Mini-laparotomy pelvic lymph node dissection minimized morbidity, hospitalization and cost of pelvic lymph node dissection

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
Mini-laparotomy in pelvic lymph node dissection.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Men due to undergo pelvic lymph node dissection for staging prostate cancer. All patients had a life expectancy of more than 10 years and were candidates for definitive prostate cancer therapy.

Setting
Hospital. The economic study was carried out in Albany, New York, USA.

Dates to which data relate
The main effectiveness data were extracted from a clinical trial conducted between 1992 and 1994. Resource and cost data were mainly derived from 1992-94 sources. Resources were measured in 1994 values.

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

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

Study sample
A cohort of 40 men who underwent pelvic lymph node dissection for staging prostate cancer. All patients had a life expectancy of at least 10 years and were candidates for definitive prostate cancer therapy. Seven patients were estimated to have undergone the standard pelvic lymph node dissection, 20 the transperitoneal laparoscopic pelvic lymph node dissection and 13 the mini-laparotomy. The average ages were 69, 68 and 70 years in the open, laparoscopy and mini-laparotomy groups, respectively. Power calculations to determine the sample size were not reported. Patient age and body habitus, cancer stage and grade and co-morbidity did not influence selection of the operative procedure.
Study design
Cohort study. Patients were assigned to 1 of 3 groups according to individual patient preferences. The period of follow-up was two years. Loss to follow-up was not reported.

Analysis of effectiveness
The analysis of the clinical study was based on the whole sample. The primary health outcomes in the analysis were anesthesia time, operative time, nodal yield, morbidity and postoperative hospitalization.

Effectiveness results
The anesthesia time was 125 (open), 230 (laparoscopic) and 140 (mini-laparotomy) minutes. The operative times were 90, 190 and 90 minutes in open, laparoscopic and mini-laparotomy groups, respectively. Morbidity and postoperative hospitalization were 7, 1.2 and 1.3 days in open, laparoscopic and mini-laparotomy group, respectively. The average numbers of lymph nodes were 12 (open), 9 (laparoscopic) and 9 (mini-laparotomy).

Clinical conclusions
Post-operative analgesic requirements are nearly identical in the mini-laparotomy and laparoscopic pelvic lymph node dissection groups.

Measure of benefits used in the economic analysis
The effectiveness of mini-laparotomy was assumed to be at least equal to the laparoscopic procedure such that the main benefit was that of cost reduction.

Direct costs
Operating room, anesthesia and hospitalization costs were included in the analysis. Quantities were analysed separately from the prices. Discounting was not undertaken. The price year was 1994. Disposable instrument use costs were charged to the patients.

Statistical analysis of costs
Not stated.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was reported.

Estimated benefits used in the economic analysis
The expenses associated with the mini-laparotomy procedure were estimated to be approximately 50% of those for the laparoscopic procedure due primarily to the prolonged operative time (190 minutes) and disposable instrument costs of laparoscopic pelvic lymph node dissection.

Cost results
In the standard pelvic lymph node dissection group, average operative and anesthesia costs were estimated to be $1,311 and $716 respectively. In the laparoscopic pelvic lymph node dissection group, average operative and anesthesia costs were estimated to be $2,121 and $1,066 respectively. In the mini-laparotomy pelvic lymph node dissection group...
average operative time and anesthesia costs were estimated to be $1,311 and $766 respectively. Average costs for disposable equipment were estimated as follows: for standard pelvic lymph node dissection, $30; for laparoscopic pelvic lymph node dissection, $665; for mini-laparotomy pelvic lymph node dissection, $30.

**Synthesis of costs and benefits**
Not combined. The mini-laparotomy procedure can be considered to be dominant due to its superior outcome profile and lower cost. Incremental analysis was not performed.

**Authors’ conclusions**
Mini-laparotomy pelvic lymph node dissection competes successfully with laparoscopic pelvic lymph node dissection in terms of efficacy and morbidity at significant cost savings.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparator is clear. Laparoscopic pelvic lymph node dissection is a new procedure that may be considered as an alternative to standard laparoscopic and pelvic lymph node dissection in terms of lower risk of complications, postoperative pain and duration of convalescence. You, as a user of this database, should consider whether these are widely used health technologies in your own setting.

**Validity of estimate of measure of benefit**
The estimate of measure of benefits used in the economic analysis is likely to be internally valid. The data have not been used selectively.

**Validity of estimate of costs**
Resource were reported separately from the prices. Adequate details of methods of quantity/cost estimation were given. Important cost items do not seem to have been omitted.

**Other issues**
The authors’ conclusions were justified. However, as patients have been charged for disposable instrument use, the results may be not generalisable to the UK NHS. The issue of generalisability to other settings was not addressed, but appropriate comparisons were made with other studies. The results were not presented selectively, however, the self-selection criteria used to allocate patients to different groups caused an uneven distribution of patients between the study groups (7, 20 and 13 in open, laparoscopic and mini-laparotomy group, respectively). The results may have suffered from the limitations arising from the retrospective nature of the study.

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