Laparoscopic-assisted vaginal hysterectomy for endometrial cancer: clinical outcomes and hospital charges

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
Laparoscopically-assisted vaginal hysterectomy (LAVH) and total abdominal hysterectomy (TAH) were compared for patients with early-stage endometrial cancer.

Type of intervention
Diagnosis (staging) and treatment.

Economic study type
Cost-effectiveness analysis

Study population
The study population comprised women with early-stage endometrial cancer.

Setting
This study was set in secondary care (Memorial Sloan-Kettering Cancer Center, New York, New York, USA).

Dates to which data relate
The effectiveness data related to the period from 1 July 1991 to 30 September 1996. No dates were given for the cost information.

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

Link between effectiveness and cost data
The costing was carried out on the same sample of patients used to collect the effectiveness data. It is not clear whether the cost data were collected at the same time as, or after, the effectiveness data.

Study sample
The sample included 320 patients who underwent surgery between 1 July 1991 and 30 September 1996. Sixty-nine of these patients (22%) were treated by LAVH and 251 (78%) by TAH. Patients with two primary tumours and/or intraperitoneal evidence of disease, as well as stage IV disease, were excluded. It is not clear how many patients were excluded. Moreover, patients were selected to the LAVH group on the basis of suspicion of disease confined to the uterus and a uterus amenable to a vaginal surgical approach. Patient weight also affected the selection of patients to the study groups. Thus selection was non-random. No power calculations were reported.
**Study design**
This was a single-centre, non-randomised, controlled trial. Median follow-up after surgery was 18 months for the LAVH group and 30 months for the TAH group. No explanation for this difference in follow-up was given and no loss to follow-up was reported. Blinding of patients and surgeons would not have been possible.

**Analysis of effectiveness**
The data were analysed on an intention to treat basis. The primary outcomes assessed were the rate of surgical complications, disease recurrence and length of stay. The two groups were found to be similar in age, histological type and stage of disease. Patients in the TAH group were significantly heavier (81.9 kg versus 71.3 kg) though no adjustments were made for possible confounding.

**Effectiveness results**
The rate of complications was lower in the LAVH group (6% of patients) than in the TAH group (39%) and this result was statistically significant, (p<0.05).

There was no significant difference in disease recurrence, (p=0.91) over the follow-up period.

The LAVH group had a median length of stay of 2.0 days compared with 6.0 days for the TAH group, (p<0.05).

**Clinical conclusions**
Patients treated by LAVH had significantly fewer complications, shorter hospitalisation and similar long-term outcomes compared with those treated by TAH.

**Measure of benefits used in the economic analysis**
No summary health benefit measure was used. This was a cost-consequences study.

**Direct costs**
Hospital charges were derived from a database at the authors’ institution. No dates to which charges relate were reported. The charges included operating room supply charges, operating room charges and room charges. Preoperative and postoperative follow-up charges were not included. The costs of any long-term events were not considered and thus discounting was not appropriate. Some quantities (such as length of stay) were reported separately. Hospital charges were not converted to costs, and therefore true resource costs may have been overestimated.

**Statistical analysis of costs**
For the cost components and the use of certain resources, a two-sample Wilcoxon rank test was used to test for the significance of the difference between the two treatment groups. The study appears to have been sufficiently powered to detect differences using this test as most of the reported test statistics were significant. The authors reported measures of central tendency for the cost variables but did not always specify whether they were medians or means.

**Indirect Costs**
Indirect costs were not included in this study.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was reported.

**Estimated benefits used in the economic analysis**
The reader is referred to the effectiveness results reported earlier.

**Cost results**
The mean total charges were $11,826 for the LAVH group and $15,189 for the TAH group, accounting for surgical complications. This difference was reported to be significant at the 5% level.

**Synthesis of costs and benefits**
Not relevant.

**Authors’ conclusions**
LAVH is an attractive alternative for eligible patients as this study suggests it is associated with shorter hospitalisation and fewer complications. Long-term outcomes are thought to be similar to those with TAH.

**CRD COMMENTARY - Selection of comparators**
The authors justified their choice of comparator by explaining that, in their setting, TAH was the traditional approach for the treatment of patients with early-stage endometrial cancer. LAVH was suggested as a less morbid approach that provided the same diagnostic information.

**Validity of estimate of measure of effectiveness**
The authors acknowledged that this study was limited by its retrospective nature meaning that patients were selected to the LAVH group based on clinical considerations. Since the study was not randomised, the favourable effectiveness results cannot be attributed exclusively to the LAVH intervention. The authors also noted that the follow-up period was limited. Patients in the LAVH group had a median follow-up of 18 months compared with 30 months for TAH patients. This large difference in the duration of follow-up is likely to have been due to the retrospective nature of the study, and the relative novelty of LAVH compared with TAH. A longer follow-up of LAVH patients would be required before the survival and relapse rates could be said with certainty to be equal to TAH.

The authors mentioned that some patients were excluded based on clinical criteria but did not quantify these exclusions. Nonetheless, the study sample may have been representative of early-stage endometrial cancer patients.

**Validity of estimate of costs**
In this study, the hospital charges (prices) were derived for each patient but these charges were not converted or related to costs. It is the cost (in terms of resources used) and not the price of an intervention that is relevant in a cost-effectiveness study. Charges are not generalisable to the NHS or other health care systems. Moreover, no date information was given for the charges so it is not possible to adjust for inflation or intertemporal changes in the relationship between charges and costs.

The authors used a non-parametric rank test to test for significant differences in the costs incurred by each group. Rank tests implicitly compare the median values between groups. When analysing costs it is preferable to compare the means, which are more useful than medians for decision makers allocating overall budgets.

**Other issues**
The effectiveness results of this study are comparable with other studies but the "cost” results are not transferable to other settings.
Implications of the study
The authors conclude that LAVH is an attractive alternative to TAH for selected patients and recommend further research to investigate outcomes for other (for example, heavier) patients.

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Other publications of related interest

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