

DRUGS FOR INFERTILITY

Conception and the establishment of pregnancy require a healthy reproductive system in both partners. The man must be able to produce sufficient numbers of healthy sperm; the woman must be able to produce a healthy egg that is able to pass freely down the fallopian tube to the uterus. The lining of the uterus must be in a condition that allows the implantation of the fertilized egg.

The cause of infertility may sometimes remain undiscovered, but in the majority of cases it is due to one of the following factors: intercourse taking place at the wrong time during the menstrual cycle; the man producing too few or unhealthy sperm; the woman either failing to ovulate (release an egg) or having blocked fallopian tubes perhaps as a result of previous pelvic infection. Alternatively, production of gonadotrophin hormones – follicle-stimulating hormone (FSH) and luteinizing hormone (LH) – needed for ovulation and implantation of the egg may be affected by illness or psychological stress.

If no simple explanation can be found, the man's semen will be analysed. If these tests show that abnormally low numbers of sperm are being produced, or if a large proportion of the sperm produced are unhealthy, drug treatment may be tried.

If no abnormality of sperm production is discovered, the woman will be given a thorough medical examination. Ovulation is monitored and blood tests may be performed to assess hormone levels. If ovulation does not occur, the woman may be offered drug treatment.

Why they are used

In men, the evidence is poor for the treatment of low sperm production with gonadotrophins – FSH or human chorionic gonadotrophin (HCG) – or a pituitary-stimulating drug (for example, clomifene) and corticosteroids.

In women, drugs are useful in helping to achieve pregnancy only when a hormone defect inhibiting ovulation has been diagnosed. Treatment may continue for months and does not always produce

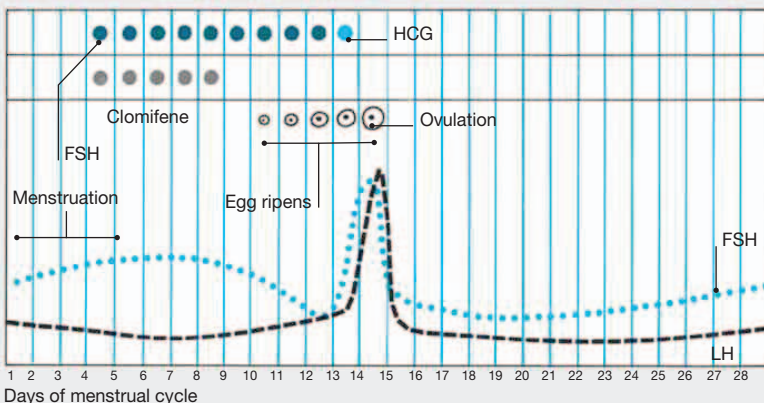
ACTION OF FERTILITY DRUGS

Ovulation (release of an egg) and implantation are governed by hormones that are produced by the pituitary gland. FSH stimulates ripening of the egg follicle. LH triggers ovulation and ensures that progesterone is produced to prepare the uterus for the implantation of the egg. Drugs for female infertility boost the actions of these hormones.

FSH and HCG FSH adds to the action of the natural FSH early in the menstrual cycle. HCG mimics the action of natural LH at mid-cycle.

Clomifene Normally, oestrogen suppresses the output of FSH and LH by the pituitary gland. Clomifene opposes the action of oestrogen so that FSH and LH continue to be produced.

Comparison of normal hormone fluctuation and timing of drug treatment



a pregnancy. Women in whom the pituitary gland produces some FSH and LH may be given courses of clomifene for several days during each month. Usually, up to three courses may be tried. An effective dose produces ovulation five to ten days after the last tablet is taken.

Clomifene may thicken the cervical mucus, impeding the passage of sperm but the advantage of achieving ovulation outweighs the risk of this side effect. If treatment with clomifene fails to produce ovulation, or if a disorder of the pituitary gland prevents the production of FSH and LH, treatment with FSH and LH together, FSH alone, or HCG may be given. In menstruating women, FSH is started within the first 7 days of the menstrual cycle.

How they work

Fertility drugs raise the chance of ovulation by boosting levels of LH and FSH. Clomifene stimulates the pituitary gland to increase its output of these hormones. Artificially produced FSH and HCG mimic the action of naturally produced FSH and LH respectively. Both treatments, when successful, stimulate ovulation and implantation of the fertilized egg.

How they affect you

Clomifene may produce hot flushes, nausea, headaches, and, rarely, ovarian cysts and visual disturbance, while HCG can cause tiredness, headaches, and mood changes. FSH can cause the ovaries to enlarge, producing abdominal discomfort. These drugs increase the likelihood of multiple births, usually twins.

DRUGS FOR ERECTILE DYSFUNCTION

Erectile dysfunction (also known as impotence) is defined as the inability to achieve or maintain an erection. The penis contains three cylinders of erectile tissue, the corpora cavernosa and the corpus spongiosum. Normally, when a man is sexually aroused, the arteries in the penis relax and widen, allowing more blood than usual to flow into the organ, filling the corpora cavernosa and the corpus spongiosum. As these tissues expand and harden, the veins that carry blood out of the penis become compressed, reducing outflow and resulting in an erection. In some forms

of erectile dysfunction, this does not happen. Drugs can then be used that will increase the blood flow into the penis to produce an erection.

Sildenafil and tadalafil not only increase the blood flow into the penis but also prevent the muscle wall from relaxing, so the blood does not drain out of the blood vessels and the penis remains erect.

Alprostadil is a prostaglandin drug that helps men achieve an erection by widening the blood vessels, but it must be injected directly into the penis, or applied into the urethra using a special syringe.

COMMON DRUGS

Bromocriptine *	Menopausal gonadotrophins (Menotrophin)
Buserelin	Nafarelin
Cetrorelix	Tamoxifen *
Chorionic gonadotrophin (HCG)	Drugs for erectile dysfunction
Clomifene *	Alprostadil
Follitropin (FSH)	Papaverine
Ganirelix	Sildenafil/tadalafil *
Goserelin *	Vardenafil
Lutropin (LH)	

* See Part 3