

Ovulation Induction and IUI

What is ovulation induction?

Ovulation induction is the controlled stimulation of the ovaries leading to the development and eventual ovulation of usually one but sometimes up to three eggs.

Who needs it?

Women with 'anovulation' (absence of ovulation) who want to conceive need ovulation induction. The most common cause of anovulation is 'polycystic ovary syndrome'. Another cause is excessive blood levels of a hormone called prolactin that prevents ovulation. Other causes include stress, anxiety, extreme physical exertion (as with long-distance athletes), profound weight loss (greater than 15% of body weight), anorexia and serious illnesses. We also use ovulation induction to improve their natural hormone levels in some women or along with certain procedures like intrauterine insemination of sperm (see below).

How is it performed?

Couples are assessed carefully before this treatment is started. We obtain detailed histories and examine women and perform blood tests assessing ovarian function, pelvic ultrasound scans, dye tests to confirm the tubes are open and sperm tests. The way we choose to induce ovulation will depend on the individual circumstances but will be discussed and agreed beforehand.

- **Tablets** – this is the most common, simplest and cheapest way of inducing ovulation. The commonly used tablets (Clomid) stimulate the brain to release hormones that help the ovaries release (ovulate) eggs. It is given during the menstrual period (usually from the second to the sixth day) and leads to ovulation on about day 14 of the cycle. We monitor the woman's response by ultrasound scans (follicle tracking) and/or a blood test on about day 21 of the cycle. Another group of tablets suppresses the abnormally high hormone levels in a condition called hyperprolactinaemia thereby leading to ovulation. These tablets are available in two forms (Bromocriptine and Cabergoline) for use everyday or weekly. We similarly use ultrasound scans (follicle tracking) and/or a blood test on about day 21 of the cycle to confirm ovulation.
- **Injections** - these are called Gonadotrophins and are more effective, expensive and demanding than tablets. We therefore reserve them for women for whom tablets are ineffective. They are given as daily injections into the muscle or under the skin from about the second day of the cycle. Their use requires more intensive monitoring with blood hormone levels and ultrasound scans. We give another hormone injection (Pregnyl) to induce release of the eggs when they are big enough on ultrasound.
- **Surgery** - this is called laparoscopic ovarian drilling, a form of telescopic keyhole operation on the abdomen through which 6-8 tiny holes are drilled into each ovary. It is useful for women with polycystic ovary syndrome who do not respond satisfactorily to Clomid/Gonadotrophins and we do this before considering IVF treatment. It can yield ovulation and pregnancy rates that are similar to those obtained with medicines.

What else needs to be done?

Most couples will be advised to increase how often they have sex during ovulation induction treatment. Although there is no ideal pattern for this, intercourse on alternate days around the time of ovulation is generally considered sufficient. Women on tablets will generally ovulate around the middle of their cycles and ultrasound monitoring may help to pinpoint the day more accurately. Those having injections will usually be aware of the day they ovulate because of ultrasound monitoring and the hormone injection that is given to help release the egg. Following surgery, the day of ovulation will need to be worked out by the doctors using ultrasound and hormone tests.

What problems can arise?

Problems can arise from any form of ovulation induction treatment and couples need to be aware of common ones:

- **Nausea and vomiting** - ovulation induction causes the ovaries to produce higher levels than the body is normally used to of the female hormone oestrogen. This may cause nausea and vomiting in susceptible women, typically those who cannot tolerate the oral contraceptive pill because of vomiting. This problem is usually mild and short lasting.
- **Swelling (bloating) of the abdomen** - the combination of the bigger ovaries (because of the growing eggs they contain) and the increasing blood levels of female hormones causes swelling or bloating of the abdomen. Women who suffer from irritable bowel syndrome may have a heightened experience of this.

- **Discomfort in the abdomen** - this may be a direct result of the increased size of the ovaries (stretching its covering layer), swelling of the abdomen, or cysts that may form in the ovaries because of the stimulation.
- **Poor response to stimulation** - this affects about 3 in 10 women with development of no eggs at all and so lack of ovulation.
- **Excessive response to stimulation** - this can result in release of more than 3 eggs per cycle and ultimately a condition called 'ovarian hyperstimulation syndrome' that can affect about 1 in 20 women. It is fortunately mostly mild but can cause abdominal pain and bloating, vomiting, shortness of breath and tiredness. We make every effort to prevent its occurrence by responsible ovarian stimulation and sometimes sadly have to cancel cycles on account of this condition. Hospital admission is necessary for severe cases. Very severe cases may become life threatening, but this is fortunately now rare.
- **Multiple pregnancies** - there is a risk of multiple pregnancies with this treatment particularly with use of Gonadotrophins. We make every effort to limit the occurrence of this to fewer than 10% of live births and this explains why we closely monitor women on this treatment.

