6 ± 6.4 , years. When conducting the T-test, it was found that there were no significant differences, while it was found that there were no significant differences between FSH and LH, age, and body mass index, and no significant differences were observed. Any positive or negative correlation between all variables. This study concluded that high prolactin



may be a reason for delayed childbearing due to its effect on the FSH and LH hormones in addition, symptoms of high prolactin may appear in women as disturbances in the menstrual cycle or breast secretions, and these symptoms may not appear in many women who suffer from high hormone levels.

Another study was conducted by Maryam Youssef Al-Hudhairi in 2018 at the College of Science, Sebha University, to investigate the relationship between polycystic ovary syndrome and the hormone prolactin in married women.

60 blood samples were collected from married women aged between 17-40 years, and their concentration of the hormone prolactin was measured. The results showed that 30 samples out of the total samples, representing 50%, were normal, with an average concentration of 12.4 ± 5.86 ng/ml. While the concentration was high in 30 samples out of the total, at a rate of 50%, with an average of 52.6 ± 19.99 ng/ml, the study concluded that there were significant

differences between the concentration of the hormone prolactin in women with polycystic ovary syndrome compared to unmarried women.

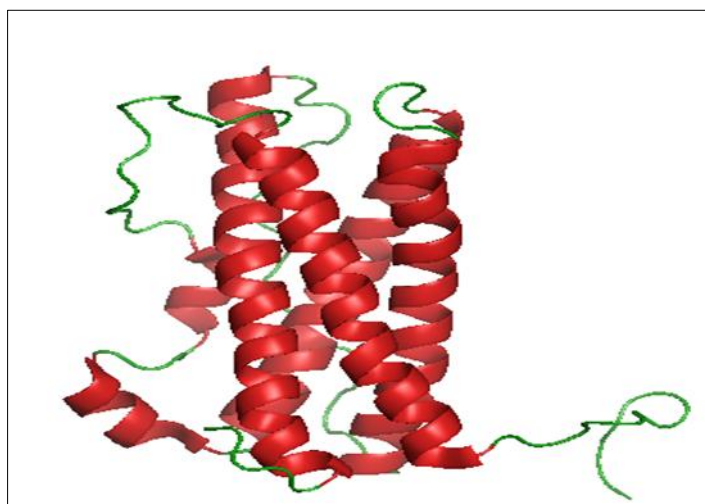
The Milk Hormone (Prolactin)

It is a hormone secreted mainly from lactotropic cells located in the pituitary gland in the brain under various effects, either natural physiological, pathological, or pharmacological.

Made from amino acid chains secreted from the anterior lobe of the pituitary gland its role is linked to the lactation process acts as a stimulant for the secretion of milk from the mammary glands the process is called lactation.

Hormone Structure

Prolactin consists of a single polypeptide chain. Polypeptide chain, contains 199 amino acids and has a molecular weight equal to 24,000 daltons. The polypeptide contains 3 turns resulting from the presence of equivalent sulfur bonds between the ends of the chain as below.



Prolactin Hormone structure

It is located in the region of the prolactin gene A genetic transcription factor known as Pituitary-specific positive transcription factor 1(PIT1). The function of this factor is to control prolactin production, stimulated by high estrogen concentrations in the blood, it is inhibited by high dopamine.

Hormone Production

The largest amount of prolactin is produced in the mammary cells located in the anterior lobe of the pituitary gland, the hormone is also produced in small quantities by each of the mammary glands and the fallopian membrane endometrium [3].

Prolactin production is controlled via the neuroendocrine system located in the hypothalamus (under the cradle), the nerves of the arcuate nucleus secrete dopamine. This neurotransmitter stops the

secretion of prolactin from the pituitary gland. On the other hand, it stimulates the secretion of hormones from thyroid cells [2].

Effect of the Hormone

The hormone prolactin has several vital effects in the human body, the most important of which are:

1. Stimulating the mammary glands for milk production: High concentrations of prolactin in the blood are observed during pregnancy which leads to enlargement of the mammary glands and prepares it to produce the milk necessary for lactation, on the other hand, the hormone progesterone secreted from the placenta, which prevents the secretion of milk from the breast, after birth and expulsion of the placenta, the concentration of progesterone

decreases Which contributes to the start of milk secretion and the ability to breastfeed.

