

The review on: Polycystic Ovary Syndrome (PCOS)

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ABSTRACT:

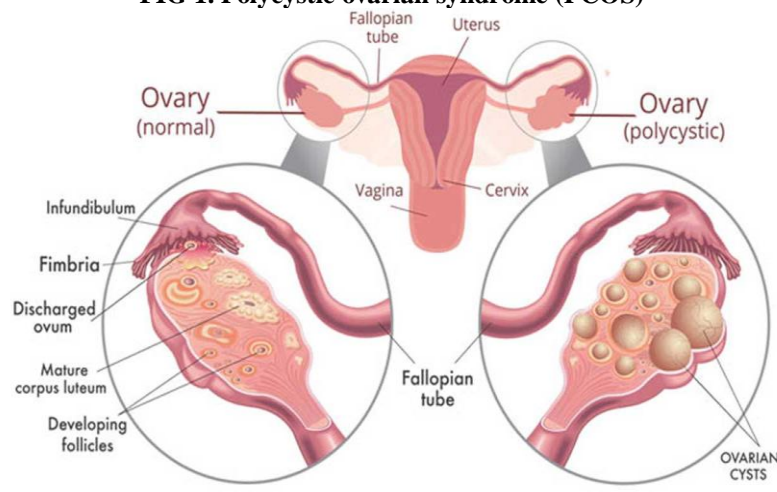
Polycystic ovary syndrome (PCOS) is caused by hormonal disturbance, endocrine disorders. The cause of PCOS isn't well understood but may involve combination of genetic & environmental factors. It affects female of age group between 18 to 44. The aim behind this review, to spread awareness about PCOS & their risk factors. According to WHO 116 million women are affected by PCOS worldwide. The predisposing risk factors including, neuroendocrine, lifestyle or environment, obesity that contributes to the development of PCOS. The pathophysiological aspect of PCOS mainly focuses on hormonal dysfunction, insulin resistance & hyperandrogenism. This review highlights a brief overview of risk, types & pathophysiological treatment with drugs acting on ovulation infertility plus clinical symptoms of PCOS.

KEY WORDS: Polycystic ovary syndrome (PCOS), Hormonal disbalance, Hyperandrogenism, infertility, obesity.

I. INTRODUCTION:

Polycystic ovary syndrome (PCOS) makes complication among female one in every 6-7 women affected by PCOS facing serious complication regarding infertility & irregularity in menstrual cycle. Some of known causes of PCOS are stress & obesity. The normal functioning plays important role in the ovary functioning & menstrual cycle that maintains fertility and this disturbance of hormonal level leads to the formation of a cyst inside the sac of ovary. Globally it affects 5 – 15% females. In many cases androgen which is male hormone, seen in females affected with PCOS, as a result facial hair are seen as a symptoms.

FIG 1. Polycystic ovarian syndrome (PCOS)

