Laparoscopic adrenalectomy: a new standard of care

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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
Laparoscopic adrenalectomy in patients with benign adrenal neoplasms.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with benign adrenal neoplasms.

Setting
Hospital. The economic study was conducted at St Thomas Hospital and Vanderbilt University Medical Centre, Nashville, Tennessee, USA.

Dates to which data relate
Effectiveness data were collected between October 1990 and October 1996. Cost data were gathered in the same period.

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

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

Study sample
Power calculations were not used to determine the sample size. 19 patients undergoing complete laparoscopic unilateral adrenalectomy were compared to 19 patients undergoing unilateral complete open adrenalectomy.

Study design
The study was a non-randomized clinical trial with historical controls carried out in two centres.

Analysis of effectiveness
All patients completed the intervention to which they were initially allocated. The main health outcomes used in the analysis were: perioperative (blood loss (mL)) and postoperative (number of complications). There were no statistically significant differences between the two groups as regards age, gender, side of adrenal gland, body weight and tumour size.

**Effectiveness results**
Mean intraoperative blood loss was significantly less in the laparoscopic group, 109 mL (range: 50 -300 ml), compared to 263 mL (range: 50 - 1,000 ml) in the open group (p<0.02). Complications were seen in only one patient undergoing laparoscopic adrenalectomy, as opposed to six in the open group (p<0.04).

**Clinical conclusions**
The results showed that the operation could be performed as rapidly as traditional open techniques and the operative time dropped significantly as operative experience was gained in the advanced laparoscopic technique. Other benefits of minimally invasive surgery were the decrease in blood loss, length of hospital stay and complication rate.

**Measure of benefits used in the economic analysis**
No single measure of benefits was provided by the authors.

**Direct costs**
Only hospital costs were considered and they were obtained from the business offices of the hospitals involved. Costs were not discounted and quantities and costs were not presented separately.

**Statistical analysis of costs**
Statistical analyses were performed using analysis of variance, Wilcoxon's rank-sum test, Tukey's pairwise comparison, and Fisher's exact test with significance being defined as p<0.05.

**Indirect Costs**
Not considered.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was performed.

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
The average hospital charge for laparoscopic adrenalectomy was $10,929, which was less than the average charge for open adrenalectomy ($13,720), (p not significant). The laparoscopic patient had a $3,720 mean supply charge compared to $2,375 for the open adrenalectomy patient. The increase in charges was due to the cost of laparoscopic equipment and non-reusable instruments used during the operation (P<0.001). Operating time and length of hospital stay also decreased with the use of the laparoscopic approach.
Synthesis of costs and benefits
Not applicable.

Authors' conclusions
The authors concluded that laparoscopic adrenalectomy could be performed safely and with the benefits associated with minimally invasive surgery. In addition, the procedure was cost-effective. These factors suggested that laparoscopic adrenalectomy should be the preferential surgical technique for benign adrenal disease.

CRD COMMENTARY - Selection of comparators
The selection of comparator is justified, as both open and laparoscopic adrenalectomy are widely used in the authors' setting. You, as a database user should consider if this applies to your own setting.

Validity of estimate of measure of benefit
Data do not appear to have been used selectively to prove a particular point and the choice of health outcomes is justified. However, because of the small sample size and the lack of randomization, the results of the study should be treated with some caution.

Validity of estimate of costs
Few details of the methods of quantity/cost estimation were given so it is hard to judge if any important items were omitted.

Other issues
Appropriate comparisons were made with other studies. Cost data may not be generalisable to other settings/countries.

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None stated.

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