

ARTICLE REVIEW: HORMONAL CHANGES IN WOMEN WITH PCOS

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ABSTRACT:

One of the things every woman wants to know about PCOS is that, according to the American Diabetes Association, tests have demonstrated that it is a risk factor for diabetes, and experts are researching the interaction between PCOS and diabetes, and High levels of insulin can lead to increased development of male hormones called androgens, and as a symptom of PCOS, PCOS is also correlated with weight gain, as with diabetes, but tests have shown that even people with PCOS are usually weighty. Polycystic ovary syndrome is not always diagnosed in women, but it is present in 5% - 10% of women of fertile age. Exercise may help relieve symptoms that come with the syndrome, and also reduce the risk of diabetes. Maintaining a healthy weight helps prevent heart disease, vascular disease and diabetes. The gynecologist can diagnose the syndrome and recommend treatment to prevent complications associated with PCOS such as heart disease and fertility problems. This may improve the body's response to an insulin response.

Keywords: Hormonal, Pcos , ovarian disease, insulin resistance, lifestyle changes.

INTRODUCTION:

In females, the ovary is the gunda (the organ that creates sex cells) and here is what you should know about it and the eggs: most eggs are formed before birth in the ovaries, and before the fertile phase, these eggs are held in

their embryonic state in the ovary [1]. It takes about 28 days for the ovum to ovulate. In each stage, ovulation normally happens in just one embryo, and the ovaries switch between them in each stage to ovulate (once on the right side and once on the left)[2-5]. The healthy ovary assumes the role of follicle production and ovulation every month in cases of ovarian insufficiency due to ovarian cancer or physical damage to one of the ovaries. Most common treatment for inducing ovulation is to give the fertility pill Clomiphene Citrate (Clomid, Letrozole) Clomid helps the body make more follicle stimulating hormone (FSH) Eighty percent of patients will ovulate[6]. Some patients will benefit from In Vitro Fertilization (IVF), where eggs are removed from the ovaries after stimulation [7].

Definition of PCOS:

(Polycystic ovary syndrome) is a group of symptoms that result from a high level of androgen (male hormone) in women, and these symptoms include irregularity or amenorrhea, menorrhagia, an increase in hair growth around the body, acne, acne vulgaris, and pain In the pelvic region, infertility, and it may be accompanied by other diseases such as type 2 diabetes, heart disease, mood disorders, and uterine cancer. Similar in families [8-10]. Two of the three items that can be observed in the condition are the reasons for the diagnosis of PCOS: anovulation, elevated androgen levels and ovarian cysts, which can be diagnosed by ultrasound. Hypothyroidism and prolonged prolactinemia are other PCOS-like illnesses

[11]. PCOS has no clear cure for congenital adrenal hyperplasia, Treatment relies on improvements in diet, weight loss, and exercise, and birth control drugs can help manage menstruation and resolve menstrual issues [12, 13]. Acne and Hirsutism. Metformin and ant androgens also play a part in PCOS, and it is important to employ other methods [14]. It is considered one of the major causes of low female fertility and among women affected, the signs and severity of this condition differ greatly [15]. Two big forms of PCOS exist, and they are as follows:

1. Functional polycystic ovaries: It is the most common kind, and as a result of hormonal changes, it is harmless and shaped that a woman's body undergoes during her menstrual cycle. Typically, the life cycle of this cyst form is short.

2. Polycystic ovarian disease: Compared to type 1, they are less frequent, occur for entirely different causes, and will require medical attention to treat them. There's no cure for polycystic ovary syndrome (PCOS) but there are treatments that can help [16-18]. Treatment aims to ease symptoms, prevent complications and improve chances of having a baby. PCOS can increase your risk of developing long-term health problems [19].