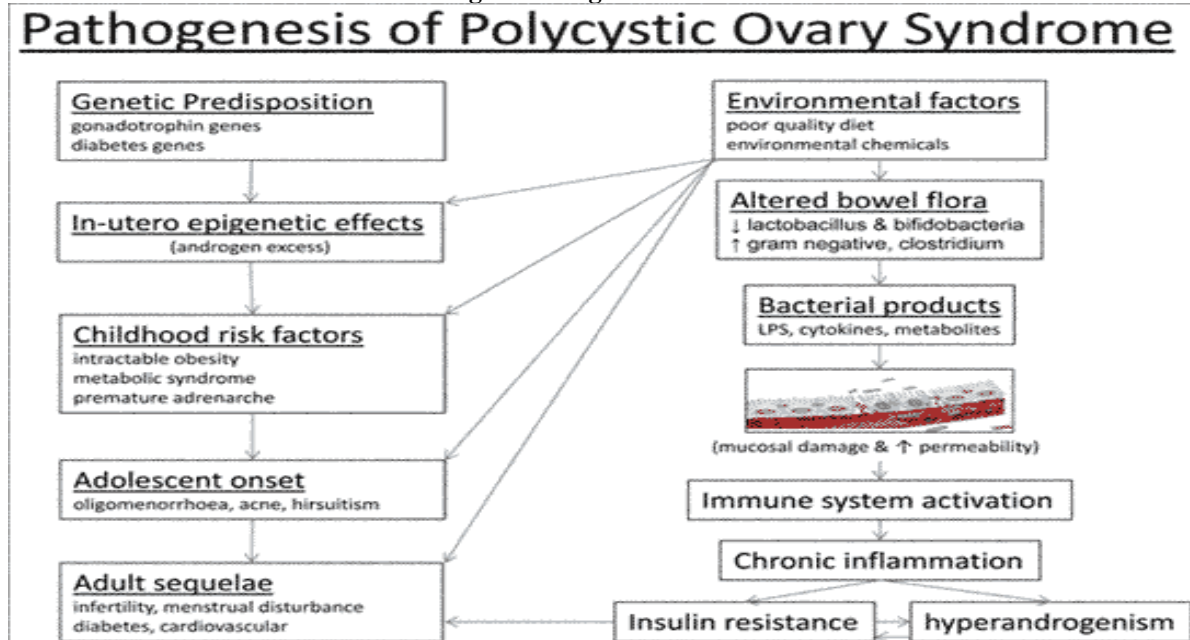


Pathogenesis:

The pathogenesis of PCOS is not clearly known, But there are some potential etiologies for the PCOS. In the development of both genetics and

lifestyle factors contribute. Contributors like abnormal gonadotropin secretion, insuline resistance, ovarian factors etc.

Fig. 2. Pathogenesis of PCOS



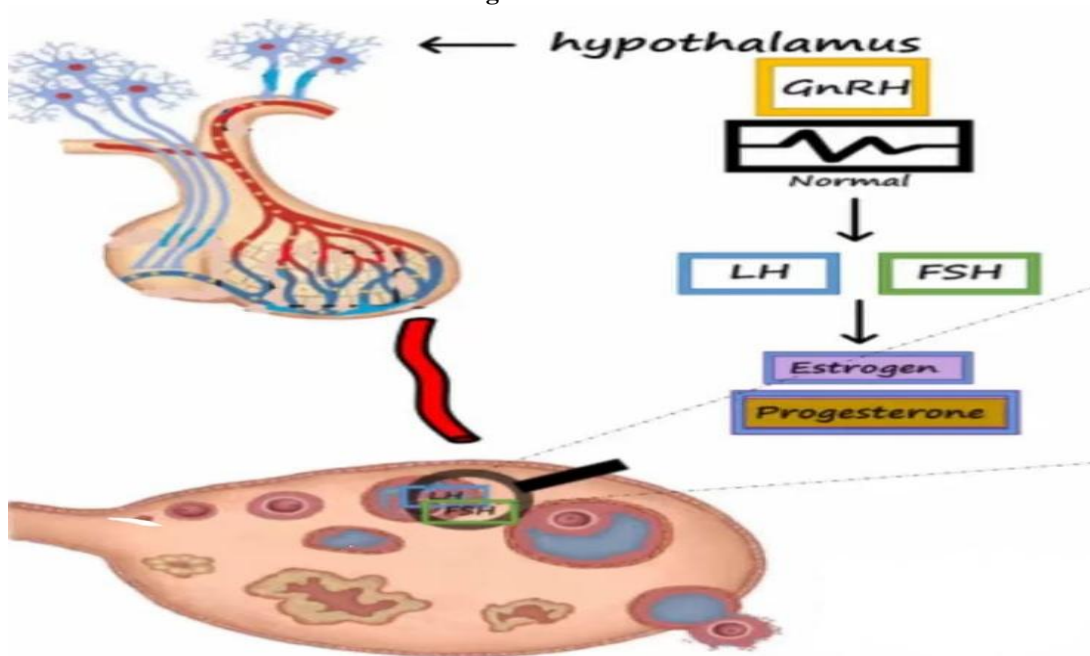
Pathophysiology:

PCOS occurs when follicles do not ovulate. It caused by abnormal functioning of GnRH (gonadotropin releasing hormone). GnRH released by hypothalamus. In normal pulsatile fashion (Pulsatile drug delivery system is rapid & transient release of certain amount of drug molecules within short time period immediately after a predetermined off release period) & then travel the blood to the cells of the anterior pituitary to cause release luteinizing hormone or LH follicle stimulating hormone or FSH. LH & FSH then travel in the blood to the ovary to act on the thecal cell and granulosa cells of the follicle causing them to work together to produce mainly estrogen before ovulation. During the follicular phase and mostly progesterone after ovulation during the luteal phase.

