Salpingo-oophorectomy: clinical and financial analysis of laparoscopic and open techniques

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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
Salpingo-Oophorectomy and salpingectomy performed by laparoscopy or by laparotomy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Women undergoing salpingo-oophorectomy. The mean age of women undergoing laparoscopy was 47 years (range 29-81 years), while for laparotomy the mean age was 45 years (range 25-81 years).

Setting
Hospital. The economic study was carried out in Massachusetts, USA.

Dates to which data relate
Effectiveness data for laparoscopy were collected in 1991-1992 and 1989-1990. Dates for collection of resource/cost data were not stated. Price date was not given.

Source of effectiveness data
Single study

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample used in the effectiveness study.

Study sample
The study sample consisted of 20 women who underwent laparoscopic salpingo-oophorectomy during 1991-1992 compared with 20 women who had salpingo-oophorectomy by laparotomy during 1989-1990. Diagnosis of ectopic pregnancy excluded a patient from one of the groups. It is not stated if a power calculation was used to determine the sample size.

Study design
Cohort study with historical control, single centre study. Duration of follow-up was not specified. There was no loss to follow up.
Analysis of effectiveness
Effectiveness analysis was based on intention to treat. Side effects of the interventions were estimated as health outcomes. Groups were comparable in age, but not in clinical/prognostic characteristics.

Effectiveness results
Blood loss was greater during laparotomy compared to laparoscopy (188ml range 0-1000, compared to 87 ml range 0-200; p=0.1). Those undergoing laparotomy had a 25% rate of postoperative complications, such as fever, anemia, urinary retention or atrial fibrillation, compared to 0% for those undergoing laparoscopy. One patient undergoing laparotomy had a late complication. There were no readmissions within 30 days for either group.

Measure of benefits used in the economic analysis
Side-effects of the laparotomy and laparoscopic interventions.

Direct costs
Some costs and quantities were reported separately. Only hospital costs were considered, including duration of operation, length of stay, operating room and recovery room costs, ancillary charges, room and board, and anesthesiologists’ and surgeons’ fees. Estimates of costs and quantities were based on actual data (unit of analysis). Cost data were obtained from standard fee records and hospital records. The price date was not specified.

Statistical analysis of costs
Costs/quantities were treated in a stochastic way. Standard deviations and p-values were reported.

Indirect Costs
Costs and quantities were reported separately. The patients’ (and employers’) work loss time was measured. Data were based on actual data, collected by telephone interviews. Price date was not specified.

Currency
US dollars ($)

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Blood loss was greater during laparotomy compared to laparoscopy (188ml range 0-1000, compared to 87 ml range 0-200; p=0.1). Those undergoing laparotomy had a 25% rate of postoperative complications, such as fever, anemia, urinary retention or atrial fibrillation, compared to 0% for those undergoing laparoscopy. One patient undergoing laparotomy had a late complication.

Cost results
The mean total hospital charge for laparoscopy was $6,148 (SD +/- 1563) compared to $6,025 (SD +/- 1326) for laparotomy (p=0.42). The equality of cost, despite the higher operating/equipment costs for laparoscopy, is attributed to shorter length of stay for laparoscopy patients. Moreover, regarding the indirect costs, in the laparoscopy group the average length of disability was 3.3 (SD +/- 2.4) weeks vs 5.1 (SD +/- 1.9) weeks for laparotomy (p=0.107).
Synthesis of costs and benefits
Incremental benefits of laparoscopy vs laparotomy were considered to be positive; the difference in costs were not statistically significant.

Authors’ conclusions
Salpingo-oophorectomy can be successfully performed by laparoscopy. Patients benefit from the minimally invasive nature of the surgery and employers may benefit in terms of less employee lost time from work. The authors recognise two areas of potential bias: the fact that the laparotomies were performed by more than one surgeon and that women were counselled before laparoscopy about early return to work which may have biased recovery time.

CRD Commentary
Effectiveness results may be biased by non-homogeneity of groups in terms of clinical/prognostic features. A statistical analysis of the effectiveness results was not reported. The economic study did go some way to answering the question posed as to the financial costs of the procedure. However there is no breakdown of charges, for example hospital charges, so it is not evident whether these include, for example, nursing costs, administration costs or specific overheads. Some measurement of patient satisfaction may be useful. As the costs relate to USA health charges they are not internationally comparable.

Implications of the study
The main implication of this study is that if any health policy decision is to be made concerning the costs and benefits of laparoscopy as opposed to laparotomy for salpingo-oophorectomy then an appropriately sized RCT is necessary.

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