Adverse reactions and cost effectiveness with selective use of low osmolar contrast agents in computed tomography

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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
Selective use of low osmolar contrast agents in computed tomography

Type of intervention
Diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing computerised tomography.

Setting
The practice setting was in one radiology department in a Neurological Hospital in Canada. The economic study was carried out in Canada.

Dates to which data relate
Effectiveness and resource use data were collected during 1994. The price year was not stated.

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 retrospectively on the same patient sample as that used in the effectiveness study.

Study sample
2,927 patients were given contrast media for computerised tomography (1,277 males, 1,650 females). Of these, 2,393 (81.8%) received the normal high osmolar contrast agents (HOCA). The remaining 534 (18.2%) received the low osmolar contrast agents (LOCA). Power calculations were not used to determine the sample size.

Study design
Retrospective non-randomized trial with concurrent controls.
Analysis of effectiveness
It was not stated whether the analysis of effectiveness was based on intention to treat or on treatment completers only. Patients were categorised into grades of adverse contrast reaction: no reaction, mild reaction, moderate reaction, severe reaction and fatal.

Effectiveness results
Of the HOCA group 154 patients (6.4%) had adverse contrast reactions: 137 mild (5.7%) and 17 moderate (0.7%). Of the LOCA group, 7 patients (1.3%) also suffered contrast reactions. Of these, 6 (1.1%) patients had mild reactions and 1 (0.2%) had a moderate reaction. Female recipients were more likely than males to have adverse contrast reactions. There were also notable peaks of sensitivity in the 31 to 40 and 41 to 50 HOCA age groups. There also appeared to be a peak of sensitivity during the winter months.

Clinical conclusions
Patient safety was not compromised. It also seemed that patient age and sex were determinants in the incidence of adverse reactions.

Measure of benefits used in the economic analysis
Since there was no difference in effectiveness between the intervention and the comparator, the economic analysis was based on the difference of costs only.

Direct costs
Only the cost of the osmolar agents was included. National list prices were used. Costs were not discounted. Price dates were not given. Quantities of resources were measured in 1994; CT log books were used. Quantities and costs were reported separately.

Currency
Canadian dollars (Can$).

Estimated benefits used in the economic analysis
Not applicable.

Cost results
Of the total of 2,927 patients, 2,393 were administered high osmolar contrast. The cost for this would be Can$43,074. The remaining 534 patients received the low osmolar contrast at a cost of Can$42,720. The total cost of contrast media for these two groups would be Can$85,794. The use of low osmolar contrast for all of these patients would have cost Can$234,160, therefore, the monetary saving achieved by using a judicial screening process was Can$148,366 (or 63.3%).

Synthesis of costs and benefits
Not applicable.

Authors' conclusions
The data presented suggest that a judicial screening protocol for selective use of low osmolar contrast agents is possible. This does not mean that patient comfort is equal to that obtained with the universal use of low osmolar contrast media, but that a high level of patient safety can currently be maintained despite economic constraints.
CRD COMMENTARY - Selection of comparators
The reason for the choice of comparator was clear.

Validity of estimate of measure of benefit
The estimate of the measure of benefit is likely to have been internally valid.

Validity of estimate of costs
Only a limited estimate of costs was presented and no synthesis of costs and benefits was presented.

Other issues
The authors conclusions were justified, and appropriate comparisons were made with other studies.

Source of funding
None stated.

Bibliographic details

Indexing Status
Subject indexing assigned by CRD

MeSH
Contrast Media /economics; Coronary Circulation; Coronary Disease /radiography; Cost-Benefit Analysis; Tomography, X-Ray Computed /economics

AccessionNumber
21996002338

Date bibliographic record published
30/11/1998

Date abstract record published
30/11/1998