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FAQs on PCOS (Polycystic Ovarian Syndrome)

1. What is PCOS?

PCOS is a complex endocrine metabolic disorder affecting women of childbearing age characterized by increased androgen production and ovulatory dysfunction.
PCOS is the leading cause of anovulatory infertility and hirsutism.

2. How many women have PCOS?

About 5 to 10% of all reproductive women have PCOS. It can occur in girls as young as 11 years old. Out of this

- 87% of women present with oligomennorhea
- 26% of women present with Amenorrhoea
- 50% of them present with infertility
- 50% women present with recurrent miscarriage

3. Does PCOS run in family?

There is no clear cut proof that PCOS is inherited but risk of developing PCOS is 40% if sister is affected and 10% if mother is affected. Both x linked and autosomal genes are responsible.

4. Is there a cure for PCOS?

No. At this time there is no cure for PCOS. It is a condition that is managed, rather than cured. The symptoms can be controlled and eliminated with proper treatment and can help reduce the risks of future health problems.

5. What are the diagnostic criteria of PCOS?

The current criteria for the diagnosis of PCOS are defined [Rotterdam consensus in 2003] as the presence of 2 out of following 3 criteria.

- Oligo and/or Anovulation (Irregular or absent Periods)
- Hyperandrogenism (Excess of male hormones in the form of Excess hair growth etc.)
- Polycystic ovaries on USG

6. What are the signs & symptoms of PCOS?

- Infrequent/absent menstrual periods, and/or irregular bleeding
- Infertility because of anovulation
- Pelvic pain

} Due to chronic Oestrogen excess

- Hirsutism - Increased hair growth on the face, chest, stomach, back, thumbs, or toes.
- Acne, oily skin or Dandruff (Seborrhea)
- Male pattern baldness or thinning hair (Alopecia)
- **Acanthosis Nigricans** - Patches of thickened and dark brown or black skin on the neck, arms, breasts or thighs
- Skin tags, or tiny excess flaps of skin in the armpits or neck area.

} Due to androgen excess

- Weight gain or Obesity, High blood pressure, high cholesterol level due to insulin resistance
- Anxiety or depression
- Sleep Apnea

7. Is there one definitive test to diagnosis PCOS?

At this time, there is no single definitive test for PCOS. This is because no exact cause of PCOS has been established yet. However, irregular menstrual cycles in adolescent girls are an early marker of PCOS and metabolic syndrome.

8. How should PCOS be diagnosed?

The diagnosis requires assimilation of information gathered from

- Symptoms
- Physical examination
  - Blood Pressure
  - BMI (>25 – Over weight and >30 – Obesity)
  - Waist circumference (>34 inches abnormal)
- Ultrasonography of the ovaries
- Various blood tests done on day 2 or day 3 (Fasting)
  - FBS & 2 hour glucose levels, GTT
  - Fasting Insulin levels
  - Serum Testosterone/17-OHP/DHEAS
  - LH/FSH ratio (LH levels higher than FSH levels)
  - LH and FSH levels
  - Prolactin, TSH
  - 24 hr. free Cortisol
  - Triglyceride levels (>150 mg/dl)
  - PAL – 1 [Plasmin Activator Inhibitor level]
  - SHBG

9. What are the sonographic Criteria for PCOS?

a) Multiple (>10), small (2-8 mm) peripheral Cysts
b) A dense core of stroma
c) Enlarged Ovaries [>8 ml]

10. Are PCOS and hypothyroid related?

Since many of the symptoms are the same, evaluation of the thyroid gland with a blood test for thyroid stimulating hormone (TSH) should be a part of the evaluation for PCOS.

11. What are the Health Risks of PCOS?

Women with PCOS have greater chances of developing several life threatening diseases like

- Endometrial Hyperplasia, Endometrial Cancer, ?Ovarian cancer, ?Breast Cancer (More likely to have hysterectomy)
- Blood pressure increases with increase in insulin level
- Coronary heart disease risk factors significantly increase (7.4 times than age matched controls)
- Increase TC, LDL-C, & TG with Insulin Resistance,
- Increased Risk of Diabetes Mellitus [3 to 7 times)

12. What is the treatment of PCOS?

Like diagnosis, there is no single treatment that fits all patients. Each patient requires a tailor made therapy designed for her. Life style modification (diet, exercise, behavioural management) are presently central to management of PCOS.

13. How is Adolescent PCOS managed?

- Most important is life style modification.
- Counseling for weight Reduction, Calorie restriction and exercise is the sheet anchor of treatment for overweight.

14. What type of diet should be taken?

- A diet low in saturated fat and high in fiber content. More of whole grains, plenty of fruits and vegetables. Low glycemic index diet upto 85% will improve menstrual cycle regularity and ovulation in about six months.

