Infertility

WHAT IS INFERTILITY?

Infertility is usually defined as not being able to get pregnant after trying for one year of regular sexual intercourse without the use of contraceptives. Or not being able to carry a pregnancy to term and have a baby. The infertility rate in the United States is around 10%.

Pregnancy is the result of a chain of events. A woman must release an egg from one of her ovaries (*ovulation*). The egg must be fertilized by the male sperm. Then it travels through a fallopian tube into the uterus (*womb*), where it attaches to the wall of the uterus and grows. A man must have enough sperm, and the sperm must join with (*fertilize*) the egg along the way, at the proper time. The fertilized egg must then become attached to the inside of the uterus. While this may seem simple, many things can happen to prevent pregnancy from occurring.

WHOSE PROBLEM IS IT?

About 20% of infertility cases are due to problems with the man (male factors) and 65% are due to problems with the woman (female factors). Other cases are due to a combination of male and female factors or to unknown causes.

WHAT CAUSES INFERTILITY IN MEN?

Infertility in men is often caused by problems with making enough normal sperm or getting the sperm to reach the egg. Problems with sperm may exist from birth or develop later in life, due to illness or injury. Some men produce no sperm, or produce too few sperm (*oligospermia*). Other problems include:

- Sexual dysfunction.
- Hormonal or endocrine problems.
- Age. Male fertility decreases with age, but not at as young an age as female fertility.
- Infection.
- Congenital problems. Birth defect, such as absence of the tubes that carry the sperm (*vas deferens*).
- Genetic/chromosomal problems.
- Antisperm antibody problems.
- Retrograde ejaculation (*sperm go into the bladder*).
- Varicoceles, spematoceles, or tumors of the testicles.
- Lifestyle can influence the number and quality of a man's sperm.
  - Alcohol and drugs can temporarily reduce sperm quality.
  - Environmental toxins, including pesticides and lead, may cause some cases of infertility in men.

WHAT CAUSES INFERTILITY IN WOMEN?

- Problems with ovulation account for most infertility in women. Without ovulation, eggs are not available to be fertilized.
  - Signs of problems with ovulation include irregular menstrual periods or no periods at all.
  - Simple lifestyle factors, including stress, diet, or athletic training, can affect a woman's hormonal balance.
  - Age. Fertility begins to decrease in women in the early 30s and is worse after age 37.
  - Much less often, a hormonal imbalance from a serious medical problem, such as a pituitary gland tumor, thyroid or other chronic medical disease, can cause ovulation problems.
  - Pelvic infections.
  - Polycystic ovary syndrome (*increase in male hormones, unable to ovulate*).
  - Alcohol or illegal drugs.
  - Environmental toxins, radiation, pesticides, and certain chemicals.
- Aging is an important factor in female infertility.
  - The ability of a woman's ovaries to produce eggs declines with age, especially after age 35. About one third of couples where the woman is over 35 will have problems with fertility.

- By the time she reaches menopause when her monthly periods stop for good, a woman can no longer produce eggs or become pregnant.

- Other problems can also lead to infertility in women. If the fallopian tubes are blocked at one or both ends, the egg cannot travel through the tubes into the uterus. Scar tissue (*adhesions*) in the pelvis may cause blocked tubes. This may result from pelvic inflammatory disease, endometriosis, or surgery for an ectopic pregnancy (*fertilized egg implanted outside the uterus*) or any pelvic or abdominal surgery causing adhesions.
- Fibroid tumors or polyps of the uterus.
- Congenital (*birth defect*) abnormalities of the uterus.
- Infection of the cervix (*cervicitis*).
- Cervical stenosis (*narrowing*).
- Abnormal cervical mucus.
- Polycystic ovary syndrome.
- Having sexual intercourse too often (every other day or 4 to 5 times a week).
- Obesity.
- Anorexia.
- Poor nutrition.
- Over exercising, with loss of body fat.
- DES. Your mother received diethylstilbesterol hormone when pregnant with you.

HOW IS INFERTILITY TESTED?

If you have been trying to have a baby without success, you may want to seek medical help. You should not wait for one year of trying before seeing a health care provider if:

- You are over 35.
- You have reason to believe that there may be a fertility problem.

A medical evaluation may determine the reasons for a couple's infertility. Usually this process begins with:

- Physical exams.
- Medical histories of both partners.
- Sexual histories of both partners.

If there is no obvious problem, like improperly timed intercourse or absence of ovulation, tests may be needed.

