
Surgical management of posterior epistaxis: a changing paradigm

Klotz D A, Winkle M R, Richmon J, Hengerer A S

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

Three strategies for treating patients with posterior epistaxis were examined. These were:

anterior-posterior (AP) nasal packing, which represented the standard medical approach;

embolisation; and

surgery, including a variety of procedures (e.g. the combination of internal maxillary artery ligation and anterior ethmoid ligation).

Type of intervention

Treatment.

Economic study type

Cost-effectiveness analysis.

Study population

The study population comprised patients with failed simple anterior packing or cautery. All cases were deemed posterior bleeds in origin. The exclusion criteria were anterior, postsurgical and traumatic bleeds, patients with bleeding dyscrasias, clotting cascade abnormalities, or Ostler-Weber-Rendu syndrome.

Setting

The setting was secondary care. The economic study was carried out in three teaching hospitals in the USA.

Dates to which data relate

The effectiveness and resource use data were gathered from 1995 to 2000. The price year was 2000.

Source of effectiveness data

The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data

The costing was carried out retrospectively on the same sample of patients as that used in the effectiveness study.

Study sample

Power calculations to determine the sample size were not performed. An overall sample of 203 consecutive patients was identified through a chart review from 1995 to 2000. There were 126 patients in the medical group, 61 in the surgical group, and 16 in the embolisation group. The surgical patients included patients who had failed AP nasal

packing. The demographics of the patients in the study were not presented.

Study design

This was a retrospective cohort study in which the data were derived from a retrospective chart review conducted at three centres. The length of follow-up was not reported. It appears that all the patients selected had adequate data records for the follow-up period.

Analysis of effectiveness

It appears that all the patients included in the initial study sample were accounted for in the effectiveness analysis. The health outcomes used in the study were the success rate (discharge day) and complications. There was no statistically significant differences among the groups in terms of their age, gender, location of nasal bleeding, type of packing used, location where the procedure occurred, or level of training of the resident performing the packing.

Effectiveness results

The success rate was 62% in the medical group, 75% in the embolisation group, and 90% in the surgical group.

Of the 6 surgical patients who required a second intervention, 3 received embolisation and 3 underwent a second surgical procedure.

The rate of complication was 13% (16 patients) in the medical group, 16% (10 patients) in the surgical group, and 50% (8 patients) in the embolisation group.

The most common complication across the groups was the need for a blood transfusion (82%).

Clinical conclusions

The effectiveness study showed that the surgical procedure had the highest success rate in comparison with medical treatment or embolisation. The complications in the surgical and medical groups were comparable, while patients receiving embolisation experienced the highest rate of complications.

Measure of benefits used in the economic analysis

The health outcomes were left disaggregated and no summary benefit measure was used in the economic study. In effect, a cost-consequences analysis was conducted.

Direct costs

Discounting was not relevant since the costs per patient were incurred during a short time. The unit costs and the quantities of resources used were not reported separately. The health services in the economic evaluation were physician fees, anaesthesia and radiology services, and inpatient stay. The costs were not broken down into more detailed categories. The cost/resource boundary of the study was not stated. Charges rather than true costs were used and no cost-to-charge ratio was applied. The physicians' fees and hospital stay were derived from CPT codes, while anaesthesia and radiology costs came from the hospital billing systems. Resource use was estimated using actual data derived from the chart review of the patients included in the effectiveness study. The price year was 2000.

Statistical analysis of costs

The costs were treated deterministically.

Indirect Costs

The indirect costs were not included in the economic evaluation.

Currency

US dollars (\$).

Sensitivity analysis

Sensitivity analyses were not performed.

Estimated benefits used in the economic analysis

See the 'Effectiveness Results' section.

Cost results

Hospitalisation time was 5.29 days in the medical group, 2.1 days in the surgical group, and 2.6 days in the embolisation group, ($p < 0.01$).

The average per patient costs were \$5,136 in the medical group, \$3,851 in the surgical group, and \$5,697 in the embolisation group.

Surgery offered a cost-saving of \$1,846 in comparison with traditional medical packing. Most of the savings arose from the shorter hospital stay.

The costs in the "failed medical group" (including secondary interventions) were \$9,117.

Synthesis of costs and benefits

Not relevant as a cost-consequences analysis was carried out.

Authors' conclusions

A better success rate, similar complications, and substantial cost-savings might be achieved with surgery, rather than a medical approach, as the first-line treatment for patients with epistaxis.

CRD COMMENTARY - Selection of comparators

The authors stated that medical treatment was selected as the basic comparator because it represented the most widely used first-line treatment for posterior epistaxis. Surgery was usually indicated for failure of "conservative" medical treatment. To include all possible strategies, embolisation was also considered. You should decide whether they represent valid comparators in your own setting.

Validity of estimate of measure of effectiveness

The analysis of effectiveness used a retrospective cohort study, which was carried out in three centres through a retrospective review of patient charts. This design is usually associated with some limitations, such as the impact of observer bias. The authors also noted that some confounding factors, such as the level of expertise of the operator, could not be excluded. The study sample was representative of the study population. The study groups were comparable at baseline for the characteristics reported. However, some patients in the surgical group had failed AP nasal packing, meaning that the samples in each group must be different. Some imbalance was also observed in the number of patients included in each group. There was no justification for the sample size and power calculations were not performed. Follow-up and baseline data were not presented. These issues tend to limit the internal validity of the analysis.

Validity of estimate of measure of benefit

No summary benefit measure was used in the analysis as, in effect, a cost-consequences analysis was conducted.

Validity of estimate of costs

The authors did not state the perspective adopted in the study and charges rather than true costs were used. A detailed breakdown of the cost items was not provided. In addition, details of the unit costs and the quantities of resources used were not presented. This makes the replication of the study difficult. The cost estimates were specific to the study setting and no sensitivity analyses were performed. The costs were treated deterministically. The price year was reported, thus facilitating reflation exercises in other settings. The authors noted that the cost estimates may vary depending on reimbursement schedules.

Other issues

The authors did not compare their findings with those from other studies. They also did not address the issue of the generalisability of the study results to other settings. Sensitivity analyses were not performed and this further reduced the external validity of the analysis. The study referred to the general population of patients suffering from posterior epistaxis and this was reflected in the conclusions of the analysis.

Implications of the study

The authors suggested a change in the current treatment approach in favour of surgery as the first-line treatment for patients with posterior epistaxis. A new paradigm for the treatment of posterior epistaxis was proposed. Future studies should be carried out to confirm the results of the current economic evaluation.

Source of funding

None stated.

Bibliographic details

Klotz D A, Winkle M R, Richmon J, Hengerer A S. Surgical management of posterior epistaxis: a changing paradigm. *Laryngoscope* 2002; 112(9): 1577-1582

PubMedID

12352666

DOI

10.1097/00005537-200209000-00008

Indexing Status

Subject indexing assigned by NLM

MeSH

Analysis of Variance; Costs and Cost Analysis; Embolization, Therapeutic /economics; Epistaxis /surgery /therapy; Fees, Medical; Female; Humans; Length of Stay /statistics & numerical data; Ligation /economics; Male; Middle Aged; Postoperative Complications; Retrospective Studies; Treatment Outcome

AccessionNumber

22002001627

Date bibliographic record published

31/07/2004

Date abstract record published

31/07/2004

