Cost and quality-of-life analyses of surgery for early endometrial cancer: laparotomy versus laparoscopy


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
Laparoscopy, for the treatment of presumed early-stage endometrial cancer.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Women with presumed early-stage endometrial cancer.

Setting
Women's Cancer Centre of Northern California.

Dates to which data relate
Effectiveness data were collected between 1 July 1993 and 31 December 1994. The date to which prices relate was not stated.

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 study.

Study sample
The sample was 30 women with presumed early-stage endometrial cancer. 13 women underwent exploratory laparoscopy, total abdominal hysterectomy, bilateral salpingo-oophorectomy, and pelvic and aortic lymphadenectomy, and 17 women underwent the same surgery by laparotomy. The average age of the intervention group was 61 (range: 35 - 74) and the average age of the control group was 64 (range: 38 - 81), (not statistically significant at the 5% level). No statistically significant difference was detected between the two groups with respect to predisposing medical problems or with respect to height. However, statistically significant differences in weight and Quetelet index (obesity index related to body height and weight) were observed. Power calculations were not used to determine sample size.
Study design
The study was of a retrospective, case-series design. Patients were followed up using a postal questionnaire, but the duration of follow up was not stated.

Analysis of effectiveness
The analysis of effectiveness was based on a complete set of patient records. The primary health outcomes used in the analysis were lymph node counts, rate of complications, average hospital stay and time to return to normal activity. The latter two outcome measures were also compared in a subgroup analysis of the patients with Quetelet index values less than 30. This included the same patient group for the laparoscopic intervention (n=13) and a sub-sample of the laparotomy group (n=10). The two groups were shown to be comparable in certain clinical and demographic characteristics, although this comparison did not include precise stage of disease.

Effectiveness results
Patients undergoing laparoscopy had an average of 8 aortic and 20 pelvic lymph nodes removed. Patients undergoing laparotomy had an average of 7 aortic and 22 pelvic lymph nodes removed. One patient from each group was affected by a post-operative complication. The laparotomy group required significantly longer hospitalisation than the laparoscopy group (6.3 versus 2.4 days, p<0.001), and took longer to return to normal activity (5.3 weeks versus 2.4 weeks, p<0.0001). In the subgroup analysis, average hospital stay was again significantly longer in the laparotomy group (5.3 days) than in the laparoscopy group (p<0.0001). Return to normal activity in the laparotomy subgroup was 5.7 weeks, which was significantly higher than in the laparoscopic group (p<0.0001).

Clinical conclusions
Laparoscopic management of endometrial cancer may result in improved quality of life as demonstrated by shortened hospital stays and an earlier return to normal activity.

Measure of benefits used in the economic analysis
Effectiveness estimates were not converted to a single measure of health benefit for the economic analysis.

Direct costs
Direct health service costs were estimated in the analysis and included operating room, hospital bed, pharmacy and anaesthesia. Surgeons' fees were identified as being common to both groups and were excluded from the analysis. Costs and quantities were not reported separately. A subgroup cost analysis of the patients with Quetelet index values less than 30 was undertaken.

Statistical analysis of costs
A two-tailed Student t test was used in the analysis.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
A sensitivity analysis was not performed.
Estimated benefits used in the economic analysis
Estimated benefits were proxied by the effectiveness estimates.

Cost results
The total per-patient hospital costs were $13,809 (+/- 3,560) for the laparoscopy group, compared to $19,158 (+/- 4,229) for the laparotomy group, (p<0.05). In the subgroup analysis no statistically significant difference was found in overall hospital costs between the groups, although the authors did conduct further analysis which suggested that this was related to costs associated with specific hospitals.

Synthesis of costs and benefits
A synthesis of costs and benefits was not performed. However, the intervention was associated with positive incremental effects and negative incremental costs, suggesting that laparoscopy was cost saving, relative to laparotomy.

Authors' conclusions
Laparoscopic management of endometrial cancer may result in significant cost savings and improved quality of life as demonstrated by shortened hospital stays and an earlier return to normal activity.

CRD COMMENTARY - Selection of comparators
The reason for the authors' choice of comparator is clear, namely that laparotomy represented current practice. You, the user of this database, should decide if this is widely used technology in your own setting.

Validity of estimate of measure of benefit
No single measure of benefit was developed for the analysis and measures of clinical effectiveness did not address post-operative morbidity or mortality. As such, the authors have conducted a preliminary cost and outcomes study. The sample size of the study was very small and limits the interpretability of the results. The comparability of the two groups, in terms of precise stage of disease, was not demonstrated.

Validity of estimate of costs
Despite the application of a statistical analysis of costs, the generalisability of the results to other settings was limited by two factors: costs and quantities were not reported separately and insufficient detail of the methodology used was given. The cost of informal care was not included in the analysis.

Other issues
The authors’ conclusions are tentative and reflect the uncertainties in the data. Attention is drawn to the proposed randomised trial to be undertaken by the Gynaecological Oncology Group and the need for such a trial was acknowledged by the authors of this study.

Implications of the study
These results need to be validated by future randomised controlled trials where possible.

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None stated.

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