An economic evaluation of thrombolysis in a remote rural community

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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
Thrombolysis therapy in myocardial infarction.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population consisted of patients, living in rural areas and therefore more than 30 minutes travelling time away from their nearest hospital, who had suffered a myocardial infarction and had called for medical assistance.

Setting
The setting was primary care (29 general practices) and one secondary care provider in Grampian, Scotland.

Dates to which data relate
The resource and effectiveness data relate to 1994.1996 cost data were used.

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

Link between effectiveness and cost data
Effectiveness and cost data relate to the same study population.

Study sample
The study sample consisted of 311 patients in the Grampian Region Early Anistreplase Trial (GREAT). No power calculations were used to determine the sample size.

Study design
This was a randomized controlled trial. The study was multi-centred covering 29 rural general practices and one hospital. The follow-up period was four years. No loss to follow-up was reported.

Analysis of effectiveness
The primary health outcome measurements were reduced mortality rate and probability of survival at 4 years. Further details of the analysis were not stated.

**Effectiveness results**
The use of thrombolytic therapy in the community before hospitalisation following myocardial infarction reduced mortality, in comparison with hospital thrombolysis, by 11% (95% CI: 1% - 22%) at one year and 15% at 2.5 years. The probability of survival at four years was 0.65 for hospital therapy and 0.76 for community-based treatment.

**Clinical conclusions**
Thrombolytic therapy in the community reduces mortality and increases the probability of survival at 4 years compared with the comparator of hospital-based thrombolysis.

**Measure of benefits used in the economic analysis**
The measure of benefit was lives saved.

**Direct costs**
Direct costs included the cost of drugs (anistreplase, streptokinase and aspirin), labour costs including general practitioner training and visits, and capital (electrocardiograph and defibrillator). Costs and quantities were not reported separately. Discounting was applied at a rate of 6%. The source of resource use data was the clinical trial used for effectiveness data. The sources of cost data were not specifically stated.

**Indirect Costs**
Not done.

**Currency**
UK pounds sterling (GBP).

**Sensitivity analysis**
The authors calculated a low and high estimate of costs for implementing community-based thrombolysis. The high cost assumed the procurement of new equipment and extended attendance times for GP visits, while the low cost assumed GPs would have already attended patients with suspected MI.

**Estimated benefits used in the economic analysis**
The use of thrombolytic therapy in the community before hospitalisation following myocardial infarction produces an additional probability of survival at four years of 11% (95% CI: 1% -22%) at four years in comparison with hospital thrombolysis.

**Cost results**
The cost per patient was between 510 (low estimate) and 970 (high estimate) for community-based treatment and 85 for the comparator of hospital thrombolysis. The discount rate was 6%.

**Synthesis of costs and benefits**
The costs and benefits were combined by means of a marginal cost per life saved summary measure. The results showed a marginal cost per life saved at four years by community thrombolysis to be 3,890 (1,990 to 42,820) for the low estimate, and 8,000 (4,100 to 88,100) for the high estimate.
Authors' conclusions
The authors concluded that the cost per life saved by the introduction of community thrombolysis is modest when compared to the cost-effectiveness, for example, of changing the thrombolytic drug used in hospital from streptokinase to alteplase. If this treatment is to be made available in the community, particularly in rural areas with long access times for emergency services, extra resources will need to be made available, potentially at the expense of alternative services. Methods of motivating general practitioners and facilitating routine community thrombolysis therefore need to be ascertained.

CRD Commentary
The study report was rather brief with few references but presented the findings of a randomized controlled trial in a clear and concise manner. The results were comparable with the findings of other randomized controlled trials with high populations (more than 1000). The authors additionally evaluated the costs of community-based thrombolysis for two scenarios to determine a low and high estimate. The results still favoured community-based treatment. There may be problems with generalising these results to other areas of the UK.

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