

12.1.5.1 INFERTILITY and DRUGS

The following is an outline of the effect and use of drugs on male and female infertility treatments. The information provided has been compiled from various references in the medical literature and lay press. You are advised to check with your doctor before acting on any information within this fact sheet.

OUTLINE:

FEMALE

1. Drugs that affect the observation and interpretation of the female fertility cycle.
2. Drugs used in female infertility treatments:
 - a) Bromocriptine (Parlodel)
 - b) Clomiphene (Clomid, Serophene)
 - c) Tamoxifen (Nolvadex)
 - d) Danocrine (Danazol)
 - e) F.S.H. (Puregon and Gonal F)
 - f) H.C.G. (Pregnyl, Profasi)
 - g) GnRH Agonists (Buserelin, Lucrin, Synarel)
 - h) GnRh Antagonists (Orgalutron, Cetrotide)
 - i) Progesterone pessaries/Crinone gel
 - j) Steroids
 - k) Antibiotics

MALE

1. Drugs that can affect male fertility.
2. Drugs used in male infertility treatments:
 - a) H.C.G.
 - b) GnRH
 - c) Bromocriptine
 - d) Steroids
 - e) Antibiotics
 - f) Testosterone
 - g) Anti-oestrogens (Clomiphene, Tamoxifen)

Note: For further information about drugs used, see the CONCEPT FERTILITY CENTRE'S factsheet "Ovaries and Stimulation of Ovulation".

12.1.5.2 INFERTILITY and DRUGS

FEMALE

1. DRUGS THAT AFFECT OBSERVATION AND INTERPRETATION OF THE FEMALE FERTILITY CYCLE.

Antibiotics Occasionally women taking antibiotics have reported a change in their normal cervical mucus pattern. It is difficult however to assess whether the antibiotics themselves or the stress caused by illness for which the drugs were prescribed are responsible for the change in the mucus secretions.

Tranquillisers (such as Stelazine or Haloperidol), drugs used to treat migraine, nausea and vomiting (such as Maxolon) and some drugs used for travel sickness. These latter drugs produce increased levels of prolactin in the bloodstream and so are liable to delay or even suppress ovulation.

Cortisone These preparations are commonly used for allergies such as hayfever, asthma and rheumatic problems. As there is a close link between adrenal hormones (cortisone) and the ovarian hormones the use of cortisone particularly over long periods may cause irregularities in the menstrual cycle.

Cold and Flu remedies These are prescribed to dry up excessive mucus membrane secretions. As the cervix is a mucus membrane, there is always the risk that the drying effect will also disrupt secretions of cervical mucus.

2. DRUGS USED IN FEMALE INFERTILITY TREATMENTS.

Bromocryptine (Parlodel) A tablet given daily to control unusually high levels of prolactin. It acts by reducing the pituitary gland's production of prolactin thus allowing normal ovulation to result. It is also used to dry up milk production from the breast caused by raised prolactin levels.

Side Effects: Nausea and low blood pressure. It is commenced in low dosages to avoid these problems.

Clomiphene (Clomid, Serophene) Acts by making the brain believe that the levels of oestrogen are very low and so the pituitary gland in the brain secretes more hormone to stimulate the ovary to produce more oestrogen and hopefully at least one egg.

It is given to women who do not ovulate (and consequently most of these women have little or no periods).

It is also used when there is already evidence of ovulation but a boost in hormone levels is needed to prepare the endometrium to accept a fertilised egg or to correct hormonal imbalances in the second part of the cycle (luteal phase).

First drug of choice for the treatment of Polycystic Ovarian Disease.

Usually blood testing of hormone levels at Concept Fertility Centre accompanies Clomid treatment to help identify the correct ovulation timing. Clomiphene induces ovulation in approximately 70% of appropriately selected patients and is associated with a 30-40% pregnancy rate.

Effects: As the drug is only given for 5 days early in the cycle it does not have any long term effect on future ovulation or on hormone levels.

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Side Effects: Most are well tolerated and completely reversible. They include hot flushes, nausea, giddiness, abdominal discomfort and mood swings. Clomid may have a direct effect on cervical mucus, drying it up. Occasionally oestrogen tablets are prescribed simultaneously to counteract this effect. There is a slightly greater chance of having twins when taking Clomid because the extra stimulation of the ovaries may make two eggs develop.

Danocrin (Danazol) This is a synthetic hormone, prescribed as one type of treatment for endometriosis. It acts by suppressing the brain's production of follicle stimulating hormones and hence suppresses ovarian function. This is similar to an artificial menopause and results in the drying up of not only the endometrium in the uterus (and hence no periods) but also hopefully the misplaced patches of endometrium outside the uterus, causing them to disappear.

