Transurethral resection of the prostate: still the gold standard

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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
Transurethral resection of the prostate for bladder outlet obstruction.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with an average age of 72 years and presenting with bladder outlet obstruction.

Setting
Hospital. The economic study was carried out in Bendigo, Victoria, Australia.

Dates to which data relate
The effectiveness and resource use data related to 1992-1995, for the standard of choice, and to 1995 for the newer strategies. The price year was not clearly stated.

Source of effectiveness data
Effectiveness data were derived in part form a single study and in part from a review of previously completed studies.

Link between effectiveness and cost data
The costing was not undertaken on the same patient sample as that used in the effectiveness study.

Study sample
The TURP group consisted of a cohort of 575 patients with an average age of 72 years. Power calculations to determine the sample size were not given.

Study design
Case series. The duration of the follow-up was not clearly stated. The loss to follow-up was not stated.

Analysis of effectiveness
The principle used in the analysis is not relevant. The primary health outcomes analysed were the total duration of stay,
the cumulative discharge rate, the average length of stay, the post-operative duration of stay, the re-catheterization and readmission rates. The study also reported the urinary retention rate after surgery.

**Effectiveness results**
A number of patients (14%) were estimated to be discharged from hospital without catheter after 1 day of stay. A total of 95.5% of all patients was estimated to have less than 7 days of total admission. The average length of stay for all patients was estimated to be 3.6 days (including the pre-operative and post-operative stay of all patients). Without medically unnecessary days (days accounted for because of the distance required to travel for admission to hospital), the average length of stay was estimated to be 2.55 days. A total of 22 patients (3.8%) were estimated to be readmitted postoperatively over the 3-year period. Twenty-eight patients (4.9%) were diagnosed with bladder hypotonicity with incomplete emptying after surgery, and were discharged home with a catheter in place for 4 weeks.

**Clinical conclusions**
From the point of view of duration of stay, duration of catheterisation, readmission rate and re-catheterisation rate, TURP remains as the gold standard and the newer modalities are not believed to be advantageous at this stage.

**Outcomes assessed in the review**
This study also used outcomes obtained from a review of the published literature. Outcomes assessed were the retention rates for laser prostatectomy and transurethral needle ablation (TUNA).

**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**
Three studies for the TUNA, and one for the laser prostatectomy options.

**Methods of combining primary studies**
Not combined.

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

**Results of the review**
According to one study, 12 of 32 patients (38%) had urinary retention for 2-60 days after visual laser ablation of the prostate. Two studies reported a 20% retention rate, with this complication lasting 1-21 days, after TUNA. Another
study showed a 25% retention rate after TUNA.

**Measure of benefits used in the economic analysis**
The measures of benefits used in the economic analysis were cases of urinary retention and readmissions avoided.

**Direct costs**
The cost for the TURP procedure at the authors’ institution was documented. This was estimated from the "base unit casemix funding figure modified by the DRG weight”. As for the TUNA and laser prostatectomy, the estimates of "cost for a day-only stay” and "cost”, respectively, were based on published information from 1995 studies. While quantities of resource use were not analysed separately from the costs, the authors noted that the costs associated with routine transrectal ultrasound and biopsy, for both newer procedures, and the capital costs of the laser were omitted from the analysis. The price date was not stated.

**Currency**
Dollars ($) (not explicitly stated but assumed to be Australian dollars)

**Sensitivity analysis**
No sensitivity analysis was reported.

**Estimated benefits used in the economic analysis**
Whilst the TURP procedure was associated with a 3.8% readmission rate postoperatively over a 3-year period, a 4.9% retention rate after surgery was documented (with patients being discharged home with a catheter in place for 4 weeks). According to one study, a 38% urinary retention rate for a period of 2-60 days followed visual laser ablation of the prostate. Two studies reported a 20% retention rate, with this complication lasting 1-21 days, after TUNA. Another study showed a 25% retention rate after TUNA.

**Cost results**
The average calculated expenditure for the procedure was estimated to be $1,405.81. The cost of TURP as reported for insured patients was $1,416.13, whilst for uninsured patients the corresponding figure was $1,697.78 (according to the information provided, the closest estimate to true costs). The laser and TUNA surgical procedures were associated with cost figures of $1,830.00 and $1,987.00, respectively.

**Synthesis of costs and benefits**
Since the standard of choice turned out to be the dominant strategy, costs and benefits were not combined.

**Authors’ conclusions**
TURP is still the method of choice for surgical management of bladder outlet obstruction and it remains as the gold standard. From the point of view of duration of stay, duration of catheterisation, readmission rate and re-catheterisation rate, as well as cost and long-term results,TURP remains as the gold standard and the newer modalities are not believed to be advantageous at this stage.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparators was clear. TURP, the standard of choice for the treatment of bladder outlet obstructions, was compared with the newer, "advocated” modalities of laser prostatectomy and TUNA.
Validity of estimate of measure of benefit
The estimate of measure of benefit used in the economic analysis is unlikely to be internally valid, given the lack of control groups in the clinical studies used to derive the estimates of effectiveness.

Validity of estimate of costs
The resource quantities were not reported separately from the costs and adequate details of the methods of quantity/cost estimation were not given. Important cost items were omitted from the analysis and the price year was not stated.

Other issues
The authors’ conclusions were not justified, given the uncertainties in the data. The issue of generalisability to other settings/countries was not addressed.

Implications of the study
Further prospective, controlled studies are needed in order to validly state the cost-effectiveness of TURP in the treatment of bladder outlet obstruction.

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None stated.

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