- **For a man**, testing usually begins with tests of his semen to look at:
  - The number of sperm.
  - The shape of sperm.
  - Movement of his sperm.
  - Taking a complete medical and surgical history.
  - Physical examination.
  - Check for infection of the male reproductive organs.

Sometimes hormone tests are done.

- **For a woman**, the first step in testing is to find out if she is ovulating each month. There are several ways to do this. For example, she can keep track of changes in her morning body temperature and in the texture of her cervical mucus. Another tool is a home ovulation test kit, which can be bought at drug or grocery stores.
- Checks of ovulation can also be done in the doctor's office, using blood tests for hormone levels or ultrasound tests of the ovaries. If the woman is ovulating, more tests will need to be done. Some common female tests include:
  - Hysterosalpingogram: An x-ray of the fallopian tubes and uterus after they are injected with dye. It shows if the tubes are open and shows the shape of the uterus.
  - Laparoscopy: An exam of the tubes and other female organs for disease. A lighted tube called a laparoscope is used to see inside the abdomen.
  - Endometrial biopsy: Sample of uterus tissue taken on the first day of the menstrual period, to see if the

tissue indicates you are ovulating.
- Transvaginal ultrasound: Examines the female organs.
- Hysteroscopy: Uses a lighted tube to examine the cervix and inside the uterus, to see if there are any abnormalities inside the uterus.

TREATMENT

Depending on the test results, different treatments can be suggested. The type of treatment depends on the cause. 85 to 90% of infertility cases are treated with drugs or surgery.

- Various fertility drugs may be used for women with ovulation problems. It is important to talk with your caregiver about the drug to be used. You should understand the drug's benefits and side effects. Depending on the type of fertility drug and the dosage of the drug used, multiple births (twins or multiples) can occur in some women.
- If needed, surgery can be done to repair damage to a woman's ovaries, fallopian tubes, cervix, or uterus.
- Surgery or medical treatment for endometriosis or polycystic ovary syndrome. Sometimes a man has an infertility problem that can be corrected with medicine or by surgery.
- Intrauterine insemination (IUI) of sperm, timed with ovulation.
- Change in lifestyle, if that is the cause (lose weight, increase exercise, and stop smoking, drinking excessively, or taking illegal drugs).
- Other types of surgery:
  - Removing growths inside and on the uterus.
  - Removing scar tissue from inside of the uterus.
  - Fixing blocked tubes.
  - Removing scar tissue in the pelvis and around the female organs.

WHAT IS ASSISTED REPRODUCTIVE TECHNOLOGY (ART)?

Assisted reproductive technology (ART) is another form of special methods used to help infertile couples. ART involves handling both the woman's eggs and the man's sperm. Success rates vary and depend on many factors. ART can be expensive and time-consuming. But ART has made it possible for many couples to have children that otherwise would not have been conceived. Some methods are listed below:

- In vitro fertilization (IVF). IVF is often used when a woman's fallopian tubes are blocked or when a man has low sperm counts. A drug is used to stimulate the ovaries to produce multiple eggs. Once mature, the eggs are removed and placed in a culture dish with the man's sperm for fertilization. After about 40 hours, the eggs are examined to see if they have become fertilized by the sperm and are dividing into cells. These fertilized eggs (*embryos*) are then placed in the woman's uterus. This bypasses the fallopian tubes.
- Gamete intrafallopian transfer (GIFT) is similar to IVF, but used when the woman has at least one normal fallopian tube. Three to five eggs are placed in the fallopian tube, along with the man's sperm, for fertilization inside the woman's body.
- Zygote intrafallopian transfer (ZIFT), also called tubal embryo transfer, combines IVF and GIFT. The eggs retrieved from the woman's ovaries are fertilized in the lab and placed in the fallopian tubes rather than in the uterus.
- ART procedures sometimes involve the use of donor eggs (*eggs from another woman*) or previously frozen embryos. Donor eggs may be used if a woman has impaired ovaries or has a genetic disease that could be passed on to her baby.
- When performing ART, you are at higher risk for resulting in multiple pregnancies, twins, triplets or more.
- Intracytoplasma sperm injection is a procedure that injects a single sperm into the egg to fertilize it.
- Embryo transplant is a procedure that starts after growing an embryo in a special media (*chemical solution*) developed to keep the embryo alive for 2 to 5 days, and then transplanting it into the uterus.

In cases where a cause cannot be found and pregnancy does not occur, adoption may be a consideration.

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