Insulin Resistance and PCOS: A not uncommon reproductive disorder

Joyce L. Ross, MSN, CRNP, CS, FNLA, FPCNA
Diplomate Accreditation Council for Clinical Lipidology
President Preventive Cardiovascular Nurses Association
Consultative Education Specialist, Cardiovascular Risk Intervention
University of Pennsylvania Health System– Retired
Philadelphia, Pennsylvania
jlrossnp.com
Case Study
18 year old college freshman

• SA presents to the cardiovascular risk intervention program for evaluation and treatment recommendations for her elevated triglyceride (TG) level
• She is heading off to college and was recently placed on birth control pills
• Reports that she has been generally healthy, although has ongoing issues with her irregular periods and problems with controlling her weight
Case Study Continued

• Only medication at presentation is her new birth control pill which contains estrogen
• She reports only intermittent exercise now, but had played sports in her freshman and sophomore years in high school
• She follows no specific diet and reports that most of her family members are overweight and that it “runs in the family”
Other Health History

• Denies HTN, DM, thyroid disease
• Reports some intermittent joint and muscle problems, nothing ever diagnosed
• Gets H/A’s a few times per week, takes tylenol with good effect
• Ongoing issues with acne which is followed by a dermatologist
• Is annoyed by some unusual hair growth on her face, feels that it looks like sideburns and hair is heavier than her friends above the lip
• No cardiovascular s/s but has family history of premature heart disease
Laboratory results

• PCP had blood work scheduled for 2 weeks prior to her appointment which is a 2 month follow-up after starting her OC.
• The labs were found to be very different from her normal ranges, especially her lipids and he felt they were likely a lab error.
• When repeat labs were completed with little change she was referred for evaluation and treatment recommendations.
• Total Chol. = 270, TGs = 620, HDL = 30, Non HDL = 240
• No direct LDL drawn, Glucose 119 which she now remembers has been in this area over many years, liver & kidney function WNL
Physical Examination

- Pleasant and alert young woman, in no apparent distress
- Height = 5’2”, weight = 168, BMI = 31
- Waist circumference = 36”
- Blood pressure = 136/88
- Normal cardiac and respiratory exam
- Skin: multiple skin tags, acne to face and neck, hirsutism
- Abdominal exam unremarkable
- No other remarkable physical findings noted
Differential Diagnosis

- PCOS
- Hypertriglyceridemia
- Metabolic Syndrome
- Obesity
- Cushing's Syndrome
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• No cardiovascular s/s but has family history of premature heart disease
Laboratory results

• Her primary care provider had blood work drawn prior to her visit. She had labs 2 weeks prior after the birth control pills started and he felt they were likely wrong. When new labs were received he referred her for evaluation

• Total Chol. = 270  TGs = 620
  HDL = 30  Non HDL = 240  No direct LDL drawn, Glucose 119 which she now remembers has been in this area over many years, liver & kidney function WNL
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Diagnosis

• PCOS                      yes
• Hypertrygliceridemia      yes
• Metabolic Syndrome        yes
• Obesity                   yes

Can make presumptive diagnosis all of the above but will need to clarify some studies and add others
Management of PCOS

It’s a team approach!
Case Study
19 year old college freshman

- Dyslipidemia
- Impaired glucose
- High Blood Pressure
- Birth control pills
  - birth control pill that contained estrogen
- irregular periods
- Weight/obesity
- Exercise
- Acne
- Unusual hair growth on her face

• Diagnosis:
  - PCOS
  - Metabolic Syndrome
  - Dyslipidemia
  - Obesity

• Treatment Plan
  - Lifestyle Management
  - Hormonal Intervention
Approaches to Therapy for PCOS is similar to that of Metabolic Syndrome

I. Lifestyle modification (weight loss, increased activity)

II. Treat existing risk factors
   a) BP control, smoking cessation
   b) LDL-C < 70 mg/dl (non HDL-C < 100) reasonable in CHD patients; LDL-C < 100 mg/dL reasonable for high risk primary prevention patients

III. Insulin sensitizing therapies (metformin, TZD) in non-diabetic subjects
   a) Reasonable if impaired fasting glucose
   b) May be reasonable if A1C 6 – 6.5%

IV. The major difference is the addition of hormonal contraception for the patient with PCOS

TZD = Thiazolidinediones
The Future for SA

• Marriage
• Children
• Menopause
• Post-Menopause
PCOS: Changing Paradigm
Reproductive vs Metabolic Issues

<table>
<thead>
<tr>
<th>Younger</th>
<th>Older</th>
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<tbody>
<tr>
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<td>• Infertility</td>
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Slide courtesy of Mimi Secor, MS, M.Ed, FNP-BC, FAANP
PCOS and Pregnancy Risks: Obesity is a “Ticking Time Bomb” for Reproductive Health

- Infertility: 40% female/PCOS
- Spontaneous Abortion /SAB, (25-73%)
- Gestational Diabetes (3 x increased risk)
- Preeclampsia/Hypertension