Side Effects: Hot flushes, weight gain, acne, hirsutism (hairiness). The usual course of treatment is 6-9 months and the extent of the improvement in endometriosis is then reviewed.

(Puregon, Gonal-F) Both Puregon and Gonal-F are also pure FSH preparations which have been produced using genetic engineering. Puregon can be administered either subcutaneous or intramuscular, but Gonal-F can only be given sub-cutaneous.

They act directly on the ovary, inducing follicle growth. As the risk of multiple pregnancy is higher with gonadotrophins, their use involves frequent checks of the hormone levels and ultrasound scans to detect multiple follicles. If too many follicles develop, then intercourse is avoided in that cycle. The drug dosage is adjusted appropriately for the next cycle.

Side Effects: Multiple pregnancy; hyperstimulation of the ovaries, which may involve the development of excessive numbers of ovarian follicles, ovarian cysts, abdominal and pelvic pain, nausea and haemorrhage and in rare cases, OHSS (Ovarian Hyperstimulation Syndrome).

HCG (Profasi, Pregnyl) Human chorionic gonadotrophin is a hormone usually made by the placenta in pregnancy. Because it is very similar biologically to LH it is used to trigger ovulation by mimicking the natural LH surge at mid cycle. It can be used in combination with Clomid and also FSH to induce ovulation (especially in IVF). It is given by subcutaneous injection. It is useful in women who don't ovulate naturally and require an extra "trigger".

GnRH (HRF, Relefact) Gonadotrophin releasing hormone is administered by pulsatile injection usually from a miniature computerised pump worn in a shoulder holder or a belt. The hormone is either delivered intravenously or just under the skin. It is used to induce ovulation in women who have irregular or no periods because of a lack of or disordered secretion of pituitary hormones. This drug usually only stimulates one follicle and thus has a lower multiple pregnancy rate than HMG therapy.

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GnRH Analogues (Buserelin, Lucrin, Synarel) These drugs may be used for the treatment of endometriosis and fibroids, as well as to prevent spontaneous ovulation (egg release) in IVF. They work by initially stimulating, then switching off, the pituitary gland, and are administered intranasally or by injection.

GnRH Antagonists (Orgalutron, Cetrotide) These drugs are also used to prevent spontaneous ovulation (egg release) during an IVF / ICSI cycle. They work by switching off the pituitary gland. They are administered by daily injection once ultrasound demonstrates the largest follicle has reached 14mm.

Progesterone Preparations (Progesterone Pessaries / Crinone gel)

These drugs are used to enhance the uterine environment and are self administered by placing the preparation into the vaginal canal or rectum depending on your Drs orders.

The medication is absorbed through the mucosa.

Side Effects: Vaginal irritation, thrush, constipation or diarrhoea, nausea, breast enlargement, sadness, headache.

MALE

1. DRUGS AND MEDICATIONS THAT AFFECT MALE FERTILITY

Narcotics can affect the hypothalamic pituitary axis and prevent normal production of FSH and LH. With this, sperm production may diminish.

Narcotics, alcohol, tranquillisers, some antidepressants and antihypertensives may interfere with potency, the ability to ejaculate and may be associated with retrograde ejaculation. High alcohol intake affects both sperm numbers and motility. Marijuana will also reduce fertility mainly by reducing sperm motility.

Other drugs such as methotrexate, salazopyrine and antimalarials may be associated with defects of sperm cell production.

How is it detected?

Usually the drug's effect may be found by simply doing a semen analysis. The resulting low sperm numbers or motility or in the case of retrograde ejaculation, the absence of sperm, after apparent ejaculation but with sperm found in the urine sample, points to the diagnosis. Reducing the dose or changing the medication will usually reverse the effects, but may take many weeks to show an improvement.

2. DRUGS USED IN MALE INFERTILITY TREATMENTS

HMG and HCG If a hormonal cause is identified (but this is very rare) then these drugs may be used. See above information. Treatment often takes many months to restore the sperm quality to fertile levels.

GnRH Delivered by pulsatile injection when there is a deficiency in production of hormones by the pituitary.

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Bromocryptine As in the female, this is used to lower unusually elevated levels of Prolactin.

Testosterone This is given to suppress sperm production in the hope that when medication is stopped (usually after 5-6 months), then the sperm production will rebound to higher levels than originally. This form of treatment is now seldom used as it may further impair fertility and is hazardous. This may also be used for the treatment of impotence when endogenous Testosterone levels are low.

Anti oestrogens (Clomid, Tamoxifen) Their use is largely empirical and very controversial as the results are not predictable.

Antibiotics Just as in the female, antibiotics can resolve a chronic infection in the reproductive tract in the male. Often no specific organism is isolated but improvement in the numbers of normal sperm as well as the reduction in white cells in semen can be seen following several weeks of antibiotics.

Vitamins No supportive evidence that they work but sometimes they are worth a try.