Editorial

Polycystic Ovarian Disease! A Major Threat to our Population

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Polycystic ovarian disease is a huge problem in young girls in our country. It is difficult to counsel the patient or her family as the symptoms usually continue and are recurrent and no proper treatment is available as yet. Treatment is basically aimed at treatment of symptoms. There is no permanent cure and patient keeps on consulting one doctor after another. PCO is mainly a hormonal dysfunction where the metabolism of androgens and estrogens and the whole hypothalmo-pituitary-ovarian axis is disturbed. It is a disease of androgen excess in which mainly the free testosterone level rises. It is also associated with increased resistance to Insulin which causes low level of adiponectin, a hormone which regulates the lipid metabolism and glucose levels. LH is raised in follicular phase and this causes thickening of theca cells which produce androgens and because of low levels of FSH these are not aromatised to estrogens resulting in anovulation.

Polycystic ovarian disease was initially called Stein Levanthal Syndrome and various definitions have come up. The diagnostic criteria was variable. The latest guidelines have been issued in Nov'15 by American association of clinical endocrinologists (AACE), American college of endocrinology (ACE), and androgen excess and PCOS society (AES) [1]according to that:

- Diagnosis is based on the presence of any one of the following three criteria
  1. Anovulation(chronic)
  2. Hyperandrogenism
  3. Ultrasound diagnosis of polycystic ovaries I.e present of 12 or more follicles in at least one ovary measuring 2-9mm each.
- Do a serum 17alpha hydroxy progesterone and Anti Mullerian Hormonal level.
- Free testosterone level.
- Women after evaluation should be treated for reproduction and androgenization.
- First line therapy in young girls should be Metformin and/or combination therapy with OCPs or anti-androgenic agents.

In 1990 the national institute of child health and human disease (NICHD) of US proposed the following diagnosis.[2]

- Oligo-ovulation or anovulation manifested by oligomenorrhoea or amenorrhoea
- Hyperandrogenism (clinical/biochemical excess of androgens)
- Exclusion of other disorders

In 2003, the European society for human reproduction and embryology (ESHRE) and the American society of reproduction medicine (ASRM) recommended two of the three features are required for PCOS diagnosis:[3,4]

- Oligo-ovulation or anovulation manifested by oligomenorrhoea or amenorrhoea
- Hyperandrogenism (clinical/biochemical excess of androgens)
- Polycystic ovaries on ultrasonography.

In 2006 and later in 2009, androgen excess and PCOS society emphasized that PCOS should be considered a disorder of androgen excess.[5]

Society of obstetricians and gynaecologists of Canada indicated that a diagnosis of PCOS is by two of the three criteria when congenital adrenal hypoplasia, androgen secreting tumours or Cushing syndrome have been excluded:[2]

- Oligo-ovulation or anovulation manifested by oligomenorrhoea or amenorrhoea
- Hyperandrogenism (clinical/biochemical excess of androgens)

- Polycystic ovaries on ultrasonography (greater than 12 follicles in one ovary measuring 2-9mm each).

Signs and symptoms of PCOS are mainly due to anovulation, androgenization and increased insulin resistance and include:

1. Menstrual Irregularity,
2. Subfertility
3. Hirsutism
4. Acne
5. Hair Fall
6. Obesity
7. Metabolic Syndrome
8. Diabetes Mellitus
9. Obstructive Sleep Apnea

Ovaries may or may not be typical polycystic, it is a disease of exclusion. Important things to be excluded are adrenal and ovarian tumours, thyroid dysfunction, congenital adrenal hyperplasia, hyper prolactinaemia, acromegaly and Cushing syndrome.[6]

For exclusion the following tests should be performed: [7]
TSH, free thyroxine

- Prolactin levels
- Total and free testosterone levels
- Free androgen index
- HCG
- 17alpha hydroxy progesterone
- Urinary free cortisol and creatinine levels
- IGF-1 level
- Blood glucose level
- FSH and LH
- Androstenedione levels
- Fasting insulin levels
- Lipid profile
- TVS
- CT and MRI especially if adrenal pathology is suspected
- Endometrial biopsy

Management involves management of the symptoms and prevention of long term effects such as diabetes mellitus, hypertension, sleep apnea, cardiovascular accidents and endometrial CA.
First line treatment for all PCOS ranging from mild to severe is lifestyle modification with diet, exercise and weight loss.[2] Even 10% weight loss has a very good effect on fertility and symptoms.
After the initial advice of lifestyle modifications further treatment depends on age and symptoms of the patient so different scenarios are considered:

1- Young girls with less frequent menses: If four bleeds occur in a year then no further treatment is required and patient should be counselled regarding the long term risks.
2- In young girls with heavy menstrual bleeding or irregular prolonged cycles: Treatment of choice is OCPs or progesterone with lifestyle modification and counselling.
3- If the same symptoms are combined with androgenic effects then treatment of choice is metformin and drugs having anti-androgenic affects.
4- If she wants conception then both partners should be fully investigated and induction of ovulation is treatment of choice.
5- If however contraception is needed then OCPs should be preferred and
6- For prevention of long term side effects, lifestyle modifications and a constant watch for diabetes mellitus, hypertension and lipid profile is done on an yearly basis.[8]
7- Endometrial CA should be prevented by inducing at least 4 menstrual bleeds in a year.[9]
8- For hirsutism permanent hair removal methods should be adopted.
9- If however the symptoms are not cured by any of these treatments then surgery remains the only choice which is either ovarian drilling or wedge resection however it may destroy more than the desired ovarian tissue.

There is an array of biochemical, clinical and endocrinological effect and the condition is now called polycystic ovarian syndrome (previously stein levanthal syndrome) although called PCO, yet the presence of polycystic ovaries is not an essential criteria for diagnosis.
It is important for the nation to understand the importance of healthy life style, healthy food and nutrition and regular exercise to prevent the short and long term complications associated with obesity and PCOS.

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