

DISORDERS OF SEX HORMONES

PCOS



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

By

Ms. RUPALI RUPASMITA ROUT
ASSISTANT PROFESSOR

INTRODUCTION:

Disorders of sex hormones refer to conditions where there is an imbalance or abnormality in the production or function of hormones that regulate sexual development and function. Some of the common disorders of sex hormones include:

TYPES:

Hypogonadism: This refers to a condition where the testes in males or the ovaries in females do not produce enough sex hormones, leading to underdeveloped sexual characteristics and infertility.

Hypergonadism: This refers to a condition where there is an excessive production of sex hormones, leading to premature sexual development and other related issues.

Polycystic ovary syndrome (PCOS): This is a common hormonal disorder among women of reproductive age, which can lead to menstrual irregularities, infertility, and other complications.

Testicular and ovarian tumors: These are tumors that can develop in the testes or ovaries, leading to abnormal hormone production and other complications.

Turner syndrome: This is a genetic disorder that affects females, leading to underdeveloped sexual characteristics, infertility, and other related issues.

Klinefelter syndrome: This is a genetic disorder that affects males, leading to underdeveloped testes, infertility, and other related issues.

PCOS:

INTRODUCTION:

Polycystic ovarian syndrome (PCOS) is a hormonal imbalance caused by the ovaries (the organ that produces and releases eggs) creating excess male hormones (androgens). In PCOS, your ovaries produce unusually high levels of hormones called androgens. This causes female reproductive hormones to become imbalanced. As a result, people with PCOS often have irregular menstrual cycles, missed periods and unpredictable ovulation and many small sacs of fluid develop along the outer edge of the ovary. These are called cysts. The small fluid-filled cysts contain immature eggs.

ETIOLOGY: The exact cause of PCOS is unknown.

- **Higher levels of male hormones called androgens:** High androgen levels prevent the ovaries from releasing eggs (ovulation), which causes irregular menstrual cycles. Irregular ovulation can also cause small, fluid-filled sacs to develop in the ovaries. High androgen also causes acne and excess hair growth in women.
- **Insulin resistance:** Increased insulin levels cause the ovaries to make and release male hormone (androgens). Increased male hormone, in turn, suppresses ovulation and contributes to other symptoms of PCOS.
- **Low-grade inflammation:** People with PCOS tend to have chronic low-grade inflammation. Your healthcare provider can perform blood tests that measure levels of C-reactive protein (CRP) and white blood cells, which can indicate the level of inflammation in your body.
- **Heredity:** Research suggests that certain genes might be linked to PCOS. Having a family history of PCOS may play a role in developing the condition.

PATHOPHYSIOLOGY:

The pathogenesis of polycystic ovary syndrome (PCOS) is not precisely known. There are several mechanisms that have been suggested in the pathogenesis of PCOS, including hormonal imbalance, insulin resistance, and genetic inheritance.

HORMONAL INVOLVEMENT:

- PCOS is associated with abnormal production and metabolism of hormones, such as androgens and estrogen, in the body.
- Secretion of luteinizing hormone (LH) from the anterior pituitary gland increases the stimulatory effect on the ovary which lead to the secretion of androgen hormone.
- The level of follicle stimulating hormone (FSH) is reduced due to higher level of LH, As a result, there is less estrogen available and irregular ovulation.
- High androgen levels prevent the ovaries from releasing eggs (ovulation), which causes irregular menstrual cycles and irregular ovulation.
- Irregular ovulation can also cause small, fluid-filled sacs to develop in the ovaries. High androgen also causes acne and excess hair growth in women.

INSULIN RESISTANCE:

- The effect of insulin resistance in PCOS is happened when a woman is overweight.
- Insulin helps our body to use glucose (sugar) for energy.
- Insulin resistance means our body doesn't process insulin correctly, leading to high glucose levels in the blood.
- The excess fat can cause the resistance to insulin. Specifically, the excess insulin may cause the ovaries to produce more androgen and alter the development of follicles needed for ovulation.
- Ovulation may be inhibited or delayed, leading to PCOS.

CLINICAL MANIFESTATION:

- Irregular periods
- Abnormal hair growth
- Acne
- Obesity
- Darkening of the skin

- Cysts
- Skin tags
- Thinning hair
- Infertility

DIGNOSIS:

- Physical Examination and medical history.
- Perform a physical exam, looking specifically for excess facial hair, hair loss, acne, discolored skin and skin tags.
- Perform a pelvic exam to look for swollen ovaries or other growths in your uterus.
- Order blood tests to check hormone levels and glucose levels.
- Perform a pelvic ultrasound to look for cysts in your ovaries and check the thickness of the lining of your uterus.

PHARMACOLOGICAL MANAGEMENT:

To regulate periods:

- **Combination birth control pills:** Pills that contain both estrogen and progestin decrease androgen production and regulate estrogen. Regulating your hormones can lower your risk of endometrial cancer and correct irregular bleeding, excess hair growth and acne.
- **Progestin therapy:** Taking progestin for 10 to 14 days every 1 to 2 months can regulate your periods and protect against endometrial cancer.

For ovulation :

- **Clomiphene:** This oral anti-estrogen medication is taken during the first part of your menstrual cycle.
- **Letrozole (Femara):** This can work to stimulate the ovaries.
- **Metformin:** This medicine for type 2 diabetes that you take by mouth improves insulin resistance and lowers insulin levels.

Others:

- **Gonadotropins:** These hormone medications are given by injection.

To reduce excessive hair growth or improve acne:

- **Spirolactone (Aldactone):** This medication blocks the effects of androgen on the skin, including excessive hair growth and acne.
- **Eflornithine (Vaniqa):** This cream can slow facial hair growth.
- **Hair removal:** Electrolysis and laser hair removal are two options for removing hair.
- **Acne treatments:** Medications, including pills and topical creams or gels, may help improve acne. Talk to your health care provider about options.

NON- PHARMACOLOGICAL MANAGEMENT:

- **Lifestyle changes:** Health care provider may recommend weight loss through a low-calorie diet combined with moderate exercise activities. Even a modest reduction in your weight. Losing weight may increase the effectiveness of medications your provider recommends for PCOS, and it can help with infertility.
- **Intake nutritional diet.**
- **Avoid fatty meals.**
- **Avoid alcohol and smoking.**
- **Avoid over the counter medicine.**