2. Stimulating the proliferation of deficient neuroglia cells precursor: (These cells produce myelin), Myelin, which represents the bark covering the axon in the central nervous system.
3. Prolactin reduces estrogen concentrations.
4. It contributes to the formation of a surfactant in the fetal lung [3].

Prolactin Concentrations in the Blood

1. During pregnancy, the concentration of prolactin in the blood rises in response to the high concentration of estrogen, which predisposes mammary glands for milk production and lactation.
2. Estrogen hormones decrease and progesterone However, the concentration of prolactin remains high due to the breastfeeding process. During breastfeeding, the infant stimulates the mechanoreceptors around the nipple it does not send stimulating signals to the hypothalamus, which stimulates the pituitary gland to monitor prolactin production.
3. Concentration during pregnancy and breastfeeding inhibits ovulation [2]. Table 2 – Care and treatment of patients and advice to patients and health-care Prolactin concentration is high in the early morning and also increases after food, exercise, or sexual intercourse and sometimes after surgeries [5].

The Cases That the Concentration of Prolactin Increases

1. Pregnancy and breastfeeding.
2. Pituitary tumors can cause both conditions.
3. Epilepsy medications and leprosy.
4. Cases of psychological stress.
5. Excessive production of thyroid-releasing hormone.
6. Hyperlactation syndrome and hyperprolactinemia [7].

Cases That It Reduces the Concentration of Prolactin

1. Insatiable and throw them away.
2. Excessive dopamine production.
3. Pituitary tumors can cause both conditions.

Sources of the milk hormone include the lining of the uterus, uterine fibroids, and the uterine muscles. The milk hormone prolactin is found in men and women at certain levels in the blood [6].

The normal rate of prolactin in the blood ranges from 3 to 30 nanograms/ml, noting that the level of this hormone is variable in the blood. Most of the body's vital activities are under the control of hormones that are secreted from the pituitary gland in the bottom

of the brain under the influence of the major higher centers in the brain, and among these hormones is prolactin [9].

The Effect of Hormone Level Disturbance

1. An increase or deficiency of the hormone prolactin beyond the normal rate causes menstrual disorders, and thus ovulation disorders, as it leads to a deficiency of progesterone.
2. It directly affects the fertility of the patient who suffers from several problems, such as interruption or decrease in the menstrual cycle, or non-functional vaginal bleeding.
3. The presence of milky (milky) secretions from the nipple in non-breastfeeding women.
4. There is a close relationship between high prolactin and inactivation of ovulation. An increase in the hormone prolactin leads to a lack of estrogen and thus the appearance of symptoms of aging and bone weakness.
5. Elevation of the hormone has been found to play a role in non-ovulation in cases of polycystic ovary syndrome, and this is evident from the return of ovulation after treating these cases with bromocriptine [5].

Excessive Secretion of Hormone Prolactin (HP)

Excessive hormone secretion; it's the presence of abnormally high levels of prolactin in the blood. These levels are considered normal less than 580 mIU/L for women, and less than 450 mIU/L for men. Prolactin is a peptide hormone produced by the anterior lobe of the pituitary gland, It is primarily associated with lactation, and plays a vital role in breast development during pregnancy. It may cause an increase in the level of prolactin production, spontaneous flow of breast milk, and disturbances in the menstrual period of women [5].

Complications of High Hormone Levels for Women

- Infertility
- Menstrual irregularity or absence
- Continuous flow of milk from the breasts
- Dry genital tract [10]

Prolactin Analysis

1. Prolactin concentration is usually examined in studies of causes of infertility or pituitary diseases. High concentration of prolactin inhibits the production of follicle-stimulating hormone (FSH), Follicle stimulating hormone Gonadotropin-releasing hormone Gonadotropin-releasing hormone, which leads to a decrease in the concentration of the sex hormones estrogen in women with men testosterone hormone.
2. Prolactin concentration is measured to diagnose epilepsy it is usually high after se



Diagnosis

The doctor orders a test to determine the hormone level in women with milk secretion or irregular menstruation or infertility, in a man who suffers from poor sexual function or milk secretion.

If the result is an increase in the hormone level, the doctor will order a thyroid function test, and perform x-rays for the bones surrounding the pituitary gland may reveal the presence of an adenoma, but small masses of the tumor may not appear on x-rays, so magnetic resonance imaging (MRI) it is the most sensitive procedure for detecting pituitary gland tumors and determining their size [6].