Hormonal imbalance:

Hormones are chemical messengers in our body that are produced in the endocrine glands. They help the body to control and regulate the main processes in it, such as metabolism and reproduction. Hormonal imbalance occurs when the body increases or decreases production of a specific hormone [20, 21]. PCOS affects the levels of the hormones estrogen and progesterone in women. PCOS is one of the most common hormonal disorders in women of childbearing age. Only 50% of women with PCOS are diagnosed correctly. French

researchers found that PCOS can occur before birth due to excessive exposure to the hormone AMH. Polycystic ovaries could be an ideal way to restore regular ovulation and thus increase the rate of pregnancy among women with PCOS [22]. Hormones are chemical messengers in our body that are produced in the endocrine glands and travel with the bloodstream to tissues and organs to inform them of their function[23,24].It helps the body to control and regulate the main processes in it, such as metabolism and reproduction, for example.

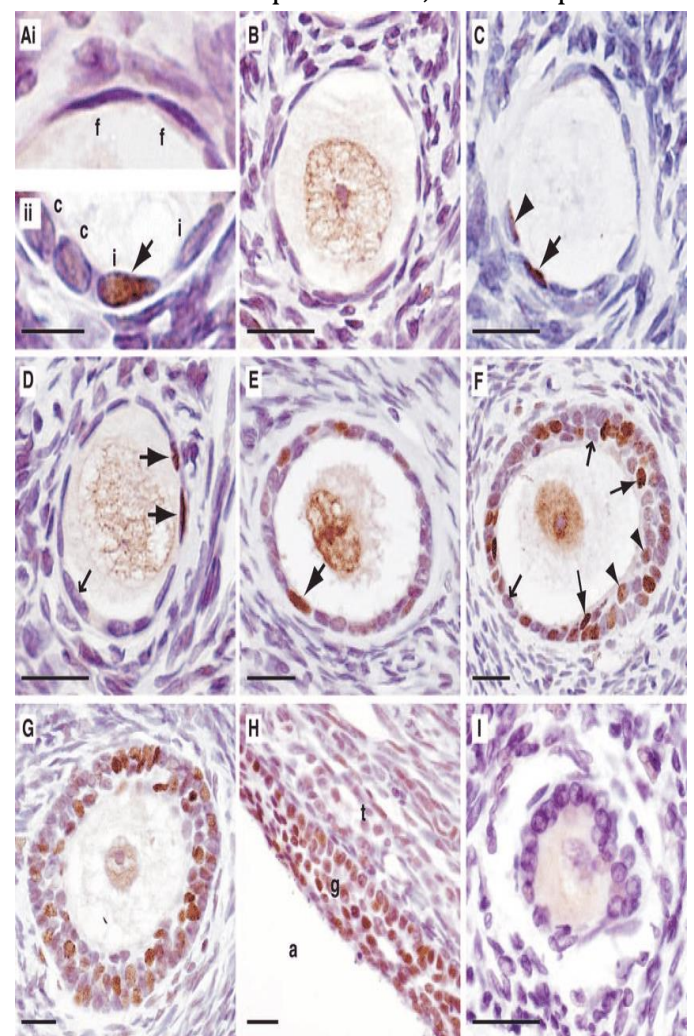


Fig. (1) {A,B,C,D,E,F,G,H,I}Micrographs of sections of human ovarian tissue immunohistochemically stained for MCM2. Cell nuclei are counterstained with hematoxylin. Staining was observed at all stages of folliculogenesis. Negative control (no primary antibody) was used for negative control [25].

Hormonal imbalance happens as the body increases the development of a single hormone or reduces it. Although, no matter how little the difference in the quantity of hormone output required, it can have a huge impact on the body. It should be remembered that hormone levels fluctuate in our bodies according to the phases of our development all the time during our lives [26, 27]. Hormones usually play an important role in our wellbeing, thus affecting multiple organs and processes in the body, hence the effects of hormonal dysfunction vary greatly. In adolescents, and hormone dysfunction occurs in the phases of development into adulthood, while in more mature stages of a person's life, it can also arise. Diseases related to hormonal imbalances in women do not take a single form and do not come in the form of a single disease [28]. They are a number of diseases that may accompany something normal and present on a daily basis in the lives of women. PCOS is one of the most common hormonal disorders in women of childbearing age. Only 50% of women with PCOS are diagnosed correctly [29]. It affects the way the ovaries work, leading to disturbances in the menstrual cycle and difficulty in conceiving. Researchers were able to treat this hormonal imbalance in mice, and clinical trials on women are scheduled to begin later this year [30]. It could be an ideal way to restore regular ovulation and thus increase the rate of pregnancy among women with PCOS. "Lax diagnosis sometimes falls on women the responsibility to educate themselves about the disease, so it is imperative to know its causes and symptoms, the first steps in fighting the disease [31]." PCOS can occur before birth due to excessive exposure to the hormone AMH. French National Institute for Health and Medical Research confirmed that PCOS can happen before birth. It is hereditary in families, scientists conducted tests for this hormone

