Palliative treatment of advanced esophageal cancer with metal-covered expandable stents: a cost-effectiveness and quality of life study

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
The study compared the use of highly flexible, knitted, self-expanding metal stents (Ultraflex Esophageal Prostheses, Microvasive) with endoscopic Nd:Yag or Diomed laser for the treatment of inoperable primary malignant oesophageal obstruction or stenosis.

Type of intervention
Palliative treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with oesophageal obstruction due to inoperable squamous cell carcinoma or adenocarcinoma of the oesophagus.

Setting
The setting was tertiary care. The economic study was carried out in Athens, Greece.

Dates to which data relate
The effectiveness and resource use data for the stent group referred to the period between May 1997 and December 2002, while that for the control group referred to the period between September 1996 and March 1999. The price year was 2000.

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

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient samples that provided the effectiveness data.

Study sample
A total of 105 patients were included in the study. Of these, 78 received stenting (52 men, 26 women) and 27 received laser treatment (18 men, 9 women). The mean age of the patients was 72.3 years (range: 53 to 102) in the stent group and 71.8 years (range: 63 to 89) in the laser group. Some patients in the stent group received more than one stent. The groups were a convenience sample that comprised all patients undergoing theses procedures during the study period. No sample size or power calculations were presented in the paper.
Study design
The study was a retrospective cohort study. The patients were followed up for 2 months. Eight patients in the stent group were unable to complete the study questionnaire at 1 month because of either death or poor health. The retrospective observational nature of the study meant that there was no blinding to the patient group.

Analysis of effectiveness
The primary health outcomes assessed in this study were dysphagia score (on a 5-point scale), survival and complications of treatment. No comparison of the baseline characteristics of the two treatment groups was made in the paper.

Effectiveness results
The median survival was 18 weeks (95% confidence interval, CI: 16 to 20) in the stent group and 17 weeks (95% CI: 15 to 19) in the laser group.

At the 1-month follow-up, 96% of patients in the stent group had an improved dysphagia score, compared with 71% in the laser treatment group.

At 2 months, 75% of patients in the stent group had an improved dysphagia score compared with baseline. The figure for the laser treatment group was 54%.

The only complication in the stent group was a stent migrating to the stomach after 3 weeks.

Two patients in the laser treatment group encountered complications (one fatality due to uncontrollable tumour bleeding and one minor perforation).

Clinical conclusions
The authors concluded that the use of stents in the treatment of oesophageal obstruction was safe and clinically effective.

Measure of benefits used in the economic analysis
No summary measure of benefit was derived so, in effect, a cost-consequences analysis was performed.

Direct costs
The direct costs of the health care provider were identified. These included personnel costs, materials, equipment costs, and housing and overheads. The resource use data were based on actual resource use by the patients included in the study. The unit cost data were taken from a database of cost elements in Greece and the current prices of Ultraflex oesophageal stents. A breakdown of the resource use and unit costs was not provided in the paper. The resource use data referred to the period between May 1997 and December 2002 for the stent group, and the period between September 1996 and March 1999 for the laser treatment group. The price year was 2000.

Statistical analysis of costs
The cost data were treated deterministically.

Indirect Costs
No indirect costs were included in this study.
Currency
Euros (EUR).

Sensitivity analysis
No sensitivity analysis was undertaken.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The total cost was EUR 3,103 per patient in the stent group compared with EUR 2,947 per patient in the laser treatment group.

Synthesis of costs and benefits
Not relevant.

Authors' conclusions

CRD COMMENTARY - Selection of comparators
This study compared the use of self-expanding stents with laser therapy for the treatment of oesophageal obstruction due to malignant tumour. The authors did not provide an explicit reason for their choice of the comparator, but they noted that it is a widely used treatment. You should consider how these two options compare to usual practice in your own setting prior to applying the results of this study.

Validity of estimate of measure of effectiveness
The effectiveness data used in this study were taken from a retrospective cohort study. This study design has a number of inherent limitations. A randomised controlled trial would have provided more robust effectiveness data. In addition, the two treatments were undertaken during different time periods and the authors did not consider how this might have affected the study results. The authors provided some characteristics of the study sample, but it was unclear how they compared with the wider patient population. The paper accounted for all patients initially included in the study. However, given the issues outlined, the internal validity of the study is likely to be low.

Validity of estimate of measure of benefit
No measure of health benefit was derived. The reader is referred to the comments in the 'Validity of estimate of measure of effectiveness' field (above).

Validity of estimate of costs
The perspective of the study was not explicitly stated, but it appears to have been that of the health care provider. In addition, all appropriate costs to the health care provider seem to have been included. A comprehensive breakdown of the resource use and unit costs was not presented in the paper, although some detail was provided. The cost data were treated deterministically and no sensitivity analysis was undertaken. This means that the extent of uncertainty and variability in the study results was not assessed. These factors limit the scope to apply these findings to other settings. A clear price year was reported, which will facilitate future reflation exercises.
Other issues
The authors do not appear to have presented their results selectively and their conclusion reflected their analysis. However, they did not present any limitations to their findings despite the nature of the clinical evidence and the uncertainty around the cost data. The authors compared their findings with similar studies, but did not consider the issue of generalising their study to other settings.

Implications of the study
The authors did not make any recommendations for further research or changes in practice.

Source of funding
None stated.

Bibliographic details

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Subject indexing assigned by CRD

MeSH
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