A prospective comparison of costs and morbidity of laparoscopic versus open cholecystectomy
De Pouvourville G, Ribet-Reinhart N, Fendrick M, Houry S, Testas P, Huguier M

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
Using laparoscopic cholecystectomy (LC) versus open cholecystectomy (OC) in patients undergoing cholecystectomy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing elective cholecystectomy.

Setting
Hospital. The economic study was carried out in France.

Dates to which data relate
The effectiveness and resource data were collected between February 1991 and December 1992. The price year was not specified.

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

Link between effectiveness and cost data
Costing was undertaken on the same patient sample as that used in the effectiveness analysis although it is not clear whether it was performed prospectively or retrospectively.

Study sample
Power calculations were not used to determine the sample size. A total of 100 patients undergoing elective cholecystectomy were included in the study, 76 undergoing LC and 24 OC. Four patients in the LC group were excluded.

Study design
This was a prospective non-randomised trial with concurrent controls, carried out in two centres. The duration of the follow up was 6 months. No loss to follow up was reported.
Analysis of effectiveness
The principle (intention to treat or treatment completers only) used in the analysis of the clinical outcomes was not reported. The main health outcomes used in the analysis were morbidity (expressed as number of complications) and pain and discomfort scores, assessed at one day post-operatively using a visual analog scale (VSA), and two rating indexes each based on a list of words used to describe different dimensions of symptoms, and the intensity associated with each word. Three and six months post-operatively, pain was recorded on a 1-10 scale, and discomfort on a 0-3 scale, through a mailed questionnaire or telephone calls. The age, sex distribution, weight, previous abdominal surgery, and occupational status of patients were comparable across the groups.

Effectiveness results
Among the 72 patients having undergone LC, there were two complications; one parietal hematoma and one suspicion of gallstone migration into the common bile duct not confirmed by post-operative endoscopy retrograde cholangiography. The VAS score for the LC group was 29.5 (SD, 26.3) versus 57.3 (28.2) for the OC group (P=0.0001). The number of words of discomfort for the LC group was 4.6 (4.3) against 12.6 (9.6) for the OC group (P=0.001). The total pain score for the LC group was 21.1 (27) versus 72.4 (45.1) for the OC group (P=0.0001).

Clinical conclusions
Pain and discomfort were significantly lower in the LC group in comparison with the OC group.

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic study, and only separate clinical outcomes were reported.

Direct costs
Resource utilisation was not reported separately from the costs. Cost items were reported separately. In the calculations of direct costs, the perspective of a national health service was adopted. Hospital costs per patient were considered, covering direct expenditures, hospital overhead and depreciation of material, and salaries allocated on a per-diem basis. The sources of resource utilisation data for the main period of treatment were medical records or a specially designed resource utilisation instrument. The sources of follow-up resource use were patients' reports. The source of most of the cost data was the hospital accounting system. The date to which the price data referred was not specified. The costs associated with pre-surgical diagnosis were omitted since they were assumed to be common to both health technologies. Out-of-pocket costs borne by the patients were not considered in the cost analysis.

Statistical analysis of costs
Differences between the groups in terms of individual cost items and average total costs were tested with a Mann-Whitney test. A p-value less than 0.05 was regarded as significant.

Indirect Costs
The mean number of days out of work and the associated loss of productivity were calculated based on the patients' reports. The national average wage was used to measure the monetary value of the loss of productivity. The date of the wage data was not specified.

Currency
French francs (FF).

Sensitivity analysis
No sensitivity analysis was performed.
Estimated benefits used in the economic analysis
Not applicable.

Cost results
The total mean costs of hospitalisation were FF12,860 for the LC group and FF13,146 for the OC group (the difference was not significant). The mean number of days out of work was lower in the LC group (14.7 days) than in the OC group (35.5 days) and the difference in costs due to loss of productivity was significant (p<0.0001).

Synthesis of costs and benefits
No synthesis of costs and benefits were performed. The cost savings obtained by using LC were accompanied by a higher rate of postoperative complications.

Authors' conclusions
The advantages of LC must be counter-balanced with a higher rate of postoperative complications than after QC, mainly common bile duct injuries.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator (OC) is clear, as this was a widely used technique 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
The internal validity of the effectiveness results is not weakened by the lack of randomisation.

Validity of estimate of costs
Adequate details of the methods of quantity/cost estimation were given and no important cost items appear to have been omitted.

Other issues
It is possible that cost data may not be generalisable to other settings or countries although generalisability cannot be fully assessed given the lack of sensitivity analysis. A synthesis of costs and benefits appears to have been necessary, however none was carried out.

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