during pregnancy as it may affect their daughters. The incidence of PCOS is hereditary [32, 33].

Causes of Polycystic Ovaries:

Doctors are unsure of the exact cause of PCOS, but agree that a high level of male hormone inhibits ovaries from naturally developing hormones and eggs, and it should be remembered that there are multiple factors associated with a high level of androgen hormone, which is the male hormone secreted by PCOS ovaries, and below is an overview of the most significant reasons for this [34,35].

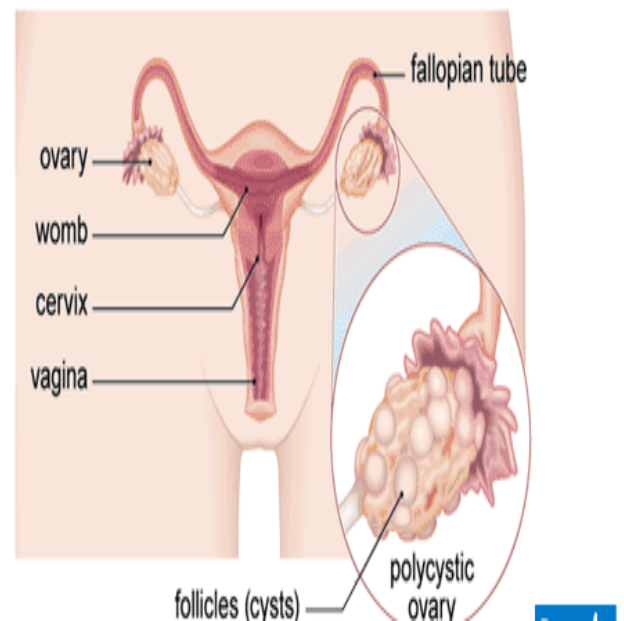


Fig. (2) an ovary affected by polycystic ovary syndrome [36]

Insulin resistance:

Approximately 70 % of women with PCOS have insulin resistance, because the body is unable to use insulin properly, and it should be remembered that obesity is the major cause of insulin resistance, and together they are risk factors for the progression of diabetes [37].

Inflammation:

Evidence indicates that a high level of inflammation in the body of a woman contributes to an elevated androgen hormone level. It should be remembered that in rising the incidence of injury in the body of a woman, obesity plays an significant part [38].

Genes:

Experiments suggest that PCOS is passed down through the families, though it should be remembered that the genes responsible for the development of this condition are not yet identified. Polycystic ovary syndrome is a health condition that affects the level of hormones in women. It affects 2.2-26.7% of the boy, women of childbearing age, between the ages of 15 and 44[39]. Many women with PCOS go undiagnosed and do not know about their hormone imbalance. PCOS also leads to the growth of hair on the face and body, and PCOS can increase the risk of some health problems such as: diabetes and heart disease. Many symptoms, signs that are an indication of PCOS include hair growth, weight gain, weight loss, headaches and difficulty sleeping. The syndrome affects around 70% of women, and it is estimated to be the most common form of menopause in the U.S. It is estimated that PCOS affects around 2.5-26% of boys[40].

Symptoms of polycystic ovaries:

The symptoms of polycystic ovary syndrome (PCOS) usually start around the time of puberty. Some women also develop symptoms. In most cases, there are no distinct symptoms associated with PCOS, although there are some cases where symptoms occur, however these symptoms are close to other conditions as well[41].

