POLY CYSTIC OVARIAN SYNDROME
AND TREATMENT

Naeema Utman and Nasreen Ruby

Department of Gynaecology and Obstetrics,
Postgraduate Medical Institute,
Lady Reading Hospital, Peshawar.

Polycystic ovary syndrome is a condition characterized by disruption of the regular processes leading to anovulation and associated hyperandrogenemia, normal or elevated level of oestrogen, raised LH level and abnormal FSH: LEH ratio.¹

Polycystic ovary syndrome is usually defined as the presence of poly cystic ovaries (usually detected by ultrasound scan), plus any one of the classical symptoms and signs including oligo/amenorrhoea, obesity and hyperandrogenism i.e. acne, hirsutism and alopecia and/or biochemical disturbances such as raised level of serum testosterone, luteonising hormone and insulin.²

The ovaries are enlarge, tense and oval. The surface is smooth and white, tunica thick, tough and white. The cortex is fibrous surrounding ovarian stroma having multiple follicular cyst.

Microscopically the cyst shows hyperplasia of the theca interna cells with numerous atretic follicles. Primordial follicles are not present but are aligned immediately beneath the zona. Sign of ovulation is usually absent.³

CLINICAL PRESENTATION

Approximately 20% of women of reproductive age have poly cystic ovaries on ultrasound scan, and 10% have symptoms of poly cystic ovaries. While 30% of women presenting with infertility.⁴ Menstrual irregularities are common. After puberty the periods are normal for sometime, then they become irregular in the form of menometrorrhagia, oligomenorrhoea, prolonged periods and secondary amenorrhoea. These all because of anovulation which can be confirmed by basal body temperature chart and endometrial biopsy or day 21 progesterone level.⁵

35-60% of patients have obesity with poly cystic ovaries. 18-20% women show impaired glucose tolerance test while 60% shows type-2 diabetes and 60% have hyperinsulinemia and insulin resistance. The incidence of hypertension is three time more in these women. Abnormal fat metabolism is also seen.⁶⁷

Hirsutism is present in 25% of cases. Under developed breast and acne makes these women sexually unattractive. 85% patients have oligomenorrhoea and hirsutism together.⁸ The risk of miscarriage is also very high in PCO as compared to non PCO. There is 39-58% chances of first trimester abortion. More chance of Ca endometrium. There is reduce ability to dissolve blood clots due to high level of plasminogen activator inhibitor, leading to 10% increased risk of heart attack and stroke.⁹
BIOCHEMICAL CHARACTERISTIC

1. Estradiol are lower than esterone in the plasma.
2. Raised testosterone and other androgen.
3. Disturbed LH: FSH ratio under basal condition.
5. Normal or impaired positive and normal or negative feedback of LH in response to oestrogen.
6. Increase LH pulse frequency\textsuperscript{10,11}

INVESTIGATIONS

Trans-vaginal Ultrasound

Gold standard test showing neckless appearance of the follicle in ovary on scan\textsuperscript{12}

Laboratory Investigations

- Measurement of 17 hydroxy progesterone in early morning specimen.
- Serum FSH, LH, testosterone and SHBG ratio should be done
- DHEAS, androstenedione and 11 deoxycortisol level to differentiate the ovarian cause of hirsutism from adrenal
- Glucose tolerance test, and serial lipid measurement\textsuperscript{13,14}

Laparoscopy

The ovaries look 2-3 times larger than normal with multiple follicular cyst. Sometimes the poly cystic ovary is missed even on laparoscopy if grasping forceps is not use\textsuperscript{15}

TREATMENT

Treatment modalities should be according to the complaint of patients like;
- Menstrual irregularity.
- Hirsutism.
- Infertility.
- Others.

Oestrogen/Progestogen Preparation

In cases of unmarried patient or those who do not want pregnancy, preparation containing 100 ug or 50 ug of estrogen or 30 ugm ethinyle oestradiol with 1.5 mg nor ethisterone acetate have beneficial effect on suppressing L.H, androstenedione and testosterone level. They will regularise the menstruation\textsuperscript{16}

Hirsuitism

- Hormonal therapy
- Non-hormonal therapy

Hormonal Therapy

Oestrogen: Suppress gonadotrophin secretion, ovarian androgen and adrenal steroid biosynthesis. However if combination with non-androgenic progesterone is given for adequate duration then the results are excellent.

Anti-Androgen

Cyproterone acetate and ethinyle oestradiol

Cyproterone acetate is an anti-androgen, anti-gonadotrophic and have progestagenic activity. Very effective for hirsutism but care should be taken not to be given to
pregnant women because of side effect of male foetus feminisation. So combination with ethinyle oestradiol is given for contraceptive action.

