



INFERTILITY

Introduction

Infertility is defined as the absence of pregnancy following 12 months of unprotected intercourse. Infertility may be caused by Ovulatory Dysfunction, Blocked Fallopian Tubes, Male Factor Infertility or Unexplained Causes. Ovulatory Dysfunction can be caused by hypothalamic causes, endocrinopathies (hyperprolactinemia, thyroid dysfunction) or ovarian causes (Polycystic Ovarian Syndrome, ovarian failure). Only those causes of infertility which require a TUE will be addressed in this document.

1. Medical Condition

Ovulatory Dysfunction: Polycystic ovarian syndrome (PCOS)

2. Diagnosis

A. Medical history

- Absent or irregular menstrual cycles
- Clinical evidence of androgen excess (hirsutism, acne)

B. Diagnostic criteria

History as above as well as one of:

- Ultrasound evidence of ovarian volume 10cm³, >12 follicles between 2-9 mm per ovary
- Altered hormonal profile is not necessary for diagnosis as serum androgen levels (testosterone, androstenedione, DHEAS) may be in the normal or high range.

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C. Relevant medical information

Some women with PCOS will have associated insulin resistance which may manifest as impaired glucose tolerance or overt diabetes.

3. Medical best practice treatment

A. Name of prohibited substances

First line therapy is ***clomiphene citrate***, a weak anti estrogen.
Alternates to clomiphene: Metformin has not proven to be as effective as clomiphene as a first line treatment.¹ Exogenous gonadotrophins are much more expensive and are only available in an injectable form. In women who are non responsive to clomiphene, or who demonstrate insulin resistance, an insulin sensitizer such as metformin may be added.
If this is not successful, FSH s/c may be given.

B. Route

Clomiphene: oral

C. Frequency

5 days per month

D. Recommended duration of treatment

9 – 12 months

4. Other non-prohibited alternative treatments?

hCG, Progesterone may be required in addition to clomiphene

5. Consequences to health if treatment is withheld

Significantly decreased quality of life if infertility is unresolved.

¹ *N Engl J Med.* 2007;365:551-566, 622-624

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6. Treatment monitoring

Blood estrogen, and LH and ultrasound of the ovaries for follicular growth monitoring

7. TUE validity and recommended review process

12 months

8. Any appropriate cautionary matters

Nil

1. Medical Condition

Bilateral Blockage of Fallopian Tubes

2. Diagnosis

A. Medical history

Cannot be diagnosed by history.

B. Diagnostic criteria

Evidence of proximal or distal blockage of tubes by hysterosalpingogram, sonohysterogram or surgery.

C. Relevant medical information

Nil

3. Medical best practice treatment

In vitro fertilization

This requires controlled ovarian hyperstimulation with FSH, or FSH/LH combination. Prior to stimulation the patient may receive oral contraceptives or GnRH agonists, or may receive GnRH antagonists during stimulation. Pain management during the procedure may include: morphine, meperidine (pethidine), ketorolac, fentanyl or midazolam, as well as local lidocaine or bupivacaine.

A. Name of prohibited substances

GnRH agonists (nafarelin or buserelin), and GnRH antagonists (ganirelix or cetrorelix). Narcotics may be required during the procedure – which are prohibited during competition only.

B. Route

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C. Frequency

Daily 10-14 days

D. Recommended duration of treatment

3 – 6 cycles

4. Other non-prohibited alternative treatments?

hCG, Progesterone may be required in addition

5. Consequences to health if treatment is withheld

Significantly decreased quality of life if infertility is unresolved.

6. Treatment monitoring

Blood hormonal profiles and ultrasound to assess ovarian response over two week period

7. TUE validity and recommended review process

A TUE is required for the use of the GnRH agonists and antagonists.
A TUE will be required for the procedure if narcotics are used should the procedure occur during the in-competition period only.
The procedure is usually repeated at three month interval for an average of three times.
The TUE should be granted for 12 months.

8. Any appropriate cautionary matters

IVF is not recommended during the competitive period.

1. Medical Condition

**Male Factor Infertility necessitating
advanced reproductive technologies**

2. Diagnosis

A. Medical history

Cannot be diagnosed by history.

B. Diagnostic criteria

Abnormal semen analysis showing hypomobility, a high incidence of abnormal forms or decreased overall sperm count.

C. Relevant medical information

Nil

3. Medical best practice treatment

IVF see Bilateral blockage of fallopian tubes (above)

May also be treatable with injectable medications and intrauterine insemination for which a TUE is not required.

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1. Medical Condition

Unexplained Infertility

2. Diagnosis

A. Medical history

No pregnancy despite regular ovulatory cycles, open tubes, regular timed intercourse and normal semen analysis

B. Diagnostic criteria

As above.

C. Relevant medical information

Nil

3. Medical best practice treatment

May be treated with clomiphene citrate (see PCOS), FSH/LH (TUE not required) or IVF (see Bilateral blockage of fallopian tubes)

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Other References

CFAS (Canadian Fertility & Andrology Society) Consensus Document for the Investigation of Infertility By First Line Physicians 2003
<http://cfas.cfwebtools.com/index.cfm?objectid=62E48386-9027-F64A-799957D994FC5F65>

Consensus on infertility treatment related to polycystic ovary syndrome. *Fertil Steril* 2008; 89(3): 505-522

Handelsman DJ, The Rationale For Banning Human Chorionic Gonadotrophin and Estrogen Blockers in Sport *JCEM* 19: 1646-1653, 2006

Nattiv A, Loucks AB, Manore MM, Sanborn CF, Sudgot-Borgen J, Warren MP, American College of Sports Medicine; The Female Athlete Triad *MSSE* 10: 1249-1257, 2007