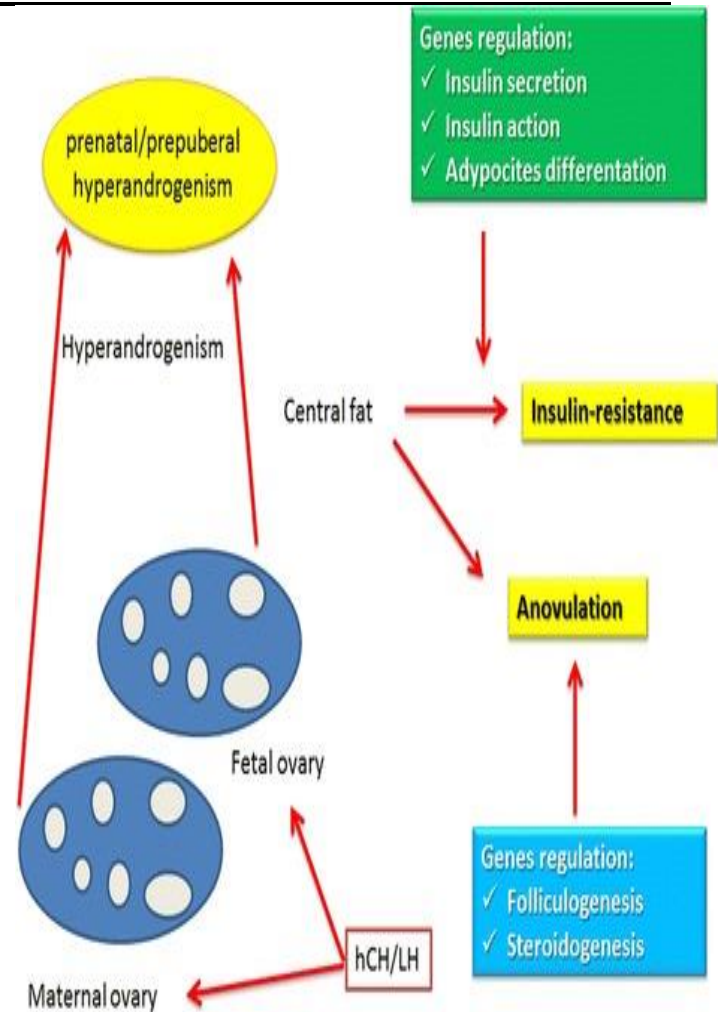


Fig. (3) Prenatal theory of PCOS origin and its puberty output [42]

This suggests that, in order to undergo a thorough evaluation and diagnosis of the disease, it is necessary to see a doctor if you experience these symptoms. The signs of PCOS in general include:

1. Irregularity and menstrual cycle discomfort an irregularity in the One of the essential effects of PCOS is the menstrual cycle. It is followed by extreme pain in certain circumstances and during menstruation, and you may find that the duration is mild or heavier than normal.
2. Pelvic area pain you may experience constant pain in the pelvic region if you have PCOS. This pain may spread to the lower back and thighs, and can occur at or after the end of the menstrual cycle.

3. Dyspareunia Often, PCOS may induce dyspareunia. This means that during sex, the afflicted woman can experience pain and a sensation of discomfort afterward in the abdominal region.

4. Bowel function and urination issues

In addition to the persistent sensation of having to perform a bowel movement, this entails sensation discomfort during bowel movements and additional pressure on the intestine. In addition, there may be several difficulties in the process of entirely emptying the urinary bladder, even with constant and regular urination.

5. Hormone imbalance another symptom of PCOS is hormonal imbalance in the body, but it is not very frequent. Certain signs can be triggered by hormonal imbalance, the most notable of which is the emergence of hair in inappropriate areas and a shift in breast size and sensitivity [43, 44].

Genetic Factor:

According to a survey performed by the University of Alabama in Birmingham, researchers also found that 24 percent of people with PCOS were caused by their mothers, although the number of women who have a sibling is 32 percent. Experts and physicians have not yet been able to determine the exact cause behind PCOS, but they agree that the genetic factor plays a significant role in developing this disorder [45].

