



Is there help for male infertility?

Trying Times

by Dr Gerald Tan

MALE INFERTILITY

DESCRIBES the condition where men are unable to cause successful pregnancy in their fertile female partners. One in five couples attempting to conceive a child will be unsuccessful after deliberately trying for a year or more. Of these unsuccessful couples, male infertility accounts for up to two-thirds of all cases. Understandably, this causes much anguish and distress for the couple and their family members.

What causes males to be infertile?

For successful natural conception to occur, the male partner must be able to achieve the following:

1. Produce healthy motile sperm in adequate numbers;
2. Perform penetrative sexual intercourse with his female partner during her ovulatory period; and
3. The sperm must be successfully ejaculated into the female vagina during climax, and successfully swim up the female genital tract to unite with the ovum, creating a fertilised ovum that (over the course of eight to nine days) will implant in the female's womb, where it will mature over nine months.

Common causes for male infertility include:

- A. **Poor Sperm Production and Quality**
 - Impaired hormone production by the brain's pituitary gland
 - Advanced age
 - Obesity
 - Drugs, tobacco and alcohol
 - Chemotherapy
 - Previous infection, cancer or trauma to the testicles
 - Previous maldescent of the testicles in early childhood
 - Dilatation of the testicular veins near the testis (varicocele)
- B. **Difficulties with Ejaculation**
 - Congenital absence of the vas deferens (tubes carrying sperm away from testicles)
 - Blockage of the ejaculatory ducts
 - Infection of the prostate



- Erectile dysfunction (inability to start or maintain an erection)
- Previous vasectomy (surgical ligation of the tubes carrying sperm away from testicles)

How is male infertility diagnosed?

1. When you consult your urologist, he will usually ask you for a detailed medical history to identify possible medical causes.
2. He will then perform a physical examination to assess the male genitals, and use ultrasonography to assess the testicles, prostate and seminal vesicles.
3. He will then order a series of blood tests to assess your general health, testosterone and hormone profile.
4. He will also request a semen sample for laboratory analysis. The volume of the semen sample, number of total sperm cells, sperm motility/forward progression, and percentage of sperm with normal morphology are measured.

Can natural conception still occur if the cause is treated?

That depends on the cause and severity of the problem. General measures that will help improve the health and quality of the male's sperm include:

- Stopping tobacco smoking
- Reducing alcohol intake
- Reducing excess body weight through regular sustained exercise
- Avoiding heat or trauma to the testicles, such as saunas
- Frequency of ejaculation is also important, as prolonged abstinence of more than two weeks impairs sperm quality

Low testosterone levels can be easily treated with medications. Various supplements, e.g. Vitamin E, Co-enzyme Q10, arginine and lycopene, have also been reported to improve sperm counts and quality.

For men with varicoceles, surgical ligation of these dilated testicular veins (varicocelectomy) reduces sperm DNA damage and seminal oxidative stress, and improves sperm morphology. Around 70% of patients demonstrate improved sperm quality after varicocelectomy, and this increases successful conception in about 40% of patients. This surgery is a simple day surgery procedure usually performed with the assistance of the operating microscope, with few side effects.

For some men with previous vasectomy wishing to father children due to a change of circumstances (unexpected bereavement of their children, divorce and wishes of a new partner to start a new family, etc), microsurgical reversal of vasectomy is an option. The success of these reversal procedures, as evidenced by the presence of sperm in the ejaculate, has been reported in 85% – 90% of men. However, only about 60% of couples actually go on to successfully conceive a baby after vasovasostomy. Female partners who are over the age of 35 years and have not borne children before, are less likely to result in successful pregnancy despite a successful vasectomy reversal.

What other treatment options are available?

If patients with male infertility still fail to achieve successful pregnancy with their partners despite the above measures, the couple will need to consider forms of assisted reproduction. This could be in a variety of ways, and will involve harvesting and processing healthy sperm either from a semen sample, or directly from the testicles under anaesthesia.



Dr Tan Yau Min, Gerald is a Consultant Urologist at Mt Elizabeth Hospital with over 17 years of clinical experience. He is internationally renowned for his expertise in minimally invasive and robotic surgery for prostate, kidney and bladder diseases. Dr Tan was one of the first surgeons to pioneer robotic nephron-sparing surgery in Asia, having performed the largest number of such surgeries in Mt Elizabeth Novena and Tan Tock Seng Hospitals to date. He has received numerous top international awards for academic and clinical excellence, and was named the Outstanding Young Urologist of Asia by the Urological Associations of Asia in 2012. He may be contacted via email at enquiries@drgeraldtan.com.sg.

A Intra-Uterine Insemination (IUI)

A small tube is used to inject processed sperm through the female cervix into the female's womb. By bypassing the cervical mucus, more motile sperm can reach the fallopian tubes where normal fertilisation can occur.

B In-Vitro Fertilisation (IVF)

In IVF, the ovaries of the female partners are hyperstimulated to cause several eggs (oocytes) to mature. Before ovulation occurs, these eggs are harvested with the aid of ultrasound guidance, and then mixed in the laboratory with processed sperm from the male partner. When fertilisation occurs, the embryos are inserted back into the female's womb. However, only 20% – 30% of replaced embryos survive and become successful pregnancies. Around 15% – 18% of couples who fail IVF on the first cycle will be successful the second time round.

C IVF with Intra-Cytoplasmic Sperm Injection (IVF-ICSI)

This approach is the most popular for addressing male factor infertility. By injecting a single healthy sperm directly into an oocyte under microscope guidance, multiple natural barriers to fertilisation are bypassed, and pregnancy success rates are greatly improved (40% – 50%) when compared to conventional IVF (20% – 30%). Children born through IVF-ICSI do not demonstrate any increased risk of birth or developmental defects. However, around one in three pregnancies achieved with IVF-ICSI result in multiple gestations (twins or triplets), which may be a challenge for some couples. *eh*