## Ultrasound

Ultrasound imaging may be used to accurately determine the size of the testes or to detect cysts, tumors, abnormal blood flow, or varicoceles that are too small for physical detection (although such small veins may have little or no effect on fertility). It can also help detect testicular cancer.

## Sperm Penetration Tests

*Cervical Mucus Penetration Test*. This post-coital test is designed to evaluate the effect of a woman's cervical mucus on a man's sperm. Typically, a woman is asked to come into the doctor's office within 2 - 24 hours after intercourse at mid-cycle (when ovulation should occur). A small sample of her cervical mucus is examined under a microscope. If the doctor observes no surviving sperm or no sperm at all, the cervical mucus will then be cultured for the presence of infection. The test cannot evaluate sperm movement from the cervix into the fallopian tubes or the sperm's ability to fertilize an egg.

## Genetic Testing

*Genetic testing may be warranted in men who are severely deficient in sperm and who show no evidence of obstruction, particularly in men undergoing the intracytoplasmic sperm injection (ICSI) procedure. Genetic testing can help identify DNA fragmentation, chromosomal defects, or the possibility of genetic diseases that can be passed on to children. If genetic abnormalities are suspected in either partner, counseling is recommended.*



April 2017

MANSOOR MEDICAL

# Male Factor Infertility

# The Diagnosis ...


## Dr. Raymond Mansoor

B Sc , MB BS , DM (O&G) FACOG

Obstetrician & Gynaecologist

Tanner St. & Corn Alley

P.O. Box 1361W

St. John's

Antigua

Tel: (268) 463 2232/3

Fax: (268) 562 8128

email : *info@mansoormedical.org*


# Male Factor Infertility

## Diagnosis

In any fertility work-up, both male and female partners are tested if pregnancy fails to occur after a year of regular unprotected sexual intercourse. It should be done earlier if a woman is over age 35 or if either partner has known risk factors for infertility. A work-up can not only uncover the causes of infertility but also detect other potentially serious medical problems as well, including genetic mutations, cancer, or diabetes.

## Fertility History

The patients will provide the doctor with a detailed history of any medical or sexual factors that might affect fertility:

- Frequency and timing of sexual intercourse
- Duration of infertility and any previous fertility events
- Childhood illnesses and any problems in development
- Any serious illness (diabetes, respiratory infections, cancer, previous surgeries)
- Sexual history, including any sexually transmitted diseases
- Any exposure to toxins, such as chemicals or radiation
- History of any medications and allergies
- Any family history of reproductive problems

## Physical Exam

A fertility specialist, usually a urologist, will perform a physical examination. A physical examination of the scrotum, including the testes, is essential for any male fertility work-up. It is useful for detecting large varicoceles, undescended testes, absence of vas deferens, cysts, or other physical abnormalities.

- Varicoceles large enough to possibly interfere with fertility can be felt during examination of the scrotum. In such cases, they are described as feeling like "a bag of worms". They disappear or are greatly reduced when the patient lies down, so the patient should be examined for varicocele while standing.
- Checking the size of the testicles is helpful. Smaller-sized and softer testicles along with tests that show low sperm count are strongly associated with problems in sperm formation. Normal testicles accompanied by a low sperm count, however, suggest possible obstruction. The doctor may also take the temperature of the scrotum with a test called scrotal thermography.
- The doctor will also check the prostate gland for abnormalities.
- The penis is checked for warts, dis-

# Male Factor Infertility

charge from the urinary tract, and hypospadias (incorrect location of the urethra opening).

## Post-Ejaculatory Urine

A urine sample to detect sperm after ejaculation may rule out or indicate retrograde ejaculation. It also may be used to test for infections.

