The case for primary endoscopic management of upper urinary tract calculi. II: Cost and outcome assessment of 112 primary ureteral calculi

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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
The treatment of ureteral calculi with either extracorporeal shock-wave lithotripsy (ESWL) or with urethoscopic lithotripsy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
112 patients with primary ureteral calculi treated over a two year period. No demographic or socio-economic information was provided.

Setting
Loma Linda University Medical Centre, California, USA.

Dates to which data relate
No dates were given for the effectiveness analysis, the resources used, or the prices used.

Source of effectiveness data
A single study.

Link between effectiveness and cost data
Costing was undertaken on the same patient sample as that used in the effectiveness study. The costing was undertaken retrospectively.

Study sample
The records of 112 patients over a two year period were reviewed. 70 of these patients underwent urethoscopic lithotripsy and 42 underwent ESWL. No justification was given for the way the sample was selected. No power calculation was used.

Study design
A multi-centre cohort study (two sites). Duration of follow-up was three months.
Analysis of effectiveness
The analysis was based on treatment completers only. The primary health outcome was the complete clearance of a stone burden at 1 and 3 months after treatment. Groups were compared in terms of the diameter of stone and whether it was proximal, middle or distal. However, no statistical analysis of these differences was performed.

Effectiveness results
For patients who underwent urethroscopic lithotripsy, 95% achieved stone clearance at 1 month and 97% at 3 months. For patients who underwent ESWL, 45% achieved clearance at 1 month and 62% at 3 months. No statistical analysis was performed.

Clinical conclusions
The clinical conclusion was that urethroscopic lithotripsy was the most expeditious means of clearing a ureteral stone burden.

Measure of benefits used in the economic analysis
The measure of benefit used was the rate of stone clearance at 1 and 3 months.

Direct costs
Although a cost analysis was undertaken, costs data were reported in 'UNITS' which are not defined (i.e. no dollar values were given). The costs of treatment and follow up were included. The quantities of post-operative visits and procedures were reported, but there was no distinction between quantities and prices of other resources used. The date to which the data relate was not reported. Costs to the hospital seemed to have been included, but this was not explicitly stated. The source of the cost data was not reported.

Currency
(Cost data were reported in 'UNITS' not US $).

Sensitivity analysis
No sensitivity analysis was conducted.

Estimated benefits used in the economic analysis
For patients who underwent urethroscopic lithotripsy, 95% achieved stone clearance at 1 month and 97% at 3 months. For patients who underwent ESWL, 45% achieved clearance at 1 month and 62% at 3 months.

Cost results
8.0 units for both treatment modalities. It was unclear whether these 'costs' included post-operative office visits and treatments.

Synthesis of costs and benefits
Urethroscopic lithotripsy was the dominant strategy.

Authors' conclusions
The authors concluded that urethroscopic lithotripsy is 'by far' the most expeditious and cost-effective means of clearing a ureteral stone burden.
CRD Commentary
The results of this study (that urethroscopic lithotripsy is more efficacious than ESWL) may be biased primarily because of the non-random selection of patients. This means that the difference in stone clearance rates could have been due to differences between patients that were not reported. The study design was not appropriate for the question posed. The representativeness of the sample was not assessed. The authors did not discuss these issues in the paper. Furthermore, the measure of benefit used was narrow and a quality of life assessment would have been more appropriate. The cost analysis was unclear in terms of the resources used. In particular the equipment costs were not adequately treated given their long term life-span. This may have serious implications for the conclusions that costs were the same in each alternative. The reporting of cost data in 'UNITS' made the cost results difficult to interpret. Overall, the main question posed was not answered.

Implications of the study
More research needs to be undertaken before a conclusion can be made.

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Other publications of related interest

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