Economic strategies in modern male subfertility treatment

Comhaire F

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
Different modes of male infertility treatment including "tender loving care" (TLC), varicocele embolisation, tamoxifen (6 months), intrauterine insemination (centrifugation (6 months), Percoll (3 months)), and in-vitro fertilisation (IVF) (regular (3 attempts), intracytoplasmatic sperm injection (ICSI)(2 attempts)).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Couples engaged in infertility consultancy for at least 12 months, with no demonstrable abnormalities in the female partner and impaired semen quality (not azoospermia) in the male.

Setting
The practice setting was hospital. The economic study was carried out in Ghent, Belgium.

Dates to which data relate
Effectiveness data were obtained from published studies between 1985 and 1995. Resource utilisation data were not reported. The fiscal year was not explicitly specified.

Source of effectiveness data
The estimates for final outcomes were derived from a literature review.

Outcomes assessed in the review
The primary health outcome was successful delivery rate or successful pregnancy rate per treatment.

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

Sources searched to identify primary studies
Not reported.
Criteria used to ensure the validity of primary studies
Not reported.

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

Number of primary studies included
Seven studies were directly referred to as the sources for the clinical probabilities required in the study.

Methods of combining primary studies
Not reported.

Investigation of differences between primary studies
Not reported.

Results of the review
Successful delivery during either placebo intake, TLC, or timed coitus was 10-20% after 12 months. The successful pregnancy rate for varicocele treatment within 12 months was between 40-60%. The successful pregnancy and delivery rates for tamoxifen were 30% and 50%, respectively. The regular IVF success rate was 18% per initiated cycle, whereas ICSI had a 35% successful rate. The pregnancy rate for intrauterine insemination via centrifugation was 10-15% whilst the Percoll method had a 25% (1st cycle), 15% (2nd), and 10% (3rd) success rate.

Measure of benefits used in the economic analysis
The benefit measure was the successful delivery rate.

Direct costs
Costs were not discounted. Quantities and costs were not analysed separately. The cost boundary adopted was that of the patient and the social security system. Cost analysis covered the direct treatment costs such as expenses for control visits, and ovulation prediction. The source of cost data was the study institution. The date of the price data was not explicitly specified. The cost analysis did not include the costs associated with complications due to the use of the procedures, adverse events such as abortion, hospital charges for perinatal care of low weight new-borns, and the alleged risk of ovarian cancer.

Indirect Costs
Not considered.

Currency
Belgian francs (Bfr). The conversion rate was approximately Bfr30 = US$1.

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
As reported in the “Results of the Review” section above.
Cost results
The average cost per 12 months for “tender loving care” was between Bfr20,000 and Bfr40,000. The corresponding value for the varicocele embolisation was Bfr25,000 (based on local anaesthesia and an outpatient visit). The cost of intrauterine insemination via centrifugation (6 months) was between Bfr8,000 and Bfr10,000, while Percoll was reported to cost Bfr2,000 more. The cost of regular IVF was approximately Bfr100,000, while IVF with ICSI cost around Bfr125,000.

Synthesis of costs and benefits
The average cost per successful delivery (in 1,000 Bfr) was used as a measure of synthesis of costs and benefits (minimum and maximum values are reported in parentheses):

"tender loving care“, 250 (100, 400);
varicocele embolisation, 52.1 (41.7, 62.5);
regular IVF, 550;
IVF with ICSI, 360;
intrauterine insemination via centrifugation 77 (53.5, 100);
intrauterine insemination via Percoll, (40, 48) for 1st cycle, 76 (66.7, 80) for the 2nd, and (80, 120) for the 3rd.
The minimum cost per successful delivery for tamoxifen was reported as Bfr17,500.

Authors’ conclusions
"Cost-benefit analysis of different modes of treatment may add a new dimension to the overall policy for the treatment of couples with male factor infertility. Evidently, there are many more elements which will influence decision taking in designing the treatment strategy for each individual couple. Nevertheless, and in spite of all the imperfections of the rather rudimentary approach taken in this study, estimation of the cost per successful delivery may stimulate us to think again on the logic of some of our treatment decisions.”

CRD COMMENTARY - Selection of comparators
No specific strategy was explicitly regarded as the comparator.

Validity of estimate of measure of benefit
The internal validity of the estimate of benefit may be weakened by the absence of a comprehensive literature review and a quality assessment of the primary studies.

Validity of estimate of costs
Resource utilisation was not reported separately from the costs and insufficient details were provided of the methods of cost estimation. The study lacked a prospective cost analysis. In view of the absence of a comprehensive literature review and a quality assessment of the primary studies included in the review, sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution.

Other issues
The issue of generalisability to other settings or countries was not addressed.

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