The MRI may be repeated periodically to evaluate tumor progression and the effects of treatment. Also, in addition to evaluating the size of the tumor in the pituitary gland, doctors also look for damage to the surrounding tissue, and perform tests to evaluate whether the production of other pituitary hormones is normal. Depending on the size of the tumor, the doctor may order an eye examination with visual fields measurement.

Prolactin is decreased by dopamine, which is increased by estrogen the hormone level can be increased due to the presence of biologically active macro prolactin in serum [11].

Treatment

High prolactin is treated with some drugs such as (bromocriptine), which is taken in the form of tablets orally three times daily after consulting a doctor.

There are other medications that reduce the secretion of the hormone and are also useful in reducing the size of the tumor in the pituitary gland. The patient needs to take it for years.

If medications do not help in reducing the size of the gland swelling and local symptoms appear or the size is large, then surgery is the best option, where part of the gland is removed through a delicate surgical operation performed through the nose. In rare cases, the pituitary gland may need to be removed if there is an impact on the optic nerve or significant enlargement of it [11].

The use of medications is the most common cause of hyperprolactinemia. Normally, the secretion of prolactin in the pituitary gland in the brain is suppressed by dopamine. Drugs that block the effects of dopamine in the pituitary gland or deplete dopamine stores in the brain cause the pituitary gland to secrete prolactin. These medications include tranquilizers (phenothiazines).

Trifluoperazine (Stylazine), haloperidol (Haldol), antipsychotics Medicines in general;

Metoclopramide (Reglan), domperidone, cisapride used to treat gastroesophageal reflux Nausea caused by medications (such as cancer drugs and, to a lesser extent, alpha-methyl Reserpine, which is used to control blood pressure, and estrogen and Thyrotropin-releasing hormone (TRH), also called thyrotropin-releasing factor (TRF) or thyroliberin, is a releasing hormone, produced by the hypothalamus, that stimulates the release of thyrotropin (thyroid-stimulating hormone or TSH) and prolactin from the anterior pituitary. It is a tropic, tripeptide hormone. TRH. Hypnotics (Rozerem), it also increases the risk of hyperprolactinemia [11].

Thyrotropin-releasing hormone (TRH), also called thyrotropin-releasing factor (TRF) or thyroliberin, is a releasing hormone, produced by the hypothalamus, that stimulates the release of thyrotropin (thyroid-stimulating hormone or TSH) and prolactin from the anterior pituitary. It is a tropic, tripeptide hormone.

In particular, the dopamine antagonists domperidone and metoclopramide help stimulate (both) prolactin and have been used to stimulate breast milk secretion for several decades. The risks of prolactin stimulation are usually present with all drugs that deplete dopamine, either directly or in a rebound form.

Measuring Prolactin in the Blood

When the level of prolactin reach 200 ng/ml in blood or more this is an indication of the presence of a tumor of pituitary gland in the brain, and when prolactin level reach 100-150 ng/ml. This raises suspicion of a pituitary gland tumor [7].

Therefore, a computerized tomography (CT) scan of the brain must be performed to confirm the diagnosis in the two previous cases. However, if the increase in the hormone is from 50-60 nanograms/ml, this indicates disturbances in hormones and ovulation, and thus failure of fertilization, which is the patient's most common complaint. Here, the thyroid hormones thyroxine (T4), triiodothyronine (T3), and thyroid-stimulating hormone (TSH) must be measured in the blood as well, in order to treat the condition and restore ovulation, which resolves it. The problem.

In order to reduce prolactin in the blood, we must use something that stimulates an increase in dopamine, such as bromocriptine 2.5 mg. High levels of prolactin in women is a common problem, and its rate of increase may range from a slight degree to a significant increase in prolactin secretion. One of the most important reasons for high prolactin in women is psychological stress, as this hormone is secreted by the pituitary gland, which is located in the brain. It is a small gland located inside a bony cavity in the middle of the skull and located behind the optic nerve.



Sometimes the reason for an increase in prolactin may be an increase in the secretion of this gland as a result of its enlargement due to the presence of tumors in it that are often benign, but they lead to an increase in the secretion of this hormone. Therefore, when there is a significant increase in the level of prolactin, an x-ray of the skull must be performed to measure the size of the floor of the pituitary gland, and when there is suspicion of enlargement. A CT scan (computed tomography) of the brain is performed to confirm this [11].

