A novel, simplified and cost effective protocol for superovulation and intrauterine insemination
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Controlled ovarian hyperstimulation (COH) in conjunction with intrauterine insemination (IUI) for improving fecundity.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with unexplained infertility and minimal endometriosis.

Setting
Hospital setting. The study was carried out at the University of Florida, Park Avenue Women's Center, Gainesville, Florida, USA.

Dates to which data relate
The effectiveness data were collected between July 1990 and October 1993. The price year was not stated.

Source of effectiveness data
Effectiveness data were derived from a single study and a review of previously published studies.

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness study. The costing was carried out prospectively alongside the effectiveness study.

Study sample
The experimental group consisted of 99 infertile couples who underwent a total of 225 stimulation cycles resulting in 18 conceptions. No explicit control group was chosen. All patients had at least one patent fallopian tube and a normal uterine cavity. Patients also had an intact hypothalamic-pituitary-ovarian axis and minimal endometriosis. No power calculations were reported.

Study design
This was a retrospective cohort study carried out at a single centre. The duration of the follow-up period was not stated. No patients were lost to follow-up.

**Analysis of effectiveness**
The analysis of the clinical study was based on the intention to treat principle. The primary effectiveness measures included the fecundity rate, number of follicles, peak estradiol concentration, and complication rate.

**Effectiveness results**
For the experimental group, the average cycle fecundity rate was 8%, with a cumulative pregnancy rate over 4 cycles of 29% (95% CI: 17 - 40%). Comparing the pregnant and non-pregnant group, there was no difference in age of the female partner (32.16 versus 32.9 years), length of infertility (2.78 versus 3.94 years), or total number of motile sperm inseminated (49.79x10^6 versus 57.94x10^6). Patients who conceived had more follicles greater than 10mm (6.84 versus 5.15; p=0.002), more follicles greater than 16 mm (3.58 versus 2.68; p=0.009), and higher peak estradiol concentrations on the day of HCG administration (1,599 versus 1,272 pg/ml; p=0.036). The complication rate included a multiple pregnancy rate of 28% (all twin pregnancies). There was one ectopic pregnancy and one spontaneous abortion. No patient had clinically documented ovarian hyperstimulation syndrome or cancelled cycles.

**Clinical conclusions**
CC/HMG/IUI yields, fecundity rates and cumulative pregnancy rates were similar to those reported with other more expensive COH/IUI protocols which use HMG/IUI.

**Modelling**
No modelling was undertaken.

**Outcomes assessed in the review**
A review assessed fecundity rates and cumulative pregnancy rates.

**Study designs and other criteria for inclusion in the review**
Not stated.

**Sources searched to identify primary studies**
Not stated.

**Criteria used to ensure the validity of primary studies**
Not stated.

**Methods used to judge relevance and validity, and for extracting data**
Not stated.

**Number of primary studies included**
Approximately 8 previously published studies were reviewed. These studies were published between 1983 and 1993.

**Methods of combining primary studies**
Not stated.
Investigation of differences between primary studies
Not stated.

Results of the review
HMG/IUI achieved a 10% monthly fecundity and a background monthly pregnancy rate of 1 to 3% after 1 to 2 years of infertility.

Measure of benefits used in the economic analysis
The measure of benefits used was the monthly fecundity rate and cumulative pregnancy rate.

Direct costs
Costs were not discounted. Quantities and costs were reported separately. Direct costs included costs of drugs, tests, and sperm washing and IUI. The quantity/cost boundary adopted was that of the hospital. The estimation of quantities and costs was based on actual data. Cost estimates were based on data from the university referral centre. The price year was not stated.

Statistical analysis of costs
No statistical analysis of the costs was undertaken.

Indirect Costs
No indirect costs were included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
For the experimental group, the average cycle fecundity rate was 8%, with a cumulative pregnancy rate over 4 cycles of 29% (95% CI: 17 - 40%). HMG/IUI achieved a 10% monthly fecundity rate.

Cost results
The cost of the CC/HMG/IUI protocol averaged $662, which was about one third that of a HMG/IUI protocol costing $1,854.50.

Synthesis of costs and benefits
Costs and benefits were not combined into a cost-effectiveness ratio.

Authors' conclusions
A simplified protocol of CC/HMG/IUI was almost as effective as HMG/IUI and cost only one-third as much.
CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear.

Validity of estimate of measure of benefit
The measure of benefit seems to be valid. Comparing effectiveness results for the experimental group with those of other studies is only valid if study groups are comparable. This issue was not explicitly discussed. It may be useful to elicit patient preferences for different procedures for ovarian hyperstimulation.

Validity of estimate of costs
Only direct costs associated with the protocol were included. The costs of hospital staff and other costs falling to patients were not included. No sensitivity analysis or statistical analysis was carried out.

Other issues
It is difficult to assess the generalisability of the results (in particular those pertaining to costs) to other settings or countries. The comparison between the two groups in terms of effectiveness measures could have been more extensive.

Implications of the study
These results should be validated by a large sample trial which explicitly includes an experimental group and a control group.

Source of funding
None stated.

Bibliographic details

PubMedID
9260436

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Clinical Protocols; Clomiphene /therapeutic use; Cost-Benefit Analysis; Female; Fertility; Fertility Agents, Female /therapeutic use; Humans; Infertility /drug therapy /etiology; Insemination, Artificial /economics /methods; Male; Menotropins /therapeutic use; Pregnancy; Pregnancy Rate; Retrospective Studies; Superovulation

AccessionNumber