



Male Infertility

fertility
NEW ZEALAND

Head Office

0800 333 306

Ph:03 332 7790

There has been a much greater interest in male infertility and sperm abnormalities since the early 1990's encouraged partly by the introduction of a revolutionary treatment, intracytoplasmic sperm injection (ICSI), and also by an increasing understanding of male reproductive health and concerns expressed about a reduction in sperm counts from some countries.

Incidence

Infertility is not an uncommon problem. As many as one in six couples will experience difficulties in trying to conceive and the male factor will be present in 30-50% of couples, either as the single major cause of their fertility problem or as part of a multi-factorial problem with both male and female factors being present. The number of myths surrounding male potency and fertility are reducing as we develop an increased understanding of some of the causes. It is important to note there is no good evidence of a world-wide decline in fertility, although there have been some reports from individual countries suggesting a decline in sperm quantity, possibly due to environmental causes.

Causes

For at least half of sperm problems, the cause remains unknown (idiopathic) although there is an increasing understanding that genetic factors may play an important role.

Ten percent of men with absent sperm production or an extremely low count (azoospermia and severe oligospermia) will have small pieces missing from their Y chromosome (micro-deletions) as the cause for the abnormal sperm production.

Male obesity with reduced circulating testosterone levels can influence sperm quality as can heavy alcohol intake, cigarette and marijuana smoking and certain medications.

Regret following a vasectomy is an increasing problem and it is estimated that 10% of men will seek either reversal of vasectomy or surgical retrieval of sperm for use with micro-injection.

Although a sperm analysis is essential for diagnosing male infertility, a detailed history should also be taken, including a sexual history, and also possible exposure to any

environmental toxins.

Previous genital surgery, including for an undescended testicle, previous inguinal hernia repair or previous significant infections such as chlamydia or mumps orchitis will also be relevant.

Physical examination is important looking at the size and consistency of the testicles, whether any abnormal swellings are noted and also whether the vas deferens is palpable.

If there is any abnormality on the initial semen analysis, a further analysis should be undertaken at a tertiary fertility laboratory looking carefully at sperm motility and morphology (shape) and testing for anti-sperm antibodies. Hormone assays may be useful and should include an FSH level and a prolactin level. Karyotyping, to check the chromosomes, may be useful to exclude certain genetic conditions.

Chances of Pregnancy

Unless there is absent sperm production or an extremely low count (less than 5 million/ml) it is the circumstances of the couple's infertility such as the duration of infertility, previous pregnancy history and also female partner's age that are the most important factors in predicting future chances of conception.

The results of the semen analysis therefore for each couple must be interpreted in the light of each couple's individual circumstances.

Treatment Options

Occasionally a hormonal imbalance will be discovered on testing which can be treated with replacement gonadotrophin injections to improve the sperm count.

Unfortunately, cases where medication will improve the sperm count are relatively rare.

Lifestyle changes such as losing weight if obese, reducing alcohol and cigarette intake, wearing boxers rather than tight underwear, can improve quality of sperm but may not help if there is significant abnormality present.

Donor insemination is used much less frequently now as a treatment for male infertility, mainly because of the introduction of micro-injection.

In New Zealand the male partner is the legal father of the child produced through donor insemination and most New Zealand clinics now insist sperm donors are willing to be identifiable when the child is 18 if that is what the child requests.

Treatment with donor sperm in an otherwise healthy woman should result in pregnancy rates of 15-20% per cycle.

Intrauterine insemination (artificial insemination by husband) is used occasionally for the treatment of male infertility but is again unlikely to be useful if a significant sperm abnormality is present.

Randomised controlled trials show that intrauterine insemination is better than timed intercourse for the treatment of male infertility, particularly when used with ovarian hyperstimulation. Nevertheless, success rates of only 5-10% per cycle are reported in most studies when IUI is performed for male fertility.

ICSI (micro-injection) has been developed after three decades of developing micro-manipulation techniques and basically involves the direct injection of the sperm into an egg. It is primarily used when a major sperm defect has been identified or where there has been poor fertilisation with ordinary in vitro fertilisation (IVF).

Clinical pregnancy rates of 30-40% per cycle are usual with micro-injection so long as there is good fertilisation.

Although there does not seem to be an increased risk of chromosome or congenital abnormalities in children born from ICSI, careful long term follow up studies are required and with a greater understanding of some sperm abnormalities being caused by gene deletions on the Y chromosome, there is concern that this abnormality may be passed on to male children conceived through micro-injection.

Dr Guy Gudex. CREI

Clinical Director - Fertility PLUS

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