## Semen Analysis

The basic test to evaluate a man's fertility is a semen analysis. The sperm collection test for men who can produce semen involves the following steps:

- A man should abstain from ejaculation for several days before the test because each ejaculation can reduce the number of sperm by as much as a third. To ensure an accurate sample, most doctors recommend abstaining from ejaculation for at least two days, but not more than five days, prior to semen collection.
- A man collects a sample of his semen in a collection jar during masturbation either at home or at the doctor's office. Proper collection procedure is important, since the highest concentration of sperm is contained in the initial portion of the ejaculate. Specially designed condoms are also available that enable collection of a sample during sexual intercourse. (Regular condoms are not useful, since they often contain substances that kill sperm.)
- The sample should be kept at body temperature and delivered promptly. If the sperm are not analyzed within two hours or kept reasonably warm, a large proportion may die or lose motility.
- A semen analysis should be repeated at least three times over several months.

The man and woman should both be present when the doctor discusses the results of this analysis so that both partners understand the implications. The analysis report should contain results of any abnormalities in sperm count, motility, and morphology as well as any problem in the semen. However, semen analysis alone is not necessarily a definitive indicator of either infertility or fertility.

A semen analysis will provide information on:

- Amount of semen produced (volume)
- Number of sperm per milliliter of semen (concentration)
- Total number of sperm in the sample (count)
- Percentage of moving sperm (motility)
- Shape of sperm (morphology)

*Semen Volume and Concentration*. The seminal fluid (semen) itself is analyzed for abnormalities. The color is checked and should be whitish-gray.

The amount of semen is important. Most men ejaculate 2.5 - 5 milliliters (mL) (1/2 - 1 teaspoon) of semen. Either significantly higher or lower amounts can be a sign of prostate problems, blockage, or retrograde ejaculation.

The semen will be tested for how liquid it is. Abnormal results may suggest prostate gland problems or lack of sperm.

The amount of sugar (fructose) in sperm will be measured:

- Since fructose is added to the semen in the epididymis, an absence of fructose indicates that an obstruction has occurred either in the vas deferens or the epididymis.
- Conversely, if there is fructose in the semen but no sperm, then the channel from the epididymis is open but there is a defect in sperm production.

Other factors may also be measured:

- White blood cell counts are taken to detect infection.
- Low levels of a substance called inhibin B, which appears to be produced only in the testes, may indicate blockage or other defects in the seminiferous tubules.
- Low levels of another compound, alpha-glucosidase, may also indicate blockage in the epididymis.

*Sperm Count.* A low sperm count should not be viewed as a definitive diagnosis of infertility but rather as one indicator of a fertility problem. In general, a normal sperm count is considered to be 20 million per milliliter of semen.

*Sperm Motility.* Motility (the speed and quality of movement) is graded on a 1 - 4 ranking system. For fertility, motility should be greater than 2.

More than 63% of sperm should be motile for normal fertility, but even men whose motile sperm constitutes only about a third of the total sperm count should not rule out conception. Testing for sperm motility is particularly valuable for predicting the success of artificial insemination and which men might be candidates for the intracytoplasmic sperm injection (ICSI) fertilization technique, in which the sperm is inserted directly into the egg and motility plays almost no role.

*Sperm Morphology.* Morphology is the shape and structure of the sperm. Determining the morphology of the sperm is particularly important for the success of the fertility treatments in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI).

## Blood Tests

Blood tests are used for measuring several factors that might affect fertility:

*Hormonal Levels.* Tests for certain hormone levels are indicated if semen analysis is abnormal (especially if sperm concentration is less than 10 million per milliliter) or there are other indications of hormonal disorders.

- Blood tests for testosterone and follicle-stimulating hormone (FSH) levels are usually taken first.
- If testosterone levels are low, then luteinizing hormone (LH) is measured.

Low levels of FSH, LH, and testosterone may indicate a diagnosis of hypogonadotropic hypogonadism. Very high FSH levels with normal levels of other hormones indicate abnormalities in initial sperm production. Usually this occurs only if the testicles are severely defective, causing Sertoli cell-only syndrome, in which sperm-manufacturing cells are absent. Other hormones, such as prolactin, estrogen, or stress hormones may be measured if there are symptoms of other problems, such as low sexual drive or the presence of breasts.

*Infections.* Blood tests can determine the presence of any infections that might affect fertility, including HIV, hepatitis, and *Chlamydia*.