Diabetes and Polycystic Ovaries:

Other hypotheses say that insulin resistance can produce a harmful reaction affecting the endocrine system, and this may help trigger type 2 diabetes, and type 2 diabetes occurs when insulin resistant or excessive concentrations of the body's cells become immune. Insulin, or both, and more than 30 million Americans, according to the Centers for

Disease Control, suffer from diabetes and Prevention (CDC), and while type 2 diabetes can be avoided or regulated by physical activity and a healthy diet, evidence indicates, however, that PCOS is a significant independent risk factor for diabetes development [46].



Fig.(4) Insulin resistance [47].

Indeed, later in life, women who suffer from PCOS in adulthood are at risk of contracting diabetes and potentially lethal complications, and researchers in Australia gathered data from more than 8,000 women and found that those with PCOS ovaries are more likely to experience type 2 diabetes, 8.8 times more than women without PCOS, and Obesity was an significant risk factor, and according to ancient studies, about 27% of premenopausal women had type 2 diabetes. The 2017 Danish women 's research also showed that people with PCOS were four times more likely to have type 2 diabetes, and people with PCOS were also more likely to be diagnosed with diabetes four years older than those without PCOS, For this known partnership, specialists suggest that people for PCOS be regularly checked faster than women

without PCOS for type 2 diabetes. One of the things every woman wants to know about PCOS is that, according to the American Diabetes Association, tests have demonstrated that it is a risk factor for diabetes, and experts are researching the interaction between PCOS and diabetes, and High levels of insulin can lead to increased development of male hormones called androgens, and as a symptom of PCOS, PCOS is also correlated with weight gain, as with diabetes, but tests have shown that even people with PCOS are usually weighty. Polycystic ovary syndrome is not always diagnosed in women, but it is present in 5% - 10% of women of fertile age. Exercise may help relieve symptoms that come with the syndrome, and also reduce the risk of diabetes. Maintaining a healthy weight helps prevent heart disease, vascular disease and diabetes. The gynecologist can diagnose the syndrome and recommend treatment to prevent complications associated with PCOS such as heart disease and fertility problems. This may improve the body's response to an insulin response[48].

Polycystic Ovary Syndrome and Fertility:

Polycystic ovary syndrome (PCOS) affects ovulation and is associated with fertility problems. Certain types of ovarian cysts are associated with decreased fertility. Excessive intake of sugars, fats, and carbohydrates can affect a woman's fertility. Eating junk food that leads to weight gain is considered a major cause of menstrual disorders. Endometriomas are cysts caused by endometriosis, in which the tissue lining the uterus usually grows outside the uterus.

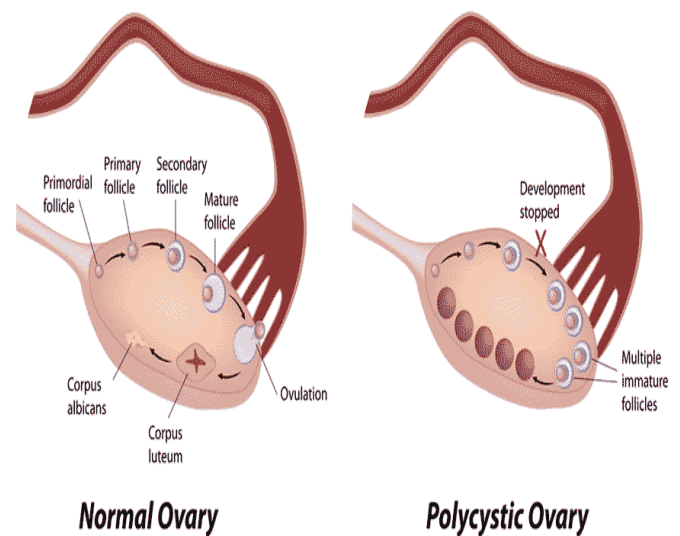


Fig. (5) normal and polycystic ovary [49]

Ovarian cysts may be associated with fertility problems and ovarian cysts caused by polycystic ovary syndrome. PCOS is a condition characterized by many small cysts on the ovaries. It is accompanied by irregular ovulation, which may contribute to fertility problems. functional cysts indicate that the necessary functions leading to fertility do occur. Skin-like cysts contain tissues - such as skin, hair, or even teeth - instead of fluid. Dermal cysts are not accompanied by sterility[50].

