Economic modelling to assess the costs of treatment with finasteride, terazosin, and transurethral resection of the prostate for men with moderate to severe symptoms of benign prostatic hyperplasia

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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
Benign prostatic hyperplasia (BPH) treatment with finasteride, terazosin, and transurethral resection of the prostate for men (TURP).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Hypothetical population of men aged 55-75 years with at least moderate symptoms of prostatism.

Setting
The practice setting was hospital. The economic study was carried out in the US.

Dates to which data relate
Effectiveness data were obtained between 1988-1994. Resource data were obtained between 1994-1995. Price dates were not stated.

Source of effectiveness data
Based on a synthesis of previously completed studies.

Modelling
A decision analysis model was used in estimating costs and benefits.

Outcomes assessed in the review
The outcome probabilities assessed were: clinical success, failure, complications, and side-effects of the treatments.

Study designs and other criteria for inclusion in the review
Not stated.
Sources searched to identify primary studies
The sources searched were unclear. The authors mentioned a search for data in the health care utilization databases.

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
At least three clinical trials.

Methods of combining primary studies
The model probabilities were determined by consensus panel agreement on the published literature.

Investigation of differences between primary studies
Not stated.

Results of the review
The two-year clinical success probabilities for the first 12 months (and second 12 months in brackets) were:

- 0.67 (0.95) for finasteride,
- 0.74 (0.95) for terazosin, and
- 0.88 (0.98) for TURP

The most common side effects for terazosin for the first 12 months (second 12 months given in brackets) were:

- syncope=0.02 (0.02)
- dizziness=0.20 (0.10)
- asthenia=0.20 (0.10)

Note: no side-effects were registered for finasteride over the 24 month period of analysis.

The most common complications of TURP for the first twelve months (and second twelve months in brackets) were:

- incontinence=0.01 (0.01)
- urethral stricture/bladder neck contracture=0.03 (0.01)
- impotence=0.09 (0.09)

The duration of symptom improvement was comparable for the 3 treatments.

Measure of benefits used in the economic analysis
Lost productivity and the average successful treatment duration.
Direct costs
The direct costs included were: expected resource utilisation, including the cost of office visits for a BPH patient, blood tests ordered, radiographic examinations (panel 1995, and Marketscan figures, 1992); drug costs (Red Book, 1994). The perspective used was that of managed care (third party payer). Costs were discounted at 5%. No prices were stated.

Currency
US dollars ($).

Sensitivity analysis
One-way sensitivity analysis varied first year treatment success probabilities. Two-way extreme sensitivity analysis was performed on the 2 pharmacologic agents using the best case success probability for one medication against the worst case probability for the other, while keeping TURP success probabilities constant.

Estimated benefits used in the economic analysis
The average successful treatment duration was 22 months (TURP), 21 months (finasteride), and 22 months (terazosin).

Cost results
1) With private insurance.

The total two-year cost of TURP was $6,411 (90% CI: $6,326 - $6,550), of finasteride was $2,860 (90% CI: $2,513 - $3,271); of terazosin was $2,422 (90% CI: $1,989 - $2,963).

2) With Medicare.

Total costs and 90% CI were: for TURP, $3,874 ($3,811 - $3,977); for finasteride, $2,161 ($1,980 - $2,374); for terazosin, $1,820 ($1,579 - $2,121).

Synthesis of costs and benefits
Not performed.

Authors' conclusions
Over 2 years of therapy, pharmacotherapy is expected to be cheaper than TURP.

CRD Commentary
The main limitation of this study was that neither measures of effectiveness nor costs were directly based on primary information (as the authors noted, these data were scarce). Most data were based on an expert consensus panel and on a literature search, but no information was given on the search methodology (i.e. how systematic was the review?). It is not easy to control for bias in this type of study. As far as the costing methodology is concerned:

(1) the price dates used were not stated, making interpretation of results and cross-study comparisons difficult;

(2) quantities and costs were not reported separately, hindering generalisability to other settings;

(3) not enough information was given on what costs were considered and it is difficult to ascertain whether important items were excluded from the analysis (for example, hospitalisation costs, capital costs, or cost of lost days of work).

No incremental analysis was performed to compare the cost-effectiveness of the different procedures. In fact, costs and benefits were not synthesised in a single measure of cost-effectiveness. A good sensitivity analysis was carried out to...
allow for uncertainty in the estimation of parameters.

**Implications of the study**
The conclusions of this study need to be further confirmed by prospective clinical trials and systematic reviews of the existing literature.

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