Infertility for the Primary Care Provider

David A. Forstein, DO FACOOG
Clinical Associate Professor
Obstetrics and Gynecology
University of South Carolina School of Medicine
Greenville
Disclosure

• I have no meaningful conflicts to report

• I will discuss the off-label use of metformin and letrozole
The MARS System

• How many of you evaluate patients with infertility at the current time?
Learning Objectives

1. Describe etiologies and initial workup of infertility

2. Formulate a patient-centered and evidence-based treatment plan

3. Focus on issues of particular importance to the PCP such as prevention, therapeutic lifestyle changes, health maintenance, and when to refer to a specialist
The Patient

• A 25 year-old caucasian women comes to see you stating that she and her 27 year-old husband have been unable to get pregnant despite her being off the pill for 6 months. Do you:

1. Take a history
2. Start her on PNV
3. Make a referral to an OBGYN or REI
4. Tell her to keep trying for 6 more months
Outline

• Basic Demographics
• Evaluation of Female Infertility
• Evaluation of Male Infertility
• Treatment Options
• The bells and whistles
• Conclusions
Conceiving A Baby: It’s not always as easy as people think
Fertility Rates Among All Couples Trying to Get Pregnant

- 1 Month: 25%
- 6 Months: 60%
- 12 Months: 85%
Fertility Decreases with Age

Age and Pregnancy within 6 Months
Concern with Fertility

• 1 in 6 reproductive age women seek infertility care

• 15% (9.3 million women) received fertility care
  – 1% of reproductive age women used ART
  – 3% of reproductive age women used ovulation drugs

• Infertility rates increased significantly between 1988 and 1995

Definition of Infertility

• Under 35:
  – Failure to conceive after 1 year of trying

• Over 35:
  – Failure to conceive after 6 months of trying
Infertility Affects Men and Women Almost Equally

- Female: 40%
- Male: 40%
- Unexplained: 10%
- Combined: 10%
Causes of Female Infertility

1. Ovulatory Factor
2. Tubal Factor
3. Uterine Factor
4. Endometriosis
Reproductive Hormones

Hypothalamus

Pituitary

GnRH

OVARY

Estrogen & Inhibin

LH/FSH

Reproductive Hormones

LH/FSH

Estrogen & Inhibin

GnRH
Evaluation of Female Infertility in the Primary Care Office

• History
  – Menstrual history
  – Prior pregnancies
  – Prior pelvic surgery or infections
  – Medical history/ROS
    • Thyroid disease
    • Diabetes/Insulin Resistance
Evaluation of Female Infertility in the Primary Care Office

• Physical Exam
  – BMI
  – Thyroid
  – Acanthosis Nigricans
  – Breast
  – Pelvic
Evaluation of Female Infertility in the Primary Care Office

• Tests for Ovulation
  – Basal Body Temperature
  – Ovulation Predictor Kits
  – Luteal Phase Progesterone Level
  – Endometrial Biopsy
Basal Body Temperature Charts
Tubal Factor Infertility

- Hysterosalpingogram (HSG)
- Laparoscopy
- Ultrasound
Hysterosalpingogram
Endometriosis

• Endometrial glands and stroma growing outside the uterus

• Lesions appear
  – Black
  – Red
  – White
  – Clear
Evaluation of Male Infertility

• Semen Analysis
• History and Physical Exam
  – Steroids
Semen Analysis

- Volume: 1.5-5.5ml
- Count: >15 million/ml
- Motility: >40%
- Morphology: >4% Normal forms
Sperm Morphology

Normal Oval-Form

Abnormal Sperm
Causes of Male Infertility

- Varicocele: 55%
- Viscosity: 7%
- Testicular Failure: 14%
- Obstruction: 9%
- Cryptorchid: 9%
- Semen Volume: 6%
Treatment Options in the Primary Care Setting

- Make a good diagnosis
- Don’t forget prenatal vitamins
- Review medications for pregnancy contraindications

- Treat Ovulatory Dysfunction
Clomiphene Citrate

OCH$_2$-CH$_2$-N(C$_2$H$_5$)$_2$ • C$_6$H$_8$O$_7$
Ovulatory Cycles in Which Pregnancies Occurred

<table>
<thead>
<tr>
<th>Cycle number</th>
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<tr>
<td>≥6</td>
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Letrozole
PCOS Evaluation - Laboratory

• Metabolic abnormalities
  – 2 hour GTT
  – Fasting lipid levels

• Androgens
  – DHEAs
  – Total Testosterone
Obesity Trends* Among U.S. Adults
BRFSS, 1985
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Effect of Short-Term Diet and Exercise on Hormone Levels and Menses in Obese, Infertile Women

Paul B. Miller, M.D., David A. Forstein, D.O., and Sheena Styles, R.N.
Results

• 2 women with amenorrhea at baseline conceived during the 12 week follow-up period
The Bells and Whistles

• Prenatal vitamins

• Ethnicity appropriate genetic screening
  – Pan ethnic screening panels

• Consideration of Referral for IVF
## 2016 GHS ART Success Rates by Patient Age Group

<table>
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<tr>
<td><strong>Preg Rate</strong></td>
<td>65%</td>
<td>58%</td>
<td>71%</td>
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Conclusions

• The most common causes of infertility
  – Ovulatory Factor
  – Tubal Factor
  – Uterine Factor
  – Endometriosis
  – Male Factor

• The basic evaluation and treatment are in the scope of practice for most primary care providers

• Timing of Referral
  – After a basic workup/a few cycles of Clomiphene or Letrozole
  – For evaluation of tubal, uterine, male factor or endometriosis