Management of myocardial infarction in the elderly: admission and outcome on a coronary care unit

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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
Thrombolytic therapy with streptokinase for elderly patients with myocardial infarction in addition to treatment in a Coronary Care Unit. This was compared with similar treatment for younger patients. Time of administration of therapy was also a factor.

Type of intervention
Treatment.

Economic study type
Cost-utility analysis.

Study population
Patients, of all ages, with myocardial infarction (MI) who were admitted consecutively to the Coronary Care Unit (CCU) of Leicester Royal Infirmary between 1st January 1987 and 25 March 1990.

Setting
The Coronary Care Unit at Leicester Royal Infirmary, UK.

Dates to which data relate
Effectiveness and cost data were collected over a three year period from 1987 to 1990. The prices used were not stated.

Source of effectiveness data
Data were derived from two previously published studies.

Outcomes assessed in the review
Age-specific measures of the efficacy of streptokinase in acute MI and their dependence on time of administration from onset of symptoms.

Study designs and other criteria for inclusion in the review
Not stated.

Sources searched to identify primary studies
Not stated.
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
Two primary studies were included.

Methods of combining primary studies
Not stated

Investigation of differences between primary studies
Not stated

Results of the review
Applying ISIS-2 trial results showed that for 100 patients aged 70 adding thrombolytic therapy would save the lives of 5.1 more than without, with 4.1 of them still being alive a year later. The Belgian study, (Pardaens J, 1985) gave a lower survival rate and implied that 3.9 of the patients who had been saved solely by streptokinase would still be alive at the age of 72.

Measure of benefits used in the economic analysis
Quality-Adjusted Life Years (QALYs). The average quality of life for additional survivors was based solely on the clinical judgement of two of the authors using the categories and utility scores of Rosser, Kind and Williams.

Direct costs
The cost of 100 patients aged 70 who were given streptokinase within 3 hours of the onset of MI symptoms was based on hospital care, aspirin plus streptokinase. No further details of costs were given and costs were not discounted.

Currency
UK pounds sterling ( ).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Thrombolytic therapy was expected to initially save the lives of 5.1 additional patients with 4.4 of them still being alive a year later. Survival for a year was taken to indicate long term survival. It was assumed from life tables adjusted to take account of the Belgian study results that a person alive at the age of 71 had an 89.7% chance of still being alive a year later. The expected number of survivors was modelled for a total of 30 years. The poorer quality of life of MI survivors was allowed for by taking the first year of survival as 0.937 QALYs, the second 0.918 a third 0.900 etc. The stream of QALY values was discounted over 30 years at 5% and summed to give total benefit of 21.2 extra QALYs.

Cost results
Total costs of 100 patients aged 70 and receiving streptokinase and other treatment was given as 11,672. No other costs were given.

Synthesis of costs and benefits
The cost per QALY for elderly patients treated within 3 hours was given as 500. This was produced by dividing the total cost by total benefit of 21.2 extra QALYs. Other QALY results were presented graphically. Costs per QALY were given for ages: under 45, 45-54, 55-64 and 65 and over. They were further broken down by hours from onset of symptoms before treatment into 3 categories: 0-3 hours, 4-6 hours and 7-24 hours. Lowest costs per QALY are 500 for patient aged over 65 years treated within 3 hours to approximately 3,200 for patients aged 45-54 years treated between 7 and 24 hours after the onset of symptoms. Costs per QALY were higher for younger age groups in each category and higher for each age group the longer therapy was delayed.

Authors' conclusions
Age is a highly significant prognostic factor for MI. Cost utility analysis showed that the cost of thrombolytic therapy with streptokinase in the elderly was lower per quality adjusted life year than in younger patients. Median delay time of admission from onset of symptoms was greater in the elderly than in younger patients which suggested a need for greater awareness of the benefits of thrombolytic therapy in the elderly.

CRD Commentary
The paper provided very little detail on actual costs, either quantities or prices. This made it difficult to understand how costs per QALY were arrived at or to update this estimate to allow for inflation. There was no indication that all available evidence had been used in estimating the benefits. The different numbers in the sample (1511 or 1415), have not been explained. Also and confusingly, different six month study periods are referred to without explanation.

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Bibliographic details

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10117736

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Aged; Coronary Care Units /economics /statistics & numerical data /utilization; Cost-Benefit Analysis /methods /statistics & numerical data; England; Hospital Mortality; Humans; Myocardial Infarction /drug therapy /economics /mortality; Patient Admission /economics; Quality of Life; Streptokinase /therapeutic use; Thrombolytic Therapy /economics; Treatment Outcome; Value of Life

AccessionNumber