A HELPING HAND WITH CONCEPTION

With more couples turning to IVF and other assisted reproductive technologies to conceive, we break down the different methods available and how they are carried out.

Assisted conception treatment, or assisted reproductive technology (ART), encompasses all modes of fertility treatments, from merely timing of intercourse to ovulation induction, intrauterine insemination, and in vitro fertilisation.

The chosen treatment depends primarily on the result of further examinations. For instance, fertility medications together with timed intercourse may be futile if infertility is due to the woman’s blocked fallopian tubes, as this situation requires surgical intervention or assisted conception.

When is ART appropriate?
The broad definition of infertility is the inability to conceive after one year of unprotected sex. While infertility may occur at any age, most specialists would suggest trying for at least one year for women under 35, but women who are 35 or older should see a healthcare provider following six months of unsuccessful efforts.

Bear in mind that a woman’s chance of conception decreases rapidly every year after the age of 30. The caveat is that no matter what the female’s age is, if she has irregular menses and decreasing menstrual flow, she should avail herself of medical attention sooner rather than later, as there are women who experience premature menopause before the age of 35 years!

Prevailing health issues also increase the risk of infertility. Women should consult a healthcare provider if they have:

- Medical disorders (thyroid disorders, diabetes mellitus, hypertension, etc)
- Irregular or no menstrual periods
- Very painful periods
- Bleeding between periods
- Pelvic inflammatory disease
- More than one miscarriage

Types of ART
Intrauterine insemination (IUI) Also called artificial insemination, IUI is often
used where there is mild male infertility or unexplained infertility. The sperm concentration may be normal but their motility is reduced. Artificial insemination will increase the number of active moving sperms into the uterine cavity for easier access to the fallopian tubes. Success of IUI thus depends on the patency of the fallopian tubes, and this should be determined prior to the procedure. All sperm parameters are enhanced in the lab prior to the insemination.

**In vitro fertilisation (IVF)** The most common ART technique, IVF works by using hormonal medications either orally and/or injections to stimulate the production of many eggs and then retrieving these eggs from the woman when they are mature. Fertilisation is done in the lab.

**Intracytoplasmic sperm injection (ICSI)** The main mode of practice, this is when a single healthy sperm is injected directly into a mature egg. The resultant embryos are then cultured from Day 1 to usually Day 5 to obtain a blastocyst, where there is already the formation of an inner cell mass that develops into the fetus. The chance of a successful conception is higher with a Day 5 blastocyst than with a Day 2 embryo. Day 5 is also when the embryo should reach the uterus for implantation.

**Donor egg/sperm** Most ART cases are carried out using the woman’s own eggs and her partner’s sperms. However, in the presence of severe problems with either egg or sperm, one may opt to use eggs, sperms or embryos from a known or anonymous donor.

**Surrogacy** This is offered when the woman is unable to carry her own embryos, such as when she has Asherman’s syndrome or other uterine issues that preclude her from carrying a pregnancy.

**Preimplantation genetic diagnosis (PGD)** This technique is offered when the parents are carriers of a congenital disease, and they choose to have IVF with PGD to screen the embryos to pre-select the ones unaffected by the genetic problem. Thalassaemia is the most common disease that is screened here. PGD-A is now being practised in many countries to help older mothers, in particular, to determine that their fetus is free from common, age-related chromosomal disorders prior to the transfer of the embryo.

**Complications of ART** The complications or side effects of ART are continually reduced, thanks to improvements in medications and the philosophy of practice (eg multiple pregnancy and ovarian hyperstimulation syndrome).

**Multiple pregnancy** Multiple pregnancy used to be the most frequent complication of infertility treatments. Generally, the higher the number of fetuses, the higher the risk of premature labour and delivery. Premature babies also face an increased risk of health and developmental problems. This issue has largely been averted by the practice of elective single embryo transfer. Transferring only a single embryo greatly reduces the chance of a multiple pregnancy and its associated risks, such as preterm birth.

**Ovarian hyperstimulation syndrome (OHSS)** Fertility medications used to stimulate ovulation can cause OHSS, a condition where the ovaries become swollen and painful — it can be life threatening. However, with newer medications used to induce maturation with a short-term effect, this problem has largely been solved.

**Bleeding or infection** As with any invasive procedure, ART poses a rare risk of bleeding or infection.

Although costly and time-consuming, ART has allowed many couples the opportunity to have children. It is important to note that success rates of different ART techniques vary, and are based on many factors, including the medical centre performing the procedure, causes of infertility and, most significantly, the age of the couple undergoing the procedure.