PCOS: Effective Identification, Education, and Treatment of Patients to Improve Quality of Life

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Lecture Objectives

1. Diagnostic criteria to identify females with PCOS.
2. Impact of PCOS on female reproductive, metabolic, cardiovascular, and psychological health.
3. Treatment options for females with PCOS.
4. Nonpharmacologic therapies for females with PCOS.

PCOS – What’s in a name?

It’s not just the ovaries!
“PCOS: Effective Identification, Education, and Treatment of Patients to Improve Quality of Life”
Diana L. Speelman, PhD

PCOS is the most common hormone disorder in women

- Key defining features of PCOS:
  1. Hyperandrogenism (HA)
  2. Menstrual irregularity
  3. Polycystic ovaries (PCO)

- Exclusion of other hormone disorders
  - Thyroid dysfunction, adrenal or ovarian tumors, congenital adrenal hyperplasia, hyperprolactinemia, Cushing syndrome, acromegaly

  The cause of PCOS remains unknown!

Different PCOS phenotypes

Each phenotype may present as mild to severe. Obesity increases the severity of PCOS presentation.

1. Hyperandrogenism
   - Clinical findings
     - Acne
     - Androgen alopecia
     - Hirsutism
   - Biochemical findings: ↑ free or total T, androstenedione, DHEA

2. Menstrual irregularity
   - Clinical findings
     - Amenorrhea
     - Oligomenorrhea
   - Biochemical findings: ↓ LH, ↑ FSH

3. Polycystic ovaries
   - Clinical findings
     -增大卵巢
     - Ovarian cysts
   - Biochemical findings: ↑ LH, ↓ FSH

The Rotterdam criteria is most often used to diagnose PCOS.

Table 1. PCOS Phenotypes According to Diagnostic Criteria Applied

<table>
<thead>
<tr>
<th>HA &amp; And</th>
<th>HA &amp; PCO</th>
<th>And &amp; PCO</th>
<th>HA</th>
<th>PCO</th>
<th>And</th>
</tr>
</thead>
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2013 Dunaif & Fauser, JCEM

POFPS 42nd Annual CME Symposium
August 4-6, 2017
2. Menstrual irregularity

- Ovulation dictates a normal, 28-day menstrual cycle
- With PCOS, cycles are typically >35 days and unpredictable

### Delayed or failure to ovulate in PCOS

No ovulation = no rise in progesterone.

Therefore period doesn’t come on time to start a new cycle and cycles are >28 days (usually >35 days)

3. Polycystic Ovaries

Despite the name of the syndrome, PCO are not an absolute requirement for diagnosis if androgen excess and ovulatory dysfunction are present.
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Excess androgens
Irregular menses
PCO

IT’S MORE THAN JUST IRREGULAR PERIODS AND ANNOYING HAIRS AND PIMPLES

PCOS impacts multiple aspects of female health

Reproductive Health
- Irregular menstrual cycles
- Subfertility
- Greater miscarriage rate

Contrary to popular belief, menstrual frequency in adolescents should normalize in ~1–2 years; cycles >42 days in adolescent females are associated with metabolic dysfunction.
2011 Morrison JA et al, Fertility & Sterility
PCOS impacts multiple aspects of female health

**Hormone Health**
- Excess androgens
  - Acne
  - Hirsutism
  - Male-pattern hair loss
- Excess insulin
- Abnormal levels of adipose (fat) tissue hormones
- Excess estrogen can promote endometrial hyperplasia and carcinoma

**Metabolic Health**
- Weight gain and obesity
- Dyslipidemia
- Greater cardiovascular risk
- Insulin resistance, diabetes

**Psychological Health**
- Anxiety and depression
  - Also increased sympathetic tone
Effects of PCOS on women’s health

- Genital
- Hormonal changes
- Obesity associated hormonal changes
- Anovulation
- Cholesterol follicles
- Hyperinsulinemia
- Menstrual abnormalities
- Endometrial cancer
- Psychosocial issues: body image, self-esteem, depression, anxiety

Effects of PCOS across lifespan

- Prevalent
- Childhood
- Adolescence
- Reproductive
- Postmenopausal

- Reproductive
- 
- Hyperinsulinemia
- Impaired glucose tolerance
- Type 2 diabetes
- Cardiovascular disease

The importance of early detection

- Prevalence
- Earlier detection to improve delivery of care
- Pediatricians, internists, family practitioners
- Multiple impacts on health
- Interventions for long-term risk reduction
- Improved quality of life

PCOS greatly increases the risk of developing T2D.
Living With & Managing PCOS

- Reproductive
  - Weight loss
  - Birth control pills
  - Ovulation inducer

- Hormonal
  - Weight loss
  - Birth control pills
  - Anti-androgens

Obesity is known to exacerbate the severity of PCOS presentation.

- Metabolic
  - Weight loss
  - Dietary modification (especially low-carb)
  - Exercise
  - Insulin sensitizers

- Psychological
  - Stress management
  - Counseling

Non-pharmacologic approaches to manage PCOS and improve quality of life

- Dietary
- Exercise
- Yoga
- OMM
- Community

In summary...

- PCOS is the most common hormone disorder in women
  - Early adolescence through menopause
  - Cause unknown
- Diagnostic criteria are 2/3: HA, menstrual irregularity, PCO
- Greater risk of T2D, metabolic dysfunction, anxiety, depression
- Early detection is key!
  - Diet, exercise, hormonal regulation, support