Treat ing adnexal masses: operative laparoscopy vs. laparotomy

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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
Operative laparoscopy versus laparotomy in treating adnexal masses.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised women treated for adnexal masses. Exclusion criteria for the operative laparoscopy group included the presence of an ectopic pregnancy, performance of a hysterectomy and presence of known colorectal or gynaecologic malignancy.

Setting
The setting was hospital. The economic analysis was carried out in the USA.

Dates to which data relate
Effectiveness, resource use, and cost data were collected between January 1988 and December 1995. The price year was not reported.

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

Link between effectiveness and cost data
The costing was carried out prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
72 patients underwent laparoscopic cystectomy and 127 patients underwent oophorectomy. 49 and 157 patients underwent cystectomy and oophorectomy by laparotomy, respectively. No power calculations were reported. The age of patients undergoing oophorectomy was around 45 years and the age of patients undergoing ovarian cystectomy was around 28 years. Thirty-seven patients undergoing laparoscopic oophorectomy and 45 patients undergoing oophorectomy by laparotomy were postmenopausal.

Study design
The study took the form of a retrospective cohort study carried out at a single centre. Patients were followed up until discharge. No patient was lost to follow-up.

**Analysis of effectiveness**
The analysis of the clinical study was based on intention to treat. The primary health outcomes were indications, histopathology, surgical outcomes, and patient complications. Patients in the operative laparoscopy and laparotomy groups were of similar ages for both oophorectomy (around 45 years) and ovarian cystectomy (around 28 years).

**Effectiveness results**
The effectiveness results were as follows:

Laparoscopic oophorectomy was attempted in 45% of oophorectomy patients and successfully completed in 93% of patients. Laparoscopic cystectomy was attempted in 60% of cystectomy patients and successfully completed in 98% of patients.

The primary indication for surgery in all patients was adnexal mass and the secondary indication was pelvic pain. The most common diagnoses were endometrioma, functional cyst, and serious cystadenoma with laparoscopy; and teratoma, endometrioma, and functional cyst with laparotomy.

Estimated blood loss was 50mL (range: 20 - 300) with laparoscopic cystectomy and 108mL (range: 20 - 700) with cystectomy by laparotomy, (p=0.001).

Mass diameter was 5.5cm (range: 3 - 16) with laparoscopic oophorectomy and 7.5cm (range: 3 - 23) with oophorectomy by laparotomy, (p<0.001). Estimated blood loss was 60mL (range: 0 - 400) with laparoscopic oophorectomy and 140mL (range: 20 - 1050) with oophorectomy by laparotomy, (p<0.001).

There were complications in 1 patient with laparoscopic cystectomy and in 5 patients with cystectomy by laparotomy, (p=0.005). There were complications in 4 patients with laparoscopic oophorectomy and 51 patients with oophorectomy by laparotomy, (p<0.001).

**Clinical conclusions**
Treatment of adnexal masses by operative laparoscopy can be performed safely, with reduced morbidity and patient disability.

**Measure of benefits used in the economic analysis**
The authors did not report a summary health benefit and left clinical outcomes disaggregated. Hence, a cost-consequences analysis was conducted.

**Direct costs**
Direct costs were not discounted due to the short time horizon of the study (less than 1 year). Quantities and costs were not reported separately. Direct costs related to hospital charges and professional fees. The quantity/cost boundary adopted was that of the hospital. Charges were collected from the hospital. The price year was not reported. Hospital stay for ovarian cystectomy was significantly shorter for laparoscopy (0.8 versus 3.1 days; p<0.001). Hospital stay for oophorectomy was significantly shorter for laparoscopy (0.8 versus 4.1 days; p<0.001).

**Statistical analysis of costs**
The authors used Student t-tests to investigate cost differences between treatment alternatives.
Indirect Costs
Indirect costs were not included.

Currency
US dollars ($).

Sensitivity analysis
The authors did not report sensitivity analyses.

Estimated benefits used in the economic analysis
See effectiveness results above.

Cost results
Total charges amounted to $4,507 (range: $2,856 - $7,988) with laparoscopic cystectomy and $5,541 (range: $4,113 - $8,368) with cystectomy by laparoscopy (p<0.001).

Total charges amounted to $5,873 (range: $2,901 - $10,603) with laparoscopic oophorectomy and $7,007 (range: $3,466 - $31,827) with oophorectomy by laparoscopy (p=0.007).

Synthesis of costs and benefits
The authors did not combine cost and health benefit measures into a cost-effectiveness ratio because they conducted a cost-consequences study.

Authors’ conclusions
"Treatment of adnexal masses by operative laparoscopy can be performed safely, with reduced morbidity and patient disability, and at a reduced cost.”

CRD COMMENTARY - Selection of comparators
A justification was given for the comparator used, namely that it represented a currently employed strategy. You, as a user of the database, should decide if these health technologies are relevant to your setting.

Validity of estimate of measure of effectiveness
The analysis was based on a retrospective cohort study, which was appropriate for the study question, but which may be susceptible to various limitations and bias. The authors did not show that the study sample was representative of the study population, and did not report many demographic characteristics. The analysis of effectiveness was, however, handled credibly.

Validity of estimate of measure of benefit
The authors did not derive a measure of health benefit. The analysis was therefore categorised as a cost-consequences study.

Validity of estimate of costs
Some good features of the cost analysis were that all relevant direct cost categories were included and statistical analyses were conducted. However, the price year was not reported, and quantities and costs were not reported separately. No sensitivity analyses were reported on quantities or costs which limits the generalisability of the results.
Moreover, hospital charges were not converted into costs. The authors did not measure additional costs in the laparotomy group for outpatient treatment or readmission of patients who suffered wound infections. Indirect costs, such as lost productivity caused by morbidity, were not included, but would be relevant for other perspectives (e.g., societal).

Other issues
The authors did make appropriate comparisons of their findings with those from other studies but did not address the issue of generalisability to other settings. The authors do not appear to have presented their results selectively. The study considered women treated for adnexal masses and this was reflected in the authors' conclusions. The authors did not choose a summary health benefit, which makes it difficult to compare the results of similar health technologies.

Implications of the study
According to the authors, treatment of adnexal masses by operative laparoscopy can be performed safely, with reduced morbidity and patient disability, and at a reduced cost.

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