In PCOS follicles do not ovulate. In this ovulation progesterone has major role. This

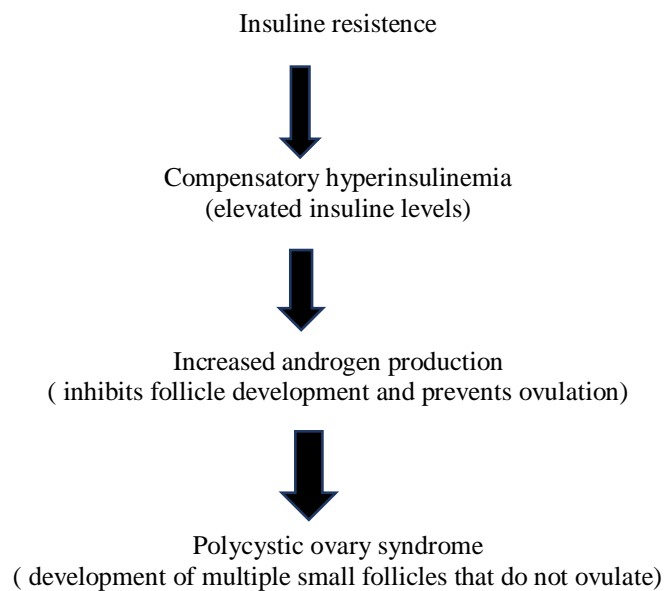
progesterone has a negative feedback effect on GnRH to reduce its frequency in normal range, which in turn keep LH and FSH at the correct ratio. PCOS occurs due to increase in the normal pulsatile GnRH release from the hypothalamus, & increase in GnRH pulse frequency seen in PCOS occurs due to the lack of high progesterone during luteal phase. If the follicles does not ovulate during the luteal phase a corpus luteum is not created and without corpus luteum there is no surge in progesterone. As a result the level of LH is more over FSH. FSH is needed to help a follicle mature to the point it can ovulate with PCOS LH is relatively higher & FSH is lower FSH results in follicles not mature enough to functional antral follicles that can ovulate. The follicles that don't ovulate are the cyst that form on the ovary with PCOS.

Fig.3. ovulation



In pcos androgen level is also high it stimulates visceral adipose tissue (VAT) that generate free fatty acid which contribute in insulin resistance.

Fig.4. Pathophysiology of PCOS



Types of PCOS: There are 4 types of PCOS & each require different types of treatment

- Insulin resistance PCOS
- Adrenal PCOS

- Inflammatory PCOS
 - Post pills PCOS
- Insulin resistance PCOS: it occurs in 70% cases of PCOS. This condition is called due to the

insulinoma means cell become numb to the effect of insuline. The symptoms of this conditoions are weight gain, sugar cravings and fatigue. Regular exercise and movemnt can help to treat this condition. For the managing insuline level avoid high sugar food, appropriate balance diet, reduce stress and sleep well can helpful.

Adrenal PCOS: It accounts around 10% of PCOS cases this mainly occurs in masive stressful periods. This type of PCOS marked indicators of high levels cortisol and DHEA(another type of androgen from adrenal gland). Managed stress, get enough sleep each night, avoid high intensity exercise, avoid caffine, can help to treat this type of PCOS.

Inflammatory PCOS: this type of PCOS mainly causes due to chronic inflammation which causes ovaries to make excess testosterone, that's result intoissues with ovulation and physical sumptoms. Headche, joint pain, skin issues, IBS symptoms of this type which occur due to inflammation.

Post pills PCOS: this type of PVCOS seems in women after stop taking oral contraceptiive pills. Symptoms like excess hair growth, acne, irregular periods. Low stress, good sleep, nutrients can help to treat this condition.

