Evaluation & Treatment for Infertility

A BASIC APPROACH FOR THE GENERAL GYNECOLOGIST
The inability to conceive after 1 year of unprotected intercourse for women below 35 years of age or after 6 months for women 35 years of age or older. ¹,²
INFERTILITY

- 6.7 million women or 11% of the reproductive-age population affected
- Men & women affected equally
EVALUATION
EVALUATION: Female History

- Obstetrical History: G’s and P’s, outcomes, complications
- Menstrual history: menarche, cycle duration, flow, dysmenorrhea, LH predictor kits
- Contraception: prior/recent methods and duration of use
- Coitus: frequency, timing
- Infertility: duration, previous evaluations or treatment
- Other past medical history: cervical dysplasia, STDs, past or present disease
- Surgical history
- Social history
- Family history: history of infertility, birth defects or mental retardation
- ROS: dyspareunia, hirsutism, galactorrhea, or symptoms indicating thyroid dysfunction
- Vaccination history
EVALUATION: Female Physical

- BMI
- Thyroid exam
- Breast exam
- Androgen excess
- Insulin resistance
- Abdominal and pelvic exam
  - Uterine size, shape, mobility
  - Signs of STDs
  - Adnexa
Evaluation: Male

- Reproductive history
  - Coital timing and frequency
  - Time interval of infertility (including prior attempts)
  - Genital injuries, development and toxic exposures
  - Medical history (major childhood illness and current)

- Semen analysis x 2 at least one month apart

- Physical exam: if anything abnormal, if unexplained infertility or persistent infertility despite treatment of female factor
  - Refer to urologist

- 20% solely due to male factor
  - But up to 40% in part due to male factor

\(^3,4\)
EVALUATION: Who needs it?¹

- Diagnosis of infertility with desire to become pregnant
- Oligomenorrhea or amenorrhea
- Diagnosis or concerns of uterine or tubal disease
- Diagnosis or concerns of endometriosis
- Known infertility or subfertility of partner
EVALUATION: Where to Start?[^1]

"Systematic"  "Patient’s age"

Autonomy

"Cost-effective"  least invasive for most common causes
EVALUATION: A SYSTEMATIC APPROACH

Evaluation: Ovarian & Tubal Factors

- Ovarian factors
  - FSH/Estradiol day 3, TSH, AMH, pelvic sonogram
  - Up to 40% due to ovulatory dysfunction

- Tubal factors:
  - Hysterosalpingogram (HSG) & laparoscopy with chromotubation
Evaluation: Ovarian & Tubal Factors

- Uterine factors:
  - Hysterosalpingogram, sonohysterogram, hysteroscopy (definitive)

- Peritoneal factors:
  - Ultrasound or laparoscopy
TREATMENT
**TREATMENT: Lifestyle**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact on fertility</th>
<th>Study</th>
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<tbody>
<tr>
<td>Obesity (BMI &gt;35)</td>
<td>Time to conception increased two-fold</td>
<td>Hassan and Killick, 2004 (72)</td>
</tr>
<tr>
<td>Underweight (BMI &lt;19)</td>
<td>Time to conception increased four-fold</td>
<td>Hassan and Killick, 2004 (72)</td>
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<tr>
<td>Smoking</td>
<td>RR of infertility increased 60%</td>
<td>Clark et al., 1998 (37)</td>
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<tr>
<td>Alcohol (&gt;2 drinks/day)</td>
<td>RR of infertility increased 60%</td>
<td>Eggert et al., 2004 (48)</td>
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<tr>
<td>Caffeine (&gt;250 mg/day)</td>
<td>Fecundability decreased 45%</td>
<td>Wilcox et al., 1988 (53)</td>
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<tr>
<td>Illicit drugs</td>
<td>RR of infertility increased 70%</td>
<td>Mueller et al., 1990 (59)</td>
</tr>
<tr>
<td>Toxins, solvents</td>
<td>RR of infertility increased 40%</td>
<td>Hruska et al., 2000 (62)</td>
</tr>
</tbody>
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*Note: BMI = body mass index; RR = relative risk.*

TREATMENT: Fertile Window

- Intercourse frequency optimal at 1-2 day, worst at >10 days.

- Fertile Window: 6 days before and up to ovulation

- Ovulation prediction: LH surge kits, slippery cervical mucous, basal body temperature
Treatment: Age is the Biggest Factor

FIGURE 1

Modified from Menken, Trussell, and Larsen (5). The 10 populations (in descending order at age 20 to 24) are Hutterites, marriages 1921–30 (solid triangles); Geneva bourgeoisie, husbands born 1600–49 (solid squares); Canada, marriages 1700–30 (solid circles); Normandy, marriages 1780–90 (open circles); Hutterites, marriages before 1921 (open squares); Tunis, marriages of Europeans 1840–89 (open triangles); Normandy, marriages 1674–1742 (solid circles); Norway, marriages 1874–76 (open squares); Iran, village marriages, 1940–50 (solid triangles); Geneva bourgeoisie, husbands born before 1600 (open circles).

Rate of pregnancy per 1000 women

Age of female (yr)

TREATMENT: Ovulation Induction

- Used for patients with ovulatory dysfunction (after treatment of hypothalamic/pituitary disease) or unexplained fertility
- Clomiphene Citrate (CC) or letrozole with timed intercourse or IUI
  - day 3 through 7 of cycle
  - SE: "multiple gestation, occasional headaches, depression, mood swings, ovarian cysts, pelvic discomfort and blurred vision"
  - Letrozole black box warning for birth defects
- Insulin-sensitizing: Metformin
  - SE: "GI upset, lactic acidosis, liver dysfunction"
  - Can also combine with CC for increased ovulation induction
TREATMENT: Tubal Factors

- HSG can sometimes open minor tubal blockage. Refer to REI if blockage present or hydrosalpinx found.
TREATMENT: Uterine Factors

- Myomas
  - Unless submucosal, unlikely the primary cause\(^7\)
  - Can impact fertility if large & interfere with cavity\(^7\)
  - Medical treatment does not improve infertility\(^7\)
- Uterine polyps - remove under direct visualization
- Uterine septum - refer
Treatment: Peritoneal Factors

- **Endometriosis:**
  - Oral contraceptives and GnRH agonist are ineffective
  - Surgical management on stage I & II helps but NNT=12-40
  - Endometrioma: excision (%60.9 pregnancy rate) superior to drainage alone (%23.4 pregnancy)
  - Avoid repetitive surgery
TREATMENT: Unexplained

- Accounts for up to 30%
- Fecundity ranges from 1.8 to 3.8%
- Early referral is key
- IUI preferred for unexplained infertility
- Ok to try 3 rounds of clomiphene citrate or letrozole
RESOURCES FOR THE PATIENT

▶ www.reproductivefacts.org

▶ Counseling, groups, discussion


The End

My fur-baby

My hopefully not-as-furry-baby