Symptoms of recovery from ovarian cysts:

There is no treatment that can completely cure ovarian cysts. PCOS is a chronic disease, but its risk can be reduced or reduced, by reducing or eliminating certain factors. If you are overweight, many of the symptoms will improve if you are going to lose a little. dropping only 5 to 10% of your body weight can make your body more sensitive to insulin.

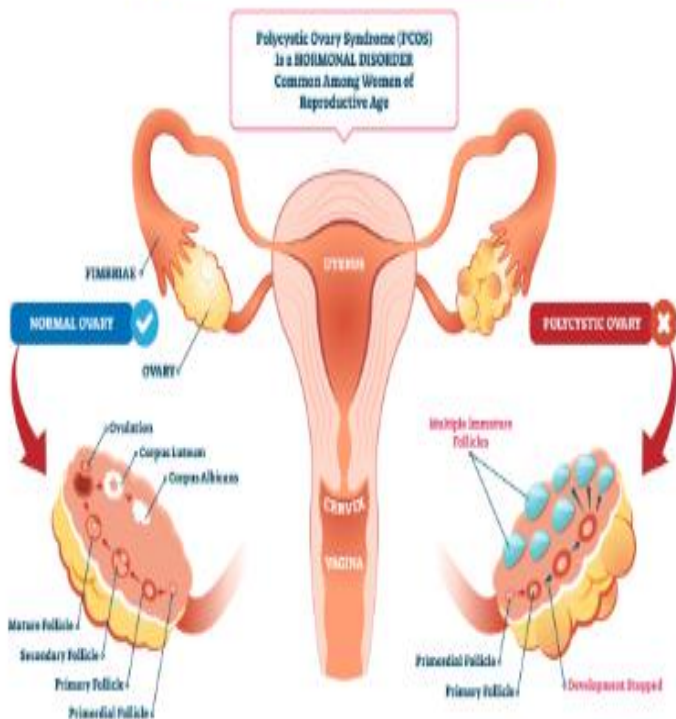


Fig. (6) Polycystic ovary syndrome [51].

Losing weight is also an essential first step if you are planning a pregnancy. It may improve your ability to conceive by restoring ovulation or making your body more responsive to fertility treatments. Up to 75 percent of women with the syndrome PCOS who were able to reduce their body weight also had better control over glucose and improved androgen levels. A low-fat, low-calorie diet (1200 calories) and a moderately intense personal physical activity plan are key to losing weight. The more weight you lose, the more likely you are to conceive a child, according to some studies. Most importantly, your goal when losing weight is to specifically aim to reduce fat around your belly. An eating plan that contains a lot of plant foods (vegetables, fruits, nuts and legumes) in addition to lean protein, and low-fat dairy or calcium-rich dairy alternatives are a good start. Find an eating plan you want and make sure you have plenty of support to help you keep up, because that's the key. To succeed and reduce the damage and risks of polycystic ovaries to reduce the chances of developing

PCOS and having an ovarian cyst, follow the diet plan of your choice and follow a doctor's advice [52].

CONCLUSION:

When you have PCOS, eating carefully, getting mentally involved, sleeping well and handling stress, good decisions are not only a sense that will help remedy the hormonal difference in the middle of polycystic ovarian syndrome and the effects that these hormonal adjustments trigger, and Even losing a small percentage of your extra moisture and taking daily exercise may boost symptoms such as prolonged cycles and infertility and increase the efficacy of drugs used to better control your glucose weight and enhance insulin tolerance in polycystic ovary syndrome (PCOS). Study shows time and time again that controlling your weight.

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