Also, the enlargement of this gland may sometimes affect the optic nerve and cause partial blindness in the woman in the side field of vision. Therefore, the field of vision must be examined for any patient who has a significant increase in prolactin secretion [5].

There are also some medications that may lead to an increase in the secretion of the prolactin hormone, such as psychiatric medications or Motilium treatment to treat the stomach. Also, sometimes the causes may be unknown. An increase in the prolactin hormone is detected upon blood analysis when this is suspected as a result of the presence of secretion from the nipple in the patient. If you are not breastfeeding or when there is a delay in pregnancy [9].

OBJECTIVES OF THE STUDY

Aim of Study: The study aims to find out the following:

1. Identify the effects of hypersecretion of the hormone prolactin
2. Linking the relationship between hormone hypersecretion and delayed childbearing.
3. Determine the age stages most susceptible to hypersecretion.

MATERIAL AND METHODS



Prolactin analysis

As for the details of the prolactin analysis procedure, it is similar to many laboratory blood tests,

Type of Study and How to Collect Data

The study relied on the analytical aspect, as questionnaire questions were distributed to a sample of women, where the most important questions were summarized as follows:

1. Age group?
2. Have you had a hormone test before?
3. How informed are you about prolactin?
4. How many years of marriage?
5. What is the level of prolactin before pregnancy?
6. What are the most important causes of high prolactin?
7. What type of treatment is used?

Limitations of the Study

Females attending Sabratha Teaching Hospital and Al-Manar Specialized Centers, where the statistical sample numbered (60) cases.

Time Period: The study continued during the 2019-2020 academic year for six months.

Obstacles

Conducting the analysis to determine the level of the hormone prolactin in the blood is considered a simple test that does not require specific preparations, but attention must be paid to:

1. The level of the hormone prolactin changes during the day. It rises to its highest levels during sleep, and during the first few hours after waking up.
2. Period following vigorous and strenuous exercise.
3. Inform the doctor of any medication being used before performing the analysis, due to the effect of some types of medications on the level of the hormone prolactin accordingly, the doctor usually requests a prolactin analysis a few hours after waking up from sleep.

as it requires only a few minutes to obtain the blood sample to be analysed.



Steps of Blood Collecting

1. Clean the area from which blood will be drawn using an antiseptic.
2. Applying a compression bandage with the aim of generating pressure that causes the vein to swell and collect blood inside it. In fact, the vein located in the inside of the arm is usually chosen, so the tourniquet is tied around the

upper part of the arm. The vein in the back of the hand can also be used to draw blood from it.

3. Inserting a needle into the vein, withdrawing a venous blood sample, and collecting it in a small tube designated for collecting blood samples.

RESULTS

Age Group

Table No 1: shows the percentage of age groups of women under study

	Age group	Repetition	The ratio
1	18- 23	2	%%
2	24- 28	13	22 %
3	29- 33	15	25 %
4	34- 38	30	50 %
5	the total	60	100 %