15. How much weight reduction and exercise will help in Adolescence PCOS?

- Even 7% weight reduction may lead to spontaneous resumption of menses.
- Moderate physical activity, 30-60 minutes per day should be goal of all patients with adolescent PCOS.
- Aerobic Exercise: 3-4x/wk. 25-30 min/session, Burns about 200 kcal, 40% improvement in insulin sensitivity within 48 hrs.
- Peripheral muscle cells metabolize 80% of glucose by weight training.

16. What is the treatment of menstrual irregularity in Adolescence PCOS?

- Mostly managed by OCPs
- MPA 10 mg/day or micronized progesterone 300 mg at bedtime for 10-14 days effective in Rx of abnormal bleeding.
- If oligomennorhea and amenorrhea does not respond to oral contraceptives and antiandrogen combinations, insulin sensitizing agents have to be added.
- A lean PCOS may also have insulin resistance and therefore if they do not respond to oral contraceptive dose, insulin sensitizing drug has to be added.
- Cyproterone acetate (Ideal for Hirsut PCOS, given for 6 month cyclically), Drospirenone (Ideal for Obese PCOS) and desogestrel can be used in combination with ethinyl estradiol.

17. What is the connection between insulin resistance and PCOS?

At least 30 percent of women with PCOS are insulin resistant. Hyperinsulinaemia works selectively on the ovaries and stimulates them to produce more androgen or male hormones which lead to formation of polycystic ovaries and ultimately leading to the syndrome.

18. Can lean women be insulin resistant or type II diabetic or have PCOS?

While insulin resistance is frequently accompanied by excess weight, there are thin women who are insulin resistant or type II diabetic. Unfortunately, lean women may not have as much success reducing insulin resistance through lifestyle changes as their overweight counterparts, but diet modifications and increased exercise often provide some benefit.

19. Which are the insulin sensitizers used?

- Metformin, Pioglitazone, D chiro inositol, Myoinositol, N acetyl cysteine, Micronutrients

20. What are the Advantages of Metformin in PCOS?

- Regularizes Menstrual Cycles, Enhances fertility by increasing the rate of ovulation
- Reduces early pregnancy loses.
- Helps reduce body weight
- Corrects dyslipidemia
- Reduces FBS, PPBS and occurrence of type II Diabetes by 31%
- Reduce Hirsutism and Acne
- Prevents the complications of PCOS like Diabetes and Endometrial Hyperplasia
- Reduces sleep disturbance and excessive day time sleepiness.

21. What is the dose of Metformin?

Dose: Begin with 1000 mg SR once a day or 500 mg SR twice a day and can be increased upto 2500 mg SR per day

S/E: Diarrhoea, nausea, vomiting, specially initially.

22. What is the treatment for hirsutism?

- Antiandrogen reduces hair growth and clears acne.

  E.g. Spironolactone - doses 100-200 mg daily

  Finasteride - a competitive inhibitor of type-2 5α reductase, Dose 1-5 mg/day.
- Both Drugs can be used in combination with OCPs.
- Antiandrogens will prevent further hair growth but the hair which has already grown, epilation, waxing, electrolysis or laser will help.

23. How is acne treated?

Acne may require oral antibiotics like Erythromycin and Isotretinoin ointment.

Acne also gets cleared in 6-9 months by use of OCP containing Cyproterone acetate.

24. How can one know the response to treatment?

- Resumption of menstrual cyclicity.
- Reduction in features of hyperandrogenicity.
- Improvement of biochemical parameters like reduction of free serum testosterone and normalization of fasting glucose insulin ratio.

25. Do all women with PCOS suffer from infertility?

No, all women with PCOS don't suffer from Infertility but about 50% do, especially if they have delayed or no periods.

26. Is it possible to have regular cycles without ovulating?

Yes, but the reasons for this happening are poorly understood. Some women seem to have a regular bleed regardless of ovulation, so one should look beyond cycle length to determine ovulation.

27. Is it necessary to have a menstrual period in amenorrhoic women with PCOS?

Yes. In severely oligomenorrhic/amenorrhoic women with PCOS, the endometrium is continuously exposed to estrogen so to protect the Endometrium, Progesterone (for at least 12 days)/OCPs induced withdrawal bleeding at regular intervals is required to reduce the risk of Endometrial Hyperplasia.

