Polycystic Ovary Syndrome

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OUTLINE

• Prevalence
• Signs and symptoms
• Major competing clinical issues
• Non metabolic therapies
• Metabolic therapies
ANDROGEN EXCESS

10% of all women
30% of some subgroups
Prevalence of Androgen Disorders in Clinical Practice

- **Acne**
  - most teens
  - ~25% 35yrs-menopause

- **Hirsutism**
  - Upper lip ~35% reproductive years
  - Chin and facial ~8-10%

- **Androgenic Alopecia**
  - 23-87% all men and women

- **Congenital Adrenal Hyperplasia**
  - Afflicts 1/14,000
  - Alaskans, American Indians, Hispanics, Ashkenazi Jews, Yugoslavians
PCOS

- Presents - elevated triglyceride (TG) level
- Recently placed on ‘birth control pills’
- Irregular periods problems controlling her weight
- Acne & Hirsutism

- Cosmetic
- Fertility
- Cardiometabolic
- Endometrial Cancer
PCOS

- Intermittent exercise
- No specific diet
- Family members overweight
- Fam. Hx premature CVD

- Cardiometabolic
PCOS

- Chol 270 mg/dL, TGs 620 mg/dL, HDL 30 mg/dL
- nonHDL Cholesterol 240 mg/dL
- CMP nl., Glucose 119 mg/dL

- Cardiometabolic
PCOS

- BMI 31
- Waist = 36 “Caucasian
- BP 136/88
- Skin tags, acanthosis nigricans, hirsutism
- CMP nl. Glucose 119 mg/dL

- Cardiometabolic
- Cosmetic
Androgen Excess: Why Identify?

• Treat presenting Sxs
• Avoid exacerbation of clinical/sub-clinical condition
• Reduce the psychosocial Impact
• Diminish progression of masculinization
• Minimize related long-term health effects
Why Identify Androgen Excess?

• Rule out ovarian or adrenal tumor, Cushing’s Syndrome
• Infertility
• Interrupt continuum of disease progression
  – Hypertension
  – Diabetes
  – ASCVD
  – Endometrial Cancer
Think Androgens
PCOS Diagnostic Challenge

• Varied Individual Responses
  – Level of androgen
  – Target organ sensitivity
  – Labs don’t correlate

• Exogenous Androgen
  – Anticonvulsants
  – Danazol
  – Androgenic progestins
  – Anabolic steroids
  – Ace inhibitors
# Laboratory Findings in Women With Androgen Excess

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<th>Proportion</th>
<th>Androgen Production</th>
<th>[Plasma]</th>
<th>MCR</th>
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Polycystic Ovaries

Left ovary

Right ovary
Criteria for PCOS
2 of 3

androgen excess – clinical or biochemical
irregular menstrual intervals, <21 or >36 days
polycystic ovaries by vaginal ultrasound
½ obese
PCOS

- Presents - elevated triglyceride (TG) level
- Recently placed on ‘birth control pills’
- Irregular periods problems controlling her weight
- Acne & Hirsutism

- Cosmetic
- Infertility
- Contraception
- Cardiometabolic
- Endometrial Cancer
- Mood disorders
PCOS - Cosmetic

- Other meds?
- A higher estrogenic 35 mcg, lower androgenic progestin OC works best
- Progestin only
- Prevents endometrial cancer
- Spironolactone, Finasteride, combinations
  Takes 6-9 mos.
- 5 alpha reductase in hair follicles
- Contraceptive need?
- Laser, electrolysis, shaving, plucking
Time Required for Improvement

• Acne
  – 2-8 weeks, decrease new lesions
  – One year
  – Multifactorial
    • Androgen driven sebum production
    • inflammatory

• Hirsutism
  – 3-4 mos. Slower the growth
  – 6-12 mos. to decrease area coverage, darkness, thickness & stiffness

• Alopecia
  – 2-6 weeks, reduced shedding, healthier
  – 6-24 mos. partial regrowth
PCOS Hirsutism Treatment: Skin and Hair Manifestations

- Local Methods
  - Acne
    - Anti-bacterials
    - Retinoic acid
    - OTC
  - Alopecia
    - Minoxidil
    - Dark hair spray
    - Styling
    - wig

- Hirsutism
  - Plucking
  - Bleaching
  - Depilatory
  - Waxing
  - Shaving
  - Electrolysis
PCOS - Pharmacological treatments

- Androgen antagonists: almost always necessary: except acne
- Choice
  - OC (that decrease free T)
  - Spironolactone
  - OC + S
  - Metformin
  - Finasteride
  - GnRHa
  - Flutamide
PCOS Fertility

- Ovulation induction
  - Clomiphene, aromatase inhibitors, metformin
  - Gestational diabetes, toxemia, prematurity, stillborn, NICU admissions, childhood obesity, metabolic syndrome in adulthood

- Menopause
  - Weight gain, central obesity, atherosclerosis
  - Menses regulate
  - Contraception

- Post Menopause
  - Diabetes, CHD, Stroke
  - Earlier mortality
PCOS Mood Disorders

• PCOS Quality of Life Inventory
  – Becks Depression Inventory

• Depression and Anxiety assessment

• Weight neutral medication alternatives
PCOS - Cardiometabolic

• Metabolic syndrome
  • Diabetes Screen, Treatment
    – 2 hr. pp. glucose
    – At risk any age
    – Most common reason for hypertriglyceridemia
    – Metformin, Glitazones

• Lifestyle Management
  Weight loss readiness
  Stages of change
  Depression screen
  Nutritionist
Hypertriglyceridemia

• Metabolic Syndrome
  – Statins, Fish Oil, Fibrates
    • Category x, category C
  – Contraception

• Genetic Disorders of Triglycerides
  – Chylomicronemia
    • Lipoprotein lipase deficiency
    • Apo CII deficiency
  – Familial combined dyslipidemia
    • Overproduction of Apo B-100
  – Familial hypertriglyceridemia
    • Large VLDL particles
    • Minimal ↑ CAD risk
  – Type III dyslipidemia
Take Home

• Androgen excess: Multi-system
• Long term consequences CVD, Diabetes, Cancer
• Select therapy to decrease androgenicity
• One androgen manifestation - look for others
• Diagnose early - treat continually
• One ounce of prevention = 1 lb of cure
Management of PCOS

It’s a team approach!
References

• Assessment of cardiovascular risk and prevention of cardiovascular disease in women with the polycystic ovary syndrome: a consensus statement by the Androgen Excess and Polycystic Ovary Syndrome (AE-PCOS) Society Wild, R.A. JCEM 95(5):2038-2049

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