

CF Guidelines - Fertility

Female fertility/infertility:

Fertility is only minimally reduced in women with CF.

Male fertility/infertility:

Although men with CF enjoy a normal sex life, they are almost always infertile, due to an abnormality of the vas deferens. Sperm are usually produced but are not ejaculated during sex. However, infertility should not be assumed until confirmed by semen analysis. Discussions on infertility should take place in the early teenage years and should include:

- Discuss well before transition to adult care.
- Ensure normal sexual function is emphasised.
- Volume of ejaculate is reduced.
- Discuss sexually transmitted diseases and the need for safe sex and use of condoms during short term relationships.
- Suggest G.P. referral for sperm analysis when in a long term relationship where condoms will not be used.
- Inform of possibility of sperm aspiration and intra-cytoplasmic sperm injection, (ICSI). Under local anaesthetic, sperm are aspirated from the testes. Eggs taken from the female partner, are injected with a single sperm, before being returned to the womb via the vagina. Success rate is 20 – 30 %.
- Refer to local fertility clinic.

Assisted reproduction - Intracytoplasmic sperm injection:

Known as ICSI, this is a special form of IVF, involving the injection of one sperm into the body of one egg. The 7 main steps are:

- Woman's ovaries are stimulated to produce 10-12 mature eggs using the natural hormone, Follicle Stimulating Hormone. (FSH)
- The eggs are collected under sedation. A needle is passed into, and through the top of the vagina using ultrasound control.
- Sperm can be aspirated from the epididymis or testicle using a fine needle under a local anaesthetic (PESA/TESA) or via an incision in the scrotum, that allows visualisation of the epididymis and testis (MESA), under a general anaesthetic.
- Sperm are examined for normal appearance and viability before being selected.
- A pipette containing a single sperm is used to penetrate the egg membrane and release the sperm into the body of the egg.
- Two or three days after fertilisation when the embryo has divided into 4 – 8 cells, two embryos are transferred to the woman's uterus.
- Good quality unused embryos and sperm can be frozen and preserved for future use. About 2/3 of the embryos will survive the freezing and thawing process.

Seminal Fluid - Normal Values:

- Volume - 2.0 ml or more.
- Sperm concentration - 20×10^6 spermatozoa/ml or more.
- Motility - 50 % or more with forward progression (categories 'a' and 'b') or 25% or more with rapid progression (category 'a'.)
- Morphology - 15% or more with normal forms.
- PH - 7.2 – 8.0.

These values apply to samples examined within 1 hr of ejaculation. Lower values for motility may be seen in samples older than this.

Appointments for Sperm analysis - Derriford Hospital, Plymouth:

In order to ensure standardised conditions for examination, the tests are done by appointment (Mon – Fri: between 9.00am and 10.00 am) on specimens which should ideally be no more than 1 hour old when received. A Combined Laboratory request form should accompany the specimen.

The instructions to the patient for provision of seminal fluid for investigation for sub-fertility are as follows:

- Please telephone the Immunology laboratory for an appointment on telephone number (01752) 792293.
- Abstain from sexual intercourse for at least 2, and preferably no longer than 7 days.
- Excessive smoking and alcohol intake can reduce the sperm count – keep to a minimum during the period of abstinence.
- Provide as complete an ejaculate as possible by masturbating into the container provided. DO NOT use a condom.
- Write the exact time you produce the specimen on the request form. Keep the sample warm during transit to the laboratory by keeping the container close to the body.
- Deliver to the Combined laboratory reception, Level 6, Derriford Hospital, Plymouth on the day of the appointment within 1 hour of collection and between 9.00 am and 10.00 am.

References:

- 1, Dohle GR, Ramos L, Pieters M et al. Surgical sperm retrieval and intracytoplasmic sperm injection as treatment of obstructive azoospermia. Human Reproduction 1998; 13: 620 - 623.
- 2, Fogdestam, Hamberger L, Lundin K, Sjogren A, Hjelta L, Strandvik B. Successful pregnancies after in vitro fertilisation with sperm from men with cystic fibrosis. 19th European Cystic Fibrosis Conference, Paris, 1994 Poster 089.
- 3, Kaplan E, Shwachman H, Perlmutter A D et al. Genital abnormalities in males with CF. New England Journal of Medicine. 1968; 279: 65-69.
- 4, Schlegel PN. Assisted reproductive techniques and sperm aspiration. Pediatric Pulmonology. 1996; supplement 13: 119 – 120.

Document approved - December 2011
Document due for review - December 2013

Acknowledgements: *The Peninsula CF team acknowledges the use of guidelines produced by The CF Trust, Manchester, Papworth, Leeds and Brompton CF teams during development of these local Peninsula protocols and guidelines.*