28. What is the line of management for PCOS patients with Infertility?

Step Approach

- If BMI is elevated loss of at least 5% to 7% of current body weight
- Vitamin D and Folic Acid supplementation will improve follicular development and ovarian health
- Ovulation induction with clomiphene Citrate (glucocorticoid if elevated DHEA-S)
- Clomiphene Citrate (CC) – start from day 2 or day 3 for 5 days, 50 mg/day to 200 mg/day, 80% ovulate, 60% become pregnant
- Insulin sensitizer as a single agent
- Insulin sensitizer in combination with clomiphene Citrate
- Letrazole/Anastrazole
- Gonadotropins - Low dose FSH/Recombined FSH(with careful monitoring, follicle scan, estradiol level)/HMG
- Gonadotrophin therapy and IUI

- Insulin sensitizer in combination with gonadotrophin therapy with IUI
- Androstenedione
- Laparoscopic Ovarian Drilling
- In vitro fertilization

29. What are the side effects of ovulation induction drugs?

a) There is an increased risk of multiple pregnancies
b) OHSS (Ovarian Hyperstimulation syndrome risk ↑es in PCOS patients)

30. Once patient becomes pregnant, what are the risks?

- Recurrent miscarriages 50%
- Gestational Diabetes risk increases
- Pregnancy induced Hypertension
- Intrauterine Growth retardation

31. Should metformin be continued in pregnancy?

In women with PCOS, continuous use of metformin during pregnancy significantly reduces the rate of miscarriage, gestational diabetes requiring insulin treatment and fetal growth restriction. No congenital anomaly, intrauterine death or stillbirth was reported and insulin sensitizers are perfectly safe in pregnancy.

32. Will pregnancy cure PCOS?

There is no cure for PCOS, but some women do have a normalization of cycles after a pregnancy. Those who had fertility problems may find it easier to get pregnant again.

33. Does surgical removal of cysts cure the PCOS?

No. Removal of cysts does not cure the problem.

34. What is the surgical treatment?

Laparoscopic ovarian drilling is done in patients who do not respond to medical line of treatment.

35. What is ovarian drilling?

The purpose of ovarian drilling is to reduce androgens and restore menses. It is done as a day care laparoscopic procedure. A small needle is used to make 4 punctures in the ovary. An electric current at 40 watts is passed through the needle for 4 secs. Often a small amount of cyst fluid can be seen escaping as the puncture is made. Spontaneous ovulation resumes following the drilling and the chances of conception in the next 6 months are very high.

36. Who benefits from ovarian drilling?

Clomiphene Citrate resistant, Slim, Anovulatory and Raised S.LH patients

37. What contraception is advised in PCOS after having one child?

OCP are the best option for them but if they wish to use other contraceptive then ensure 2 monthly withdrawals to avoid the long term complications of unopposed estrogen action on the endometrium.

38. What happens if PCOS develop in women who have completed their families (mature PCOS?

These patients are likely to develop Metabolic Syndrome.

- Type 2 Diabetes, Atherosclerosis, Hypertension, Coronary Artery Disease, Obesity
- Oligomennorhea/Amenorrhoea
- Increased incidence of Endometrial Cancer. (5.3 times increase)
- Sleep Apnea

39. What is the treatment in mature PCOS patients?

- life style modification, diet and exercises
- Insulin sensitizers, Statins/AntiDiabetic Drugs/Antihypertensives if needed

- OCP's/Progesterone for bleed
- Omega 3 and micronutrients
- Inositol or Myoinositol or n-actyl cysteine or alternative medicines

40. Does PCOS cause obesity, or does obesity cause PCOS?

In some ways, this question is akin to asking, "Which came first, the chicken or the egg?" since it isn't completely understood, but it appears more likely that PCOS comes first. Symptoms of PCOS may be lessened by weight loss, or increased by weight gain, but the syndrome is not caused by weight or body mass but it is definitely aggravated by it. There are lean women with PCOS. The insulin resistance that is common to PCOS may play a role in weight gain and the difficulty in losing any extra weight.

41. Are birth control pills safe for women and adolescents with PCOS?

There are a certain variety of pills now available in the market which contains some special ingredients like Cyproterone acetate which are perfect for women with PCOS. They not only provide contraceptive benefit but also are given to adolescent girls for treatment of excess facial hair and acne.

42. Will removal of ovaries cure PCOS?

At present, there is no cure for PCOS. The endocrine upset characterized by polycystic ovaries does not go away just because the ovaries are removed. Attention must be focused on why the ovary acted that way, and what signals called it to make 30 pellet-sized follicles at the same instant. It is possible that it might lessen symptoms, but it is a rather extreme approach that will not prove to be a cure.

43. What is the co - morbidities of PCOS?

- Insulin Resistence-30%
- Type II DM – 10%, Gestational Diabetes, Atherosclerosis
- Endometrial Hyperplasia/Atypia/Cancer
- Metabolic Syndrome/Syndrome X
- Sleep apnea (Snoring, Day time Fatigue/Somnolence)
- Depression
- Sexual Dysfunction

44. How can the emotional effects of PCOS be managed? Is it a social stigma?

Having PCOS can be difficult. Many women are embarrassed by their appearance. Others may worry about being able to get pregnant. Some women with PCOS have anxiety, depression and quality of life worsens. Getting treatment for PCOS can help with these concerns and help boost a woman's self-esteem.

According to Sir Winston Churchill, PCOS is

"An enigma wrapped in riddle and surrounded by mystery"