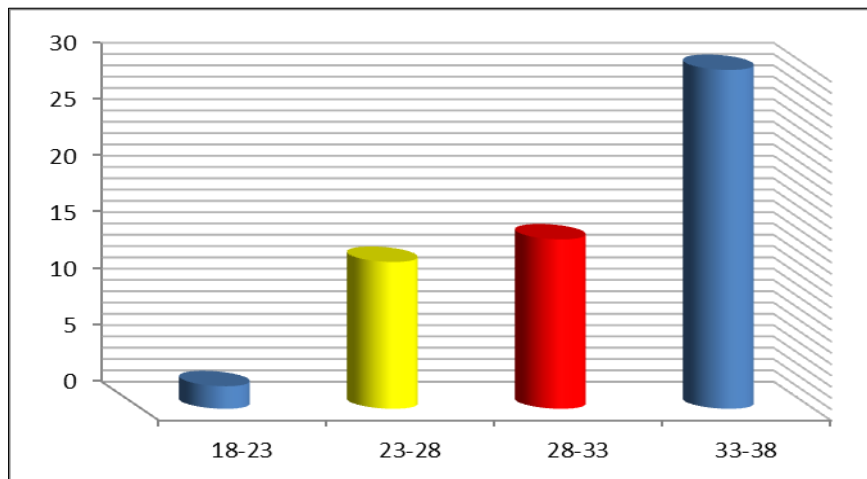


Figure 1: Shows the age groups of the women under study

Previous Hormone Analysis Procedures

Table No 2: Shows the number of women who underwent a previous hormone test

The ratio	the number	the answer
%33	20	Yes
%67	40	no
%100	60	the total

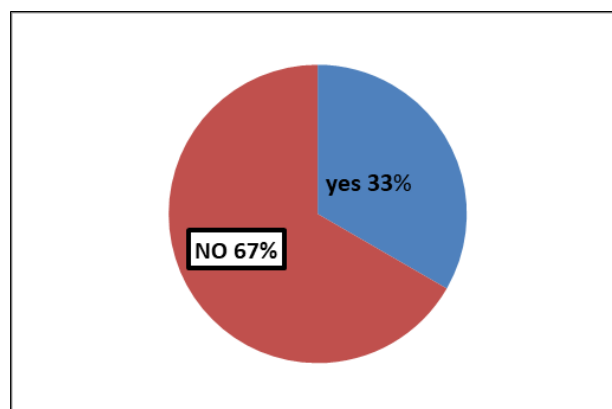


Figure No 2: Shows the percentage of women who underwent a previous hormone test

Summary of Information on the Prolactin Hormone

Table No 3: Shows the outcome information about Prolactin hormone

The number	The ratio	The answer
45	75%	I don't know
11	18%	good
4	7%	very good
60	%100	Total

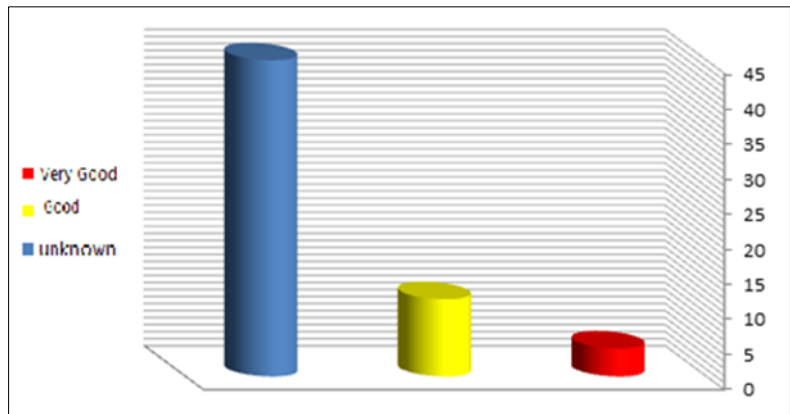


Figure No 3: Shows the outcome Information about prolactin hormone

Years of Marriage

Table No 4: Shows the number of years of marriage

The number of years	the number	The ratio
2	4	%7
4	30	%50
6	16	%27
8	10	%16
the total	60	%100

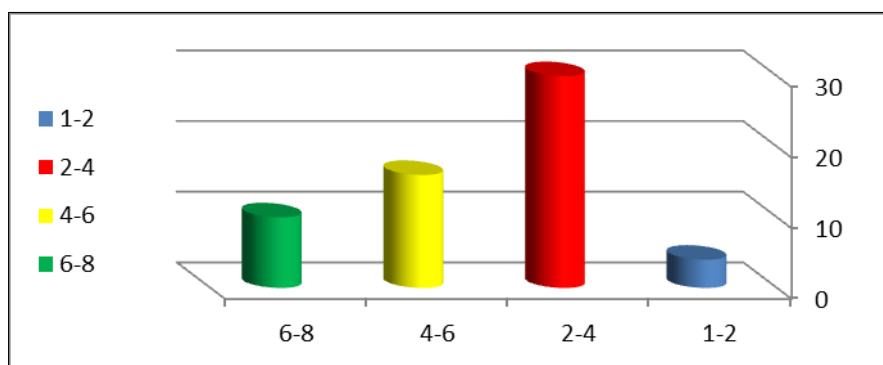


Figure No 4: shows the number of years of marriage

Lactobacillus Hormone Level before Pregnancy

Table No 5: shows the level of prolactin before pregnancy

The ratio	the number	the level
40%	24	Less than 25
60%	36	More than 25
%100	60	the total

