Should TIA patients be hospitalized or referred to a same-day clinic? A decision analysis
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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.

CRD summary
The study examined the cost-effectiveness of hospitalisation versus urgent clinical evaluation (referral to a same-day clinic) for patients with transient ischaemic attack in the emergency department. The authors concluded that hospitalisation was not cost-effective and development of an urgent-access transient ischaemic attack clinic was warranted. The analysis was generally well conducted and most assumptions made in the decision model were reported explicitly. The authors’ conclusions appear robust.

Type of economic evaluation
Cost-utility analysis

Study objective
The study examined the cost-effectiveness of hospitalisation versus urgent clinical evaluation (referral to a same-day clinic) for patients with transient ischaemic attack in the emergency department.

Interventions
The two strategies under examination were 48-hour hospitalisation versus urgent-access specialty clinic for patients presenting with transient ischaemic attack at an emergency department.

Location/setting
USA/hospital.

Methods
Analytical approach:
The analysis was based on a decision tree model with two time horizons: one year and 30 years. The perspective adopted in the study was not stated explicitly.

Effectiveness data:
It appeared that a selective approach was used to identify relevant sources of evidence. Some information was given on the design and other methodological characteristics of these sources. A key input of the model was the impact of tissue plasminogen activator (tPA) usage; this represented the only difference assumed between hospitalisation and same-day clinic. This was taken from a published economic evaluation. Some clinical assumptions were made and presented in detail.

Monetary benefit and utility valuations:
Utility valuations were taken from a published study that used a Markov model with seven health states in which utility estimates were based on the results of a patient preference survey and were calculated using a Monte Carlo simulation over 30 years. One-year estimates were taken from the National Institute of Neurological Disorders and Stroke recombinant tPA stroke trial.

Measure of benefit:
Quality-adjusted life-years (QALYs) were used as the summary benefit measure.

Cost data:
The economic analysis included the costs of initial hospitalisation (including all diagnostic tests), clinic evaluation (visit, computerised tomography of the head and carotid ultrasound) and acute plus long-term care costs saved per tPA
treatment. Costs were based on estimates reported in published cost analyses. Some data on patterns of resource consumption were derived from the authors’ institution. Costs were in USA dollars ($). The price year was 2009.

Analysis of uncertainty:
One-way sensitivity analyses were carried out to examine the robustness of model outcomes to variations in model inputs using published ranges of values. Threshold analyses were presented.

Results
In the one-year model, hospitalisations led to a gain of 0.00026 QALYs at an additional cost of $5,573, which resulted in an incremental cost per QALY gained with hospitalisation versus urgent clinic evaluation of $21,434,615.

In the 30-year model, hospitalisations led to a gain of 0.0016 QALYs at an additional cost of $5,557, which resulted in an incremental cost per QALY of $3,473,125.

In the long-term analysis, the cost-utility ratio approached the threshold of $50,000 per QALY when the 48-hour stroke risk approached 30% (it was much lower in the base case analysis at 0.6%). Variations in other inputs did not alter the incremental cost-utility ratio, which remained far above $100,000 in most scenarios. In the short-term analysis, hospitalisations was not cost-effective using both $50,000 and $100,000 per QALY thresholds.

Authors' conclusions
The authors concluded that hospitalisation was not cost-effective and development of an urgent-access transient ischaemic attack clinic was warranted.

CRD commentary
Interventions:
The selection of the comparators was appropriate as these were the two options available for management of patients who presented with transient ischaemic attack.

Effectiveness/benefits:
Little information was provided on studies selected to obtain the clinical inputs and it was not possible to judge the validity of these sources. However, extensive sensitivity analysis was conducted on key clinical parameters with no impact on cost-effectiveness conclusions. Use of QALYs as the benefit measure was appropriate given the patient population considered and enabled comparisons to be made with other disease areas. Utility weights were taken from published surveys and might not be totally accurate; again, changes in these values had no impact on the model's results.

Costs:
It appeared that the economic analysis appears was carried out from the perspective of the health care provider as only direct medical costs strictly related to the management of transient ischaemic attack were included. Unit costs and resource quantities were presented for some items but most items were taken from previous cost analyses, the methodological characteristics of which (unit costs and data sources) were not reported. Hospital length of stay was based on a sample of 190 patients admitted to the authors’ institution and was likely to be representative of the USA setting. The price year was stated clearly and so reflation exercises would be possible in other time periods. The impact of variations in cost estimates was taken into account in the sensitivity analyses.

Analysis and results:
The study results were presented clearly. An incremental approach was used to combine the costs and benefits of the alternative strategies. Commonly used thresholds for cost-effectiveness were applied to identify the optimal strategy. A deterministic approach was used to investigate the issue of uncertainty. Such a methodology focused on individual items and use of a more comprehensive and multivariate approach would have been more appropriate. Nevertheless, the results of the analysis appeared robust. The authors did not mention the use of a discount rate but long-term costs and QALYs were from previous publications in which both these estimates might have already been discounted. Extensive details of the decision tree model were reported. The authors stated that a previous study had shown the cost-effectiveness of hospitalisation, but different methods and assumptions were made. The authors acknowledged that the study findings appeared specific to the setting and might not be transferable to other areas.
Concluding remarks:
The analysis was generally well conducted and most assumptions made in the decision model were reported explicitly. The authors’ conclusions appear robust.

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