Ethinyle estradiol is given from 5-26 day with C.A from 5-15 days. The dose of C.A is 50-100 mg while ethinyle estradiol is given initially in a dose of 50 ug.m. When hair growth regression occur then the dose is reduced to 30 ug.m daily.

The combination of estrogen is just to ensure the contraception.\(^\text{17}\)

**Spironolactone**

This is usually used continuously and generally with an anovulent in women of reproductive age. The dose is 100-200 mg and got anti-androgenic effect. Patient monitoring is must as it causes, postural hypotension, hyperkalemia and hypotension.\(^\text{18}\)

**Adrenal Suppression**

Dexamethasone in a dose of 0.25-0.5 mg or prednisone 5-7.5 mg or physiological dose of glucocorticoid is given at midnight to inhibit the morning surge of ACTH secretion and prevent androgen and glucocorticoid secretion. The side effect is weight gain which makes the obese women more obese.\(^\text{19}\)

**Non-Hormonal**

Plucking, use of depilatory cream, waxing, bleaching and local electrolysis can be used for hirsuitism.

**Treatment of Infertility**

As the cause of infertility is anovulation so ovulation induction should be done with the following:

---

**Clomiphene Citrate**

This is given in a daily dose of 50 mg and increased by 50 mg in subsequent cycle upto 250 mg. It is anti-estrogen. Chances of ovarian hyper-stimulation and development of large ovarian cyst is more with poly cystic ovary. Sometimes ovum is well developed but failed to ovulate in these cases.

Sometime human chorionic gonadotrophine hormone are given in combination with clomiphene in a dose of 3000-6000 i.u at 15\(^\text{th}\) day. Estrogen provocation test help in the identification of such patients.

The risk of multiple pregnancy is 5-7%.\(^\text{20,21}\)

**Gonadotrophin Therapy**

Second to clomiphene, the effective therapy is human menopausal gonadotrophine which are potent agent for ovulation. They are available in the form of pergonal which is combination of FSH and LH. They directly act on ovary causing maturation of follicles and release of ovum. The dose is 75 i.u of FSH and LH each, on every 3rd days if oestradiol level is not doubled or the ovum size is not increasing. When the size of follicles become 15-18 mm then HCG 5000 i.u should be given. However, it is not indicated when oestradiol level are more than 5500 pmol/L or more than 4 dominant follicles are present or size is more than 18 mm. The pregnancy rate is 25% and multiple pregnancy 4%, when two dominant follicles are present, compared to 18% when 3-4 dominant follicles are present.\(^\text{22}\)

**Gonadotrophine Releasing Hormone**

With the use of a decapetide which was used first in 1971, the initial results of this therapy were disappointing however
delivery in a pulstile fashion either intravenously or subcutaneously achieved 40-50% ovulation.

The dose is 5-10 ugm intravenously or 10-20 ugm S/C every 60-90 minutes. The interval is 90 minutes in first week increasing to 60 minutes in mid-follicular phase and 4 hourly for the remainder luteal phase. The pregnancy rate is 16 per cycle. Multiple pregnancy rate is 5-8%. No hyper-stimulation till date has been reported.22,24

Corticosteroid

Treatment with glucocorticoid in midnight dose of 0.25-0.5 mg is associated with 60% ovulatory rate. Higher rate of ovulation is achieved when combination therapy or clomiphine and dexamethasone are given.25,26

Surgical Therapy

Laparoscopic directed ovarian resection and laparoscopic ovarian electrocautery

This treatment is given in cases were medical treatment is contra-indicated like hyper-stimulation syndrome or where fiscal constrains preclude the availability of gonadotrophine. However chances of tubo-ovarian adhesion are there.27

Wedge Resection

No longer used as treatment option for poly cystic ovary. However certain well documented series shows ovulation and conception rate in excess of 80% and 66%.28

Others

1. Metformin therapy

A safe and effective therapy widely used in both diabetic and non diabetic patients. It increases the effectiveness of insulin at the peripheral cell level, reduces hyper insulinemia and also reduce the weight. It also help in lowering the BP and extra body hair. The dose is 1.5 to 2.5 gm per day. Can be used safely during pregnancy. It is contra indicated in renal failure.29,30,31

2. Weight reduction.
3. Stop smoking.
4. Regular blood pressure check up and treatment.
5. Exercise regularly.
6. Low cholesterol diet.32,33,34,35,36
7. Rezuline therapy

This can also be use effectively in a dose of 400 mg per day.

REFERENCES

7. Dale PO, Tabo T, Djaselend O, et al. Persistence of hyperinsulinaemia in
polycystic ovary syndrome after ovarian suppression by gonadotrophin releasing hormone agonist. Acta Endocrinol (Kbh) 1992; 126 : 132.


insulin action and ovarian steriodogenesis in women with PCO. J Clin Endocrinol Metab. 1997; 82: 524.