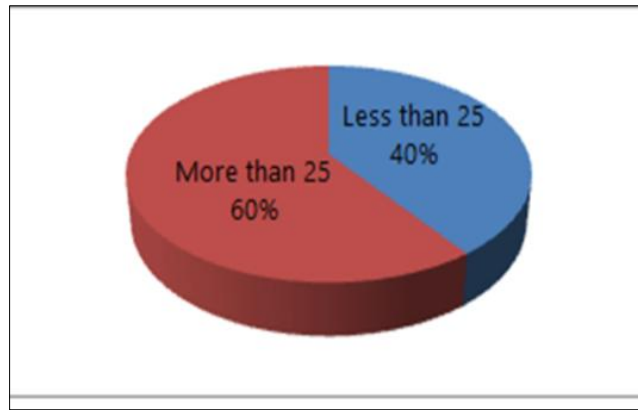


Figure No 5: shows the level of prolactin before pregnancy

Table 6: shows the most important causes of high prolactin

the reasons	the number	The ratio
Prolactinoma	20	%33
Chronic liver or kidney disease	9	%15
Hypothyroidism	14	%23
Radiation therapy and medications for blood pressure and depression	11	%18
Breast wounds and bruises	6	%6
the total	60	%100

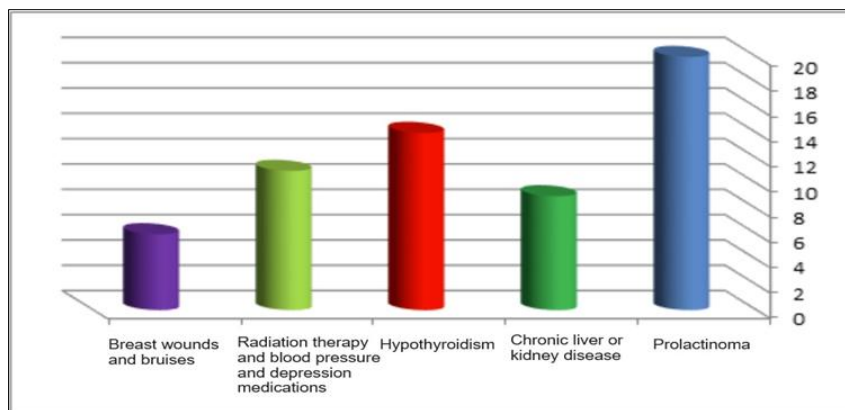


Figure 6: shows the most important causes of high prolactin

Table 7: Type of treatment used

The ratio	the number	Treatment used
%80	48	pharmaceutical
%15	9	Radiation to control prolactinoma
%5	3	Surgery
%100	60	the total

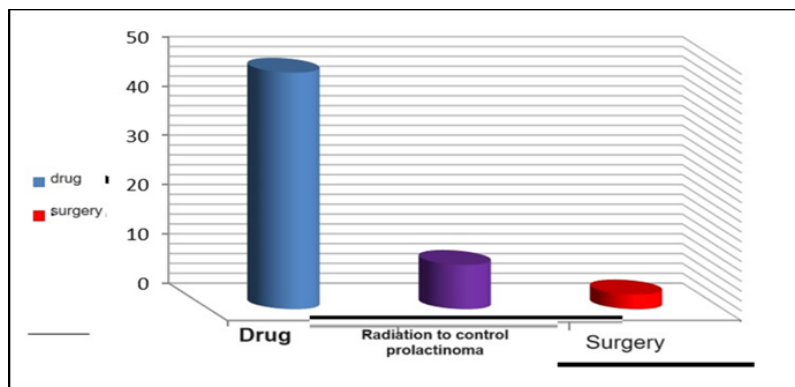


Figure 7: shows the type of treatment used

DISCUSSION

We recorded the ages of the women under study, which ranged between 18 and 38 years, as listed in Table 1). (We noticed that the older they got, the less their chances of conceiving and the more they began the journey of searching for reasons to begin treatment.

Through our research, the actual percentage that suffers from delayed childbearing is the age group between 34 and 38 years, which was 50%.