Intrauterine insemination (IUI)

IUI especially when combined with ovulation induction can improve the chances of conceiving in couples with certain types of infertility including unexplained infertility and mild sperm abnormalities. It is also useful with donated sperm in treating men with no sperm at all. It is much cheaper and less complicated than IVF treatment. We offer the choice of 4-6 cycles of IUI in suitable couples before considering IVF.

Intrauterine insemination (IUI) with partner sperm

Some couples may be treated by injection of washed husband sperm directly into the womb around the time of ovulation (intrauterine insemination). This is useful for couples with mild sperm problems as well as those in whom no problems have been found in either partner. The sperm is obtained from the man by masturbation, washed in a special medium and placed into a syringe that is attached to a small tube. With the woman lying on her back, the tube is passed into the womb through the cervix and the sperm injected into the womb. The woman continues to lie down for about half an hour after the insemination.

Intrauterine insemination (IUI) with donor sperm

This is also known as donor insemination (DI) and is the injection of donated sperm into the womb of women whose partners are unable to produce sperm of their own. Approximately 10,000 cycles of DI are performed in the UK every year. The treatment is regulated by the Human Fertilisation and Embryology Authority (HFEA) in the UK and is strictly monitored. In a small proportion of couples, the man may not be producing sperm at all. This may be due to problems the man is born with or it may develop for no reason, or following infection, medical treatment or surgery. Some men may have a genetic abnormality that makes them infertile or that they do not wish to pass on to their children. IUI with donor sperm is performed in exactly the same way as IUI with husband sperm (detailed above) and can be performed with or without ovulation induction. The maximum number of children that any particular sperm donor is allowed to father varies around the world and is currently 10 in the UK.

Ethical issues

There are implications of using donated gametes that all involved parties need to be aware of:

- **Payment of donors** - this is a contentious issue and the legislation concerning it varies from country to country. The family doctor, gynaecologist or infertility specialist will usually be able to advise couples of the current legislation governing this form of treatment in their different countries. The current legislation in the UK holds that sperm, egg and embryo (indeed any body tissue) donation should be performed altruistically and not attract any form of payment, except where this is to cover reasonable expenses incurred by the donor in the process of the donation.
- **Anonymity** - the regulations governing this vary according to country. Legislation in the UK has recently changed to give offspring of sperm, egg and embryo donation cycles the right to find out the identity of their genetic parents once they reach their eighteenth birthday.
- **Legal parents** - the legislation governing this may vary from country to country and couples need to seek guidance from their healthcare providers about local regulations. Current legislation in the UK holds that a married man and woman receiving treatment are the legal parents of any child that results. For unmarried couples, both partners are not automatically awarded legal parent status and have to apply for this through the courts.
- **Informing the child** - there is currently no legal requirement in the UK for couples that have been successful with donor gamete treatment to inform the children of their origin. However, most clinics recognize that children have the right to know about their conception. Some units arrange a yearly reunion for children born from this and other forms of assisted conception treatment (including DI, IVF and ICSI) to reinforce the normality of such children. Counselling is available at all licensed clinics to discuss the implications of using donated gametes.

How effective are ovulation induction and IUI?

Induction of ovulation treatment is very successful in causing release of the egg from the ovaries but is much less successful in achieving pregnancy. The chances of success appear to be similar whether treatment is with tablets, injections or surgery. About 3 out of 4 women treated will ovulate successfully but only 1 in 3 of these will conceive. Combining ovulation induction with intrauterine insemination further improves the chances of conceiving in certain couples, such as those with sperm problems or with no problems in either partner.

Treatment success is measured professionally by pregnancy and live birth rates and current average rates in the UK are detailed in the table below.

Age groups	Fresh IVF/ICSI cycles	Frozen embryo cycles	IUI cycles without drugs	IUI cycles with drugs	DI cycles without drugs	DI cycles with drugs
< 35 years	32%	22%	11%	13%	12%	16%
35 - 37 years	27%	17%	11%	13%	12%	14%
38 - 39 years	19%	18%	9%	10%	10%	10%
40 - 42 years	12%	12%	6%	9%	5%	6%
43 - 44 years	4%	8%	5%	4%	1%	0%
> 44 years	3%	12%	12%	0%	0%	0%

Table 1. Live birth rates for assisted conception cycles in the UK; HFEA published results for - 2008.

Useful contacts:

Donor Network

P.O. Box 265, Sheffield, S3 7XY
Tel. 0208 245 4369

British Infertility Counsellors Association (BICA)

69 Division Street, Sheffield, South Yorkshire
Tel. 01342 843 880

Human Fertilisation and Embryology Authority (HFEA)

30 Artillery Lane, London, E1 7LS
Tel. 0207 377 5077; www.hfea.gov.uk