Intractable epistaxis: transantral ligation vs embolization - efficacy review and cost analysis

Strong E B, Bell D A, Johnson L P, Jacobs J M

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
Transantral ligation (TAL) of the internal maxillary artery (IMA) versus percutaneous embolization (PE) for intractable epistaxis.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients treated for intractable epistaxis.

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

Dates to which data relate
Effectiveness data for the single study were derived from 1993 charts of patients treated between March 1983 and December 1993. Effectiveness data for the literature review were derived from published literature from 1973-1994 for TAL and from 1974-1994 for PE. Dates for resource data (based on a review of medical charts of 8 patients) were not specified. The price year was 1994.

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

Link between effectiveness and cost data
The costing was undertaken retrospectively on a subsample of 8 patients from the patient sample used in the effectiveness study based on the single study.

Study sample
Power calculations were not used to determine the sample size. The study sample contained twenty-one patients consisting of 16 men and 5 women with a mean age of 56 years (range: 27 - 84 years). Twelve patients received PE, 5 TAL, and 4 required both.

Study design
A retrospective cohort study, carried out in one centre. The follow-up period was 10 months and no loss to follow-up was reported.

**Analysis of effectiveness**
It was not explicitly stated whether the effectiveness analysis was based on intention to treat or treatment completers only. The primary health outcomes were the success rates, complication rates and mortality.

**Effectiveness results**
The success rate for TAL was 89% and for PE was 94%. Morbidity for TAL was 11% and for PE 19%. Mortality and serious morbidity did not occur with either technique.

**Clinical conclusions**
TAL and PE in the treatment of patients with intractable epistaxis showed similar success and complication rates.

**Outcomes assessed in the review**
The primary health outcomes in the review were the success rates and complication rates for TAL and PE.

**Study designs and other criteria for inclusion in the review**
Study designs and other criteria for inclusion in the review were not stated.

**Sources searched to identify primary studies**
Not reported.

**Criteria used to ensure the validity of primary studies**
Not stated.

**Methods used to judge relevance and validity, and for extracting data**
Not stated.

**Number of primary studies included**
Fourteen published studies of unspecified type were included.

**Methods of combining primary studies**
Not stated.

**Investigation of differences between primary studies**
Not stated.

**Results of the review**
The success rate for both TAL and PE ranged from 85% to 90%. The calculated (total) success rate for TAL was 87% versus 89% for PE. The complication rate ranged from 3% to 57%. The calculated (total) morbidity for TAL was 28% versus 27% for PE.
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 reported separately from the costs. The cost items were reported separately. The costs included in the analysis were: hospital room, surgeon's fee, operating room fee, anaesthesiologist's fee. The perspective adopted in the cost analysis was not explicitly specified. The source of resource use and cost data was the study institution. 1994 price data were used.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The average total costs of TAL and PE were $5,941 and $6,783 respectively.

Synthesis of costs and benefits
Costs and benefits were not combined since the authors regarded TAL and PE as equally cost-effective.

Authors' conclusions
The study results and a review of the literature showed that "TAL and PE are equally efficacious, with similar success rates, complication rates and costs". The authors concluded that "the choice of treatment modality should be based on the benefits of each procedure as it pertains to the specific needs of the individual patients".

CRD COMMENTARY - Selection of comparators
A justification was given for the choice of the comparator, PE being chosen as some authors "advocated it as the modality of choice" for intractable epistaxis. You, as a database user, should consider whether this is a widely used health technology in your own setting.

Validity of estimate of measure of benefit
The internal validity of the effectiveness results is weakened by the lack of randomisation, small sample size, and the fact that the comparability of the patients in study groups was not investigated. There is no evidence of a systematic search of the literature to select the studies included in the review and no quality assessment of the primary studies included in the review appears to have been performed. The change in technology during the 10 year study period (1983 to 1993) was not investigated.
Validity of estimate of costs
Resource use was not reported separately from the costs and the cost analysis was performed only on a small subgroup of 8 patients. Adequate details of the methods of cost estimation were not given and the study appeared to lack a detailed cost analysis.

Other issues
In view of the lack of randomisation, sensitivity analysis, and 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

PubMedID
7501376

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Aged, 80 and over; Costs and Cost Analysis; Embolization, Therapeutic /economics; Epistaxis /therapy; Female; Humans; Ligation /economics; Male; Maxillary Artery /surgery; Middle Aged; Postoperative Complications; Retrospective Studies; Risk Factors; Treatment Outcome

AccessionNumber
21996000126

Date bibliographic record published
31/05/1999

Date abstract record published
31/05/1999