Patient characteristics associated with vasectomy reversal

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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
Alternative methods for achieving pregnancy after vasectomy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients who requested vasectomy reversal.

Setting
Hospital. This study was carried out at The Cleveland Clinic Foundation, Cleveland, Ohio, USA.

Dates to which data relate
Effectiveness data were based on a retrospective review of medical charts relating to the period 1990-1997 and from studies previously published between 1991 and 1997. The dates during which resource use and cost data were collected were not reported. The price year was not stated.

Source of effectiveness data
Effectiveness data were derived from a single study and literature review.

Study sample
The study sample comprised 365 patients who underwent vasectomy for voluntary sterilisation and 290 patients who underwent vasovasostomy for vasectomy reversal.

Study design
Not relevant.

Analysis of effectiveness
The primary health outcomes studied were the patient characteristics associated with vasectomy reversal: age at time of vasectomy, religion, patient occupation, wife employment status, number of marriages, number of children, reason given for reversal, and number of years between vasectomy and reversal.
Effectiveness results
Mean age at time of vasectomy was 38.2 (+/- 0.3) years in men who did not desire reversal and 30.9 (+/- 0.4) years in men who underwent reversal, (p<0.001). Men whose wives were not employed outside the house requested reversal 0.48 times as often as those whose wives were employed outside the house (95% CI: 0.33 - 0.71). The mean number of marriages was 1.1 (+/- 0.02) in men who desired no reversal and 1 (+/-0.01) in men who underwent reversal. Wives’ employment status, number of children, type of occupation and religion were similar in each group. Age at the time of vasectomy and the reason for reversal were significantly related to the timing of reversal compared with other reasons, (p<0.001). Men who had undergone vasectomy between ages 20 and 29 years were more likely to elect reversal after a longer interval than other patients, (p<0.001).

Clinical conclusions
Patients who requested vasectomy reversal most often chose voluntary sterilisation at a younger age.

Modelling
No modelling was used.

Outcomes assessed in the review
The review assessed the following outcomes: pregnancy rate after vasectomy reversal and rate for cryopreservation.

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
Summary statistics from each study.

Number of primary studies included
Approximately 4 studies were included.

Methods of combining primary studies
Narrative method.

Investigation of differences between primary studies
Not stated.

Results of the review
The pregnancy rate after vasectomy reversal was 76% for less than 3 years, 53% for 3 to 8 years, 44% for 9 to 14 years, and 30% for 15 years. A 30% per cycle success rate was used. The rate for cryopreservation was based on the estimated rate of 40.66% pregnancies for 3 and 57.4% for 6 intrauterine insemination cycle rates.
Measure of benefits used in the economic analysis
The measure of benefit was pregnancy rate after vasectomy reversal as a function of interval between vasectomy and reversal.

Direct costs
Costs were not discounted given the short time frame of the study (less than 1 year). Quantities and costs were reported separately. Direct costs included the cost of vasovasostomy, cryopreservation and intrauterine insemination. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. Costs for vasovasostomy were based on The Cleveland Clinic Foundation charges. The price year was not reported.

Statistical analysis of costs
Not reported.

Indirect Costs
Not included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
The expected pregnancy rate following vasectomy reversal fell from approximately 77% at 2 years since vasectomy to approximately 30% at 15 years after vasectomy. The expected pregnancy rate following cryopreservation of semen with subsequent intrauterine insemination for 3 cycles was 40%, irrespective of time since vasectomy. At 10 years since vasectomy, the expected pregnancy rate was approximately 48% for men who underwent vasectomy reversal and approximately 41% for men who underwent cryopreservation of semen with subsequent intrauterine insemination for 3 cycles.

Cost results
See synthesis of costs and benefits below.

Synthesis of costs and benefits
Costs per term pregnancy following vasectomy reversal varied between approximately $7,500 at 2 years since vasectomy to approximately $19,000 at 15 years after vasectomy. Costs per term pregnancy following cryopreservation of semen with subsequent intrauterine insemination for 3 cycles varied between approximately $4,500 at 2 years since vasectomy to approximately $11,000 at 15 years since vasectomy. Costs per term pregnancy at 10 years since vasectomy were approximately $12,000 for men who underwent vasectomy reversal and approximately $8,000 for men who underwent cryopreservation of semen with subsequent intrauterine insemination for 3 cycles.

Authors' conclusions
Patients who requested vasectomy reversal most often chose voluntary sterilisation at a younger age. The success rate and cost-effectiveness of sperm cryopreservation before vasectomy, with subsequent intrauterine insemination, may
make this non-surgical alternative desirable for younger couples who choose vasectomy even when properly informed about reversal rates.

**CRD COMMENTARY - Selection of comparators**
The rationale for the choice of the comparator was clear. You, as a user of this database, should verify whether these health technologies are relevant to your setting.

**Validity of estimate of measure of benefit**
A relevant measure of benefit was used. It should be noted that pregnancy success rate data were based on the findings of only one study which followed a group of 1,469 men over a 2-year period. The authors did not state whether these findings have been replicated in other studies. More details about the literature review could have been provided. Despite uncertainty surrounding the input parameters, no sensitivity analysis was conducted on the effectiveness measures.

**Validity of estimate of costs**
Only direct costs were included. Obstetrical costs were not included. Costs for vasovasostomy were based on charges. Charges do not represent true opportunity costs. Cost estimates were derived from The Cleveland Clinics Foundation and are likely to be specific. No sensitivity analysis was conducted on cost estimates.

**Other issues**
The generalisability of the results to other settings or countries was not discussed. Comparisons with other relevant studies were made.

**Implications of the study**
In potentially improving cost-effectiveness younger men should be given better pre-vasectomy counselling and consider sperm cryopreservation before vasectomy.

**Source of funding**
None stated.

**Bibliographic details**

**PubMedID**
10332448

**Other publications of related interest**


**Indexing Status**
Subject indexing assigned by NLM