Comparison of rigid and flexible esophagoscopy in the diagnosis of esophageal disease: diagnostic accuracy, complications, and cost


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
Flexible fibre-optic esophagoscopy versus rigid esophagoscopy employed in panendoscopy in patients undergoing otolaryngological examination of the oesophagus.

Type of intervention
Diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing otolaryngological examination of the oesophagus.

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

Dates to which data relate
The effectiveness data were recorded between 1989 and 1993. The dates of the resource use data and prices were not specified.

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

Link between effectiveness and cost data
It was not clearly reported whether the costing was undertaken on the same patient sample as that used in the effectiveness analysis. It was undertaken retrospectively.

Study sample
Power calculations were not reported as determining the sample size. The medical records were reviewed for 195 patients (from a total of 699 who had rigid endoscopy) who underwent flexible fibre-optic endoscopy within 6 months of rigid esophagoscopy.

Study design
Retrospective cohort study performed in 2 centres.
Analysis of effectiveness
The principle (intention to treat or treatment completers only) was not specified. The primary outcomes considered were rate of complications and rate of discordant findings (defined as lesions diagnosed on fibre-optic flexible endoscopy which were not found on rigid esophagoscopy) and the rate of esophageal cancers in discordant findings.

Effectiveness results
A total of 10 (5%) discordant findings were reported. Five cases (50%) of discordant findings were esophageal cancers. No complications were reported during either the intervention or the comparator.

Clinical conclusions
The results of this study plus a literature review carried out after the results were reported, supported the “theory that the majority of lesions missed by rigid endoscopy occur in the lower portion of the esophagus”. In the present study “a disturbing trend of missed esophageal malignancies was seen in cases of discordant findings”. Fifty percent of those cases were esophageal cancers. This finding “suggests that small tumors may be missed on routine rigid esophagoscopy. The most likely explanation of this finding is that the esophagus is more completely visualized with the flexible endoscope.”

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic study, and only separate clinical outcomes were reported.

Direct costs
Quantities were not analysed separately from the costs but the cost items were reported separately. The costs measured were operating costs (physician, anaesthesia, operating and recovery rooms fees). The boundary adopted was not explicitly specified and it was not reported whether the estimation of quantities was based on actual data or on a guess. The dates of the price data were not reported. The source of cost data appears to be the institution's billing office.

Indirect Costs
Not included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The average total cost for rigid esophagoscopy was $1,945. The average total cost of flexible endoscopy was $1,150. The intervention resulted in -$795 incremental costs (net savings).

Synthesis of costs and benefits
Since the intervention was the optimal strategy, no combination was necessary.
Authors' conclusions
The study confirms that a discrepancy exists between findings in patients who have undergone both rigid and flexible endoscopy for evaluation of the esophagus. The discordance rate of 5% suggests flexible esophagoscopy is a better diagnostic tool than rigid endoscopy. The cost comparison favours the intervention mostly because of the requirement for general anaesthesia in the comparator. The study would suggest that the intervention should replace the comparator for the evaluation of esophageal disease.

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

Validity of estimate of measure of effectiveness
The internal validity of the effectiveness results may be weakened by the study design adopted (retrospective cohort study).

Validity of estimate of costs
Resource utilisation was not reported separately from the costs and the sources of resource use data were not specified. Insufficient details of methods of cost estimation were given.

Other issues
In view of the retrospective study design, lack of sensitivity analysis, and lack of statistical analysis of the costs, the results need to be treated with some caution. The issue of generalisability to other settings or countries was not addressed.

Source of funding
None stated.

Bibliographic details

Indexing Status
Subject indexing assigned by NLM

MeSH
Comparative Study; Cost-Benefit Analysis; Esophageal Neoplasms /diagnosis; Esophagoscopy /adverse effects /economics /instrumentation /methods; Fees, Medical; Fiber Optic Technology; Head and Neck Neoplasms /diagnosis; Hospital Charges; Humans; Reproducibility of Results; Retrospective Studies; Sensitivity and Specificity

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