After distributing the questionnaire to the sample members and asking them questions about having undergone a hormone test before, most of the sample's answers were no, which indicates the sample members' lack of awareness of the danger of increased secretion of this hormone and its effect on their delayed childbearing, which confirms the research problem of the lack of awareness of many. Of women with the severity of the defect, whether increased or decreased, and failure to speed up detection, as shown in Figure No. 2)

We noticed through the questionnaire and Chart No. (3) That most of the sample members had no knowledge of the seriousness of the disease or even interest in it. The two answers, good and very good, did not exceed 25% of the total responses of the sample members, meaning that 75% of the sample had no knowledge of the extent of the risk. This confirms the previous question of the sample members, i.e. the lack of awareness of the sample members, which causes high and delayed detection of the disease and delayed treatment and then childbearing. In the event of a tumor, detection in the advanced stages of the infection represents a threat to the patient's life. Regarding the variable of years of marriage, we found that thinking about the reason for delaying childbearing begins after 4 years of marriage, and it becomes a priority after 6 years of marriage, given the nature of society, which sees a deficiency in women if two years pass without having children after marriage. We noticed, through statistical analysis of the data and the graph representing the sample in Figure No. (4), that as age increases, the risk of infection and delayed childbearing increases, with the highest percentage occurring at an average of four to six years of marriage. Through the sample and analysis of the statistical data, and by drawing it graphically in Figure No. (5), we noticed that most of the sample members suffer from hypersecretion due to the rate being higher than 25, as it was taken into account that the basic measure of high or seriousness is 25. That is, what confirms that they suffer from a defect in hormone secretion, which is represented by a high rate of secretion, which leads to a delay in childbearing or infertility, or may develop into a prolactinoma that poses a threat to life in the event of a delay in treatment after confirming the infection. After distributing the questions, analyzing them statistically, and drawing

them graphically as in Figure No. (6), we found that the highest percentage was for prolactinoma, which was 33%, and then hypothyroidism, 23%, which confirms that hormone imbalance is the main cause of prolactinoma, which develops in Its final stages are prolactinoma. We also noticed from the statistical analysis and graph as in Figure No. (7) That the highest rate of treatment is through medications, where the percentage reached 80%, which are taken during the first treatment periods and in the case of early detection of the disease or hormonal imbalance, then followed by radiotherapy, and in the last stages comes Surgical intervention is what was shown in the treatment rates in the sample. In most cases, medications are responded to if taken correctly in order to control the hormones and then pregnancy occurs. Through this percentage, we see that the rate of medications is the most used due to the spread of the first type, followed by radiation and then surgery.

CONCLUSION

Through the tables and figures reviewed, we noted that:

1. The older women get, the lower the rate of pregnancy and childbearing among women. This is often due to an increase in their prolactin levels or a hormonal disorder in general, or one that affects the prolactin hormone by increasing or inhibiting it.
2. More than half of the women in the research sample were not aware of hormones and the problems they cause in the body in general and in pregnancy and childbirth in particular, and had not performed an analysis for these hormones before.
3. About three-quarters of the women who were studied had no knowledge of the prolactin hormone and its relationship to pregnancy and childbirth.
4. The more years of marriage and the delay in pregnancy and childbearing, the greater the suspicion that there is something preventing pregnancy. Think seriously about visiting a doctor and performing tests, including hormone analysis, especially prolactin, as most women had no knowledge of such matters beforehand, and upon conducting the tests they discovered that they were suffering from Excessive secretion of the prolactin hormone or a disorder in other hormones, especially those affecting the secretion of the prolactin hormone.
5. Most women who have not given birth or become pregnant suffer from the presence of a milk tumor (prolactinoma) or have a deficiency in thyroid hormones, which reinforces that hormonal disorder and imbalance is the reason for not getting pregnant.



6. Most women who are treated with medications and whose prolactin levels are adjusted are later able to become pregnant and give birth.

RECOMMENDATIONS

Firstly, Women Are Advised to Do the Following:

1. Conducting analyzes for hormones that prevent pregnancy and childbearing or have an effect on changing the level of milk hormones, such as FSH - LH, thyroid hormones, T3 - T4 - TSH progesterone testosterone, and estrogen.
2. Ensure that there is no milky secretion from the breasts.
3. Ensure that the menstrual cycle is regular and that there are no disturbances in it.
4. Ensure that there is no noticeable weight loss.

Secondly, Health Centers and Agencies Concerned with Family Care are advised to follow the Following:

1. Paying attention to health programs and workshops and spreading health awareness among members of society about to get married (in schools, universities, and on radio and video) by introducing the role that hormones play in preventing pregnancy and childbirth and how to regulate these hormones.
2. Providing solutions and devices for conducting hormone analysis in hospitals and clinics for free.
3. Providing hormone medications in public pharmacies at reasonable prices.

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