Cost-effectiveness in the management of patients with oesophageal cancer
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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
Treatments commonly used in the management of oesophageal cancer: surgical resection and palliative strategies.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis

Study population
Patients diagnosed with oesophageal cancer.

Setting
Secondary care. The economic analysis was carried out in Newcastle, United Kingdom.

Dates to which data relate
Effectiveness data were collected during the period January to December 1993. Data on quality of life and resource use were collected between 30 September 1996 and 31 March 1997. The price year was 1996/97.

Source of effectiveness data
The evidence for final outcomes was derived from a single study.

Link between effectiveness and cost data
The costing was undertaken prospectively on a different patient sample to that used in the effectiveness analysis.

Study sample
139 patients diagnosed with primary oesophageal carcinoma were identified from the cancer registry and hospital episode statistics. Full assessment was conducted on 132 patients: 31 received surgical resection, 47 received external beam radiotherapy, 6 received microselectron, 17 received endoluminal laser therapy, 17 received intubation, and 14 received no definitive management. Most individuals were managed using more than one treatment. Power calculations were not used to determine the sample sizes.

Study design
This was a retrospective cohort study carried out in a single centre. Case notes were retrieved and information regarding the management over a 3-year period (or until death) was recorded on a standardised pro forma. Patients were followed...
Analysis of effectiveness
The analysis of the clinical study was based on intention to treat. The primary health outcome used in the analysis was length of survival. 53 consecutive patients (September 1996 to March 1997) were approached to take part in the study for quality of life assessment. 51 patients gave their written informed consent to participate. The European Organization for Research and Treatment of Cancer (EORTC) QLC-C30 and OES 24 instruments was used to evaluate quality of life. Questionnaires were completed before treatment commenced and at monthly intervals for 3 months following the date of first treatment. Pretreatment assessment was conducted with an interviewer present while subsequent questionnaires relied on postal responses. The mean age and gender mix of the patients whose notes were retrieved and studied retrospectively for the effectiveness analysis were similar to those of the group recruited prospectively. The intervention groups were not significantly different in terms of their baseline characteristics.

Effectiveness results
Median survival was greater for the group of patients who underwent surgical resection compared with that for individuals who received non-operative palliative treatment or no treatment at all (20 versus 6 months; p<0.0001). Overall there was a trend toward better quality of life among patients undergoing surgical resection compared with other treatments. Specifically, resection conferred significant improvements in reported postoperative dysphagia compared with the palliative modalities. However, this was at the cost of a reduction in reported physical functioning and global health/quality of life scores.

Clinical conclusions
Surgical resection for oesophageal carcinoma confers greatest benefit in terms of survival.

Measure of benefits used in the economic analysis
Survival rate was used as a measure of benefit in the economic analysis.

Direct costs
Quantities and costs were not reported separately. The estimation of costs was based on actual data based on the 53 patients recruited prospectively between September 1996 and March 1997. Procedural costs were calculated for endoscopic, radiotherapeutic and surgical interventions (accounting for staff and equipment costs in each case) as well as the cost of outpatient, inpatient and intensive care unit episodes. Staff costs were calculated by recording the staff requirements (including grade of staff) for, and the duration of, a given procedure. In determining equipment costs, the current purchase cost, nature of guarantee, service contract and life span were identified. Incremental surcharges were employed to account for intangible costs such as heating, lighting, building maintenance and administration. Costs do not appear to have been discounted, although, for some of the patients, they were incurred during a period of 3 years.

Statistical analysis of costs
The Mann-Whitney and Kruskal-Wallis tests were used to compare costs between groups.

Indirect Costs
Not included.

Currency
UK pounds sterling (£).
Sensitivity analysis
Not performed.

Estimated benefits used in the economic analysis
Median survival was greater for the group of patients who underwent surgical resection compared to that for individuals who received non-operative palliative treatment or no treatment at all (20 versus 6 months; p<0.0001).

Cost results
The median cost of hospital management over the follow-up period was significantly greater for individuals who underwent surgical resection (8,070) than for patients subjected to a palliative strategy, (p<0.0001). The range of costs incurred over the time period studied was also greatest in individuals who underwent resection (minimum 2,584, maximum 39,789). Across the range of palliative treatments differences in cost were also significant (external beam radiotherapy 4,720; brachytherapy 1,790; laser 3,540; intubation 2,450; and no treatment 1,390).

Synthesis of costs and benefits
The median cost per month of survival was 457 for resection. This compared favourably with the least expensive palliative strategies: intracavity microselectron (364 per month) and endoluminal laser therapy (342 per month).

Authors’ conclusions
When considered in terms of the median cost per month of survival, the high hospital cost incurred by resection compares very favourably with the cost of other treatment modalities. The authors considered the cost margin between resection and the least expensive palliative strategies a small price to pay given the significant differences in survival.

CRD COMMENTARY - Selection of comparators
The reason for the choice of comparators is clear as they were commonly used in the authors’ setting.

Validity of estimate of measure of benefit
The estimate of the measure of benefit may not be valid given the relatively small number of patients in each treatment modality, the observational study design, and the lack of a power calculation to determine sample size.

Validity of estimate of costs
Resource quantities were not reported separately from prices. Adequate details of the methods of cost estimation were given. The cost estimates were not based on the same patient sample as that used in the effectiveness analysis.

Other issues
Given the uncertainties in the data and the lack of sensitivity analysis the authors’ conclusions may not be fully justified.

Implications of the study
The authors suggest that investigation conducted over a much longer time frame would be beneficial.

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None stated.

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