Diagnostic criteria:There is no definite test available for PCOS. PCOS is the difficult to diagnostic. It includes changing criteria & varying symptoms over time. Not all women with PCOS have polycystic ovaries (PCO), nor do all women with ovarian cysts have PCOS. A pelvic ultrasound is major diagnostic tool.

Here are some diagnotic criteria for PCOS:

NIH Criteria (1990):

- Menstrual irregularity due to anovulation or oligo - ovulation
- Evidence of clinical or biochemicalhyperandrogenism
 - Hirsutism,acne, male pattern baldness
 - High serum androgen levels
- Exclusion of other causes (CAH, tumors, hyperolactinemia)

Rotterdam criteria 2003 (2 out of 3)

- Menstrual irregularity due to anovulation oligo-ovulation
- Evidence of clinical or biochemical hyperandrogenism
- Polycystic ovaries by US

- 12 or more follicles measuring 2-9 mm in diameter
- Incresed ovarian volume (>10 cm³)
- Exclusion of other causes (CAH, tumors, hyperolactinemia)

Androgen excess society (2006):

- Hirsutism or hyperandrogenaemia
- Oligo-anovulation or polycystic ovaries
- Exclusion of androgen excess or related disorder

Other diagnostic criteria:

- Irregular menstrual cycle
- Clinical hyperandrogenism
- Biochemical hyperandrogenism
- Ultrasound and polycystic ovarian morphology
- Ethnic variation
- Anti-mullerian hormone(AMH)

Treatment of PCOS:

Treatment for PCOS generally starts with life changes like weight loss, diet & exercise. Advantage of losing 5 to 10 of your body weight

- Improve cholesterol situations
- Lower insulin
- Reduce heart complaint and diabetes threat

Common medical treatments

To regulate the menstrual cycle and treat PCOS symptoms like hair growth and acne Birth control and other drug are available

Birth control

Taking progestin daily can

- Restore a normal hormone balance
- Regulate ovulation
- Relieve symptoms like redundant growth
- Cover against endometrial cancer

Medicines used to treat PCOS

Metformin :

The metformin is used to ameliorate insulin resistance. and lowers insulin position. Metformin worked laterally by position with a drop in CYP17 cytochrome exertion which involved in product of androgen & decreases the testosterone. Metformin also reduces inflammation and complication related to gestation, when combined with clamiphene rate is increased in PCOS case.

Symptoms of PCOS:

The most common PCOS symptoms are:

- Irregular periods
- Heavy bleeding
- Hair growth
- Weight gain

- Male pattern baldness
- Darkening of the skin
- Headches
- Excess androgen
- Pelvic pain
- Mood channmges

Causes of PCOS:

The exact caused of redity nopt known but here are some some factors that might play a role.

- Heredity
 - High levels of androgen
 - High level of insuline
 - Stressed and environmental factors
1. Heredity: Inthe heredity, the PCOS runs into family. Certain genes might be link to PCOS
 2. High leved of androgens: androgens are called as male hormones. Women makes small amounts of androgens, while women with PCOS have more level of androgens. The ovaries produce abnormally high level of androgen. Androgen prevents ovaries from releasing an egg (ovulation) during menstrual cycle, resulting in hirsutism and acne.
 3. High level of insuline: In PCOS insulin blood level become higher than normal. Women in PCOS have insolence resistance especially in those women who have obesity, irregular diet and those who have family history of diabetes (type2)
 4. Stress and environmental factors: Poor quality diet and environmental chemicals lack of physical exercise can cause PCOS.

Complications:

- Cardiovascular problems
- Sleep apnea
- Type 2 diabetes
- Infertility
- Miscarriage
- Depression, anxiety
- Abnormal uterine bleeding

II. CONCLUSION:

PCOS is a complex condition. There is no specific treatment that directly cures the symptoms of PCOS but alternative use of certain medication can helpful for the treatment of PCOS. There are various factors that causes PCOS but central mechanism of PCOS is difficult to understand. PCOS have various complications in life which affect the healthy living. PCOS needs more reaserch

to the understand pathophysiology. Lifestyle changes can also help to treat PCOS.

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