Second-look operation for epithelial ovarian cancer: laparoscopy or laparotomy?

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 in second-look operations for epithelial ovarian cancer

Type of intervention
Treatment and diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with epithelial ovarian cancer undergoing a second-look operation.

Setting
One hospital in the United States. The economic study was carried out in the United States.

Dates to which data relate
Effectiveness and resource use data related to the period 1 July 1992 to 30 June 1995. The price year was not stated.

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
The study comprised 109 patients with stage IB-IV epithelial ovarian cancer undergoing a second-look operation at one hospital. 31 patients were evaluated by laparoscopy, 70 by laparotomy, and 8 by laparoscopy followed immediately by laparotomy in the same operation. Power calculations did not determine sample size.

Study design
Case series in a single centre. The median follow-up period was 22.0 months.

Analysis of effectiveness
The analysis of effectiveness was based on treatment completers only. The primary health outcomes used in the analysis
were estimated blood loss, length of hospital stay and disease-free survival. The reference test was biopsy at laparotomy (for the laparoscopy-laparotomy group) and following clinical observation (for the remaining patients).

**Effectiveness results**
Persistent ovarian cancer was found in 65 out of 109 (59.6%) patients, including 17 of 31 (54.8%) evaluated by laparoscopy, 43 of 70 (61.4%) evaluated by laparotomy, and 5 of 8 (62.5%) evaluated by both procedures. The mean number of biopsies taken during laparoscopy was 9.5, compared with 15.9 during laparotomy. 8 of the 39 patients who were initially evaluated by laparoscopy were converted to laparotomy. The indication for conversion to laparotomy in all 8 patients was the inability to identify gross peritoneal disease at laparoscopy. Significantly lower mean blood loss (27 versus 208 mL) was noted in patients undergoing laparoscopy compared with laparotomy (p<0.01). In addition, the mean operating time for second look laparoscopy (129 minutes) and mean hospital stay (1.6 days) were shorter than those for laparotomy (153 minutes and 6.8 days, p<0.01 for both comparisons). Recurrence after negative second-look surgery was noted in 2 out of 14 (14.3%) patients evaluated by laparoscopy and 4 out of 27 (14.8%) patients evaluated by laparotomy. Disease free survival group differences for such events had a p value = 0.62. Of the 8 patients converted to laparotomy, 1 patient would have been missed by laparoscopy. The complication rate was 27% with laparotomy and 0% with laparoscopy.

**Clinical conclusions**
The preliminary results on recurrence after negative second-look surgery were similar in both groups; however larger series are needed to confirm these findings. Also, randomised controlled trials are needed to confirm the study finding of a low complication rate of laparoscopy relative to laparotomy. The need for conversion to laparotomy due to a lack of gross persistent disease may be reduced if intraoperative cytologic consultation is obtained on washings retrieved laparoscopically before conversion to laparotomy. The authors believe that, according to a previously published result, the use of rush cytology before conversion to laparotomy in patients without gross evidence of persistent disease at laparoscopy would be expected to detect 22% of microscopically positive second-look operation cases.

**Measure of benefits used in the economic analysis**
The measure of benefits were blood losses avoided and reduction in length of stay.

**Direct costs**
Length of operation and hospital stay were analysed separately. Hospital charges were calculated from an institutional database and included charges billed to the patient from admission for surgery until discharge. Preoperative and postoperative follow-up charges were not included. The price year was not clearly reported.

**Currency**
US dollars ($).

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

**Estimated benefits used in the economic analysis**
Lower mean blood loss was noted in patients undergoing laparoscopy compared with laparotomy (27 versus 208mL, p<0.01). In addition, the mean operating time for second look laparoscopy (129 minutes) and mean hospital stay (1.6 days) were shorter than those for laparotomy (153 minutes and 6.8 days, p<0.01).

**Cost results**
Day of surgery charges were similar in both groups, with a mean of $8,049 for the laparoscopy group and $7,984 for
the laparotomy group (p=0.12). However, total hospital charges were significantly lower for patients undergoing laparoscopy ($9,448) compared with patients undergoing laparotomy ($17,969) (p<0.01).

Synthesis of costs and benefits
The costs and benefits were not combined since the laparoscopic second-look operation turned out to be the dominant strategy.

Authors' conclusions
The authors felt that laparoscopy may be used as the initial approach for patients undergoing second-look operations. This approach appeared to spare many patients the morbidity, cost and hospital stay associated with laparotomy. Although these data do not prove the benefit of laparoscopy over laparotomy, they do establish adequate grounds for conducting a randomised clinical trial.

CRD COMMENTARY - Selection of comparators
The reason for the choice of comparator is clear.

Validity of estimate of measure of benefit
The estimate of the measure of benefit used in the economic analysis is likely to be biased due to the absence of comparable groups in prognostic factors. A randomised controlled trial was suggested by the authors to validate the present study's results (a larger study size would be desirable).

Validity of estimate of costs
Resource quantities were reported separately from the prices. Inadequate details of the costing methodology were given.

Other issues
The authors' conclusions were justified given the uncertainties in the data.

Implications of the study
Further, randomised controlled studies are warranted to validate the cost-effectiveness of the open laparoscopic second-look operation in patients with epithelial ovarian cancer.

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