Infections and Infertility

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Infertility

• Standard Definition
• Problems with Standard Definition
  – Cryptic Cases
  – Secondary Infertility
  – Complicated Pregnancies
  – Sub-optimal Outcomes
• My Definition includes
  – Couples who are unable to produce more than one uncomplicated term pregnancy
  – Health of the children and their fertility as well

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Horizontal Versus Vertical Infections

- **Horizontal Infections**
  - During one’s life time
  - Mainly through sexual contact
  - Requires body fluid
  - Up to two thirds of cases are asymptomatic

- **Vertical Infections**
  - Source is the mother’s birth canal
  - Mode of delivery and length of labor contribute
  - Infections of other body cavities may be the clue
  - Mostly asymptomatic
  - Horizontal infection of partner may be the first indication
  - More difficult to eradicate
  - A variety of antibodies can be present

- **Combination of Horizontal and Vertical Infections**

Pathogens

- **Important Pathogens:**
  - Chlamydia, Mycoplasma, Select Aerobic and Anaerobic bacteria, certain Yeasts, and the parasite Trichomonas

- **Difficulty in obtaining detailed microbiology testing**
  - PCR vs. Fluorescent antibody testing for Chlamydia
  - Anaerobic cultures in commercial laboratories
  - Providers’ lack of interest in testing
  - Providers’ lack of appreciation of the full scope of clinical symptoms associated with progressing infections

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Sites in the genital tract adversely affected by pathogens

- **Female**
  - Vagina, cervix: painful intercourse, poor sperm survival
  - Uterine lining: change in menstrual flow, failed implantation, miscarriage, growth retardation, main site of antibody formation
  - Tubal infection, complete blockage: ectopic pregnancy, tubal infertility
  - Ovarian infection: worsening PMS, rising FSH, resistant ovary syndrome, POF and certain types of PCOS
  - Bacterial infections reaching the abdominal cavity: change in bowel habits, cholecystitis, endometriosis, pelvic adhesions

- **Male**
  - Urethra: painful intercourse, erectile dysfunction
  - Prostate: painful erection and ejaculation, reduced fertilizing capacity of sperm, reduced sperm count
  - Seminal Vesicles: reduced sperm volume and viability
  - Epididymis: varying degree of reduction of sperm count
  - Testes: reduction of sperm count or viability, reduced testosterone production
Research

• 1982:
  – Mapped bacteria in the seminal fluid.
  Higher incidence of bacteria in males with urethritis, prostatitis, orchitis, epididymitis, and infertility

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• 1983:
  – Infertile couples positive for Mycoplasma showed 63% successful pregnancy rate after successful therapy with antibiotics that resulted in a negative post therapy culture.
Research Cont.

• 1983, Case Study: Woman with Chlamydia trachomatis infection lost period and was infertile. After antibiotic therapy regained menstrual cycle and had two children.

• 1983, Showed correlation between genital tract infections with sperm antibodies in seminal fluid and infertility

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Research Cont.

• 1984, Luteal phase defect and PMS improved with antibiotics.

• 1984, Higher frequency of female genito-urinary tract infections in infertile relationships.

• 1985, Presented research at SGI conference in Phoenix that showed infections present in biopsied ovaries.

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Research Cont.

• 1986, Study of 263 couples with previous miscarriages showed improvement with antibiotic therapy.

![Graph showing birthweight and gestational age across different treatment groups.]

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Research Cont.

• 1990, PMS sufferers improved with doxycycline treatment.
• 1990, IV antibiotics shown to improve PID

After 1990 I moved into private practice and my focus changed from research to treatment. But my clinical observations have proved to be just, if not more, important in convincing me of the link between infection and infertility.
Research cont.

- Latest Research
- 2007, Outcome of Subsequent IVF Cycles following antibiotic therapy after primary or multiple previously failed IVF cycles.
  - Showed success rate of 68% after antibiotic therapy. New 2010 study is pending that shows even more improvement when male patients receive antibiotic injections and female patients receive antibiotic intrauterine lavages.

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Treatments: IV Administration of Antibiotics

- Rationale and Benefits:
  - Used for infections that do not respond to oral antibiotics alone
  - Higher tissue concentrations
  - Continuous nature allows for steady level of antibiotics
  - Avoids patient error

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Treatments: Antibiotic Intrauterine Lavage

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Treatments: Antibiotic Prostate Injection

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Treatments: Antibiotic Seminal Vesicle Injection

Treatments: Antibiotic Seminal Vesicle Injection cont
Treatments: Importance of Post Conception Therapy

- Indicated when cultures/testing are positive for pathogens
- Post Conception IV is recommended for the female and then oral antibiotics for the remainder of the pregnancy
- Rationale: The immune system is suppressed during pregnancy which gives pathogens that are normally suppressed an opportunity to resurface.

Problems with Current Fertility Treatments

- Fertility Drugs not effective and can be detrimental to future fertility
- IVF does not treat underlying problem, is only indicated for structural problems or if sperm cells can not reach ovum.
- Harvesting of eggs promotes infection of ovary.
Cost of ART Procedures

- Financial cost of IVF
- (Summary Statistics, 2006)

- About 150,000 IVF procedures initiated @ $12,000.00
- Total: $1,875,000,000.00
- 54,656 babies born (12,654 twin or higher order pregnancies)
- the management of these $640,000,000.00
- Total: $2,475,000,000.00
- Costs related to miscarriage (One third of IVF pregnancies are miscarried about 10,000 pregnancies per year)
- @$3,000.00
- Total: $2,505,000,000.00
- With addition of cost of high-risk management, cesarean section:
- Total: $3,633,973,000
- With medical expenses (hospital visits, procedure during the first year of life
- Total: $4,207,633,000

Cost of Antibiotic Therapy

- Per Couple Maximum cost of $20,000
- 1 time deal
- Healthy Pregnancies
- Healthy Children
- Significantly reduced hospital costs for both mother and child
- Lifelong benefit to children, no transfer of vertical infections/infertility

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For More Information

- Please visit my website for more information on my approach to infertility
- Link: FertilitySolution.com
- Special thanks to Lorne Brown from Medigogy.

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