
Cost effectiveness of warfarin versus aspirin in patients older than 75 years with atrial fibrillation

Jowett S, Bryan S, Mant J, Fletcher K, Roalfe A, Fitzmaurice D, Lip GY, Hobbs FD

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

This study evaluated the cost-effectiveness of anticoagulation therapy, using warfarin, compared with aspirin, for patients with atrial fibrillation aged over 75 years. The authors concluded that warfarin appeared to be cost-effective for these patients, but the differences in costs and effectiveness were small. The cost-effectiveness analysis was satisfactorily performed and reported. The authors' conclusions appear to be appropriate.

Type of economic evaluation

Cost-effectiveness analysis, cost-utility analysis

Study objective

This study evaluated the cost-effectiveness of anticoagulation therapy, using warfarin, compared with aspirin, for patients aged over 75 years who had atrial fibrillation.

Interventions

Warfarin treatment, with a target international normalised ratio (INR) of 2.5 and an acceptable range of 2.0 to 3.0, was compared with 75mg of aspirin daily.

Location/setting

UK/primary care.

Methods

Analytical approach:

This economic evaluation used effectiveness and cost data from one randomised controlled trial. The time horizon was four years. The authors stated that the perspective was that of the UK health sector.

Effectiveness data:

The effectiveness data were from the randomised controlled trial of 973 patients. These patients were randomised to warfarin or aspirin treatment and the mean follow-up was 2.7 years. The primary outcomes were fatal (ischaemic) or non-fatal disabling (haemorrhagic) stroke, intracranial haemorrhage, or systemic embolism.

Monetary benefit and utility valuations:

The utility estimates were collected using the European Quality of life (EQ-5D) questionnaire, from the UK general population.

Measure of benefit:

The measure of benefit was the number of quality-adjusted life-years (QALYs), which were discounted at an annual rate of 3.5%.

Cost data:

The cost categories included clinical events, visits to primary care, and visits to the warfarin clinic. The resource data were collected prospectively during the trial, from medical records for primary and secondary care, and death certificates. The clinical events were mapped to UK Healthcare Resource Group codes for non-elective stays and NHS reference costs. The unit costs were provided in 2007 UK pounds sterling (£) and were discounted at an annual rate of

3.5%.

Analysis of uncertainty:

The sensitivity analyses included nonparametric bootstrapping (5,000 repetitions) to account for sampling variation in the estimates of cost-effectiveness. The non-adjustment of QALYs for baseline values on the EQ-5D was assessed, as were shorter follow-up times, and three age subgroups of 75 to 79 years, 80 to 84 years, and 85 years or older.

Results

The mean adjusted QALYs per patient was 1.685 with warfarin and 1.665 with aspirin. Warfarin gained 0.020 QALYs (95% CI -0.070 to 0.111) more than aspirin, but this difference was not statistically significant.

The total costs per patient, over four years, were £1,382 with warfarin and £1,548 with aspirin. Warfarin treatment costs were £166 (95% CI -452 to 89) lower than aspirin's, but this was not statistically significant.

Warfarin treatment tended to be dominant, as it was more effective and less costly. The cost-effectiveness plane suggested that most estimates were less costly for warfarin than for aspirin, and to a lesser extent more effective for warfarin than for aspirin.

Authors' conclusions

The authors concluded that warfarin appeared to be cost-effective for the management of patients aged 75 years or older with atrial fibrillation, but the differences in the costs and effectiveness were small.

CRD commentary

Interventions:

The interventions were described and appear to have been appropriate comparators. These comparators might be relevant to other settings; there might be other relevant atrial fibrillation treatments.

Effectiveness/benefits:

The effectiveness evidence was from a randomised controlled trial, designed to limit the possibility of bias in the results, and it should have had good internal validity. The data were reasonably well reported. QALYs were an appropriate benefit measure, given the impact of the disease on both quality of life and survival. The instrument used and the sample population for the utilities were reported.

Costs:

The authors stated the perspective, and they appear to have included the appropriate cost categories. The cost analysis and the sources for the cost data were adequately reported. The cost estimates appear to have been relevant to the population and setting. The price year and currency were reported and appropriate discounting was used.

Analysis and results:

An incremental analysis was appropriate for determining the cost-effectiveness of the strategies. The uncertainty was assessed in sensitivity analyses; a cost-effectiveness acceptability curve would have aided the interpretation of these results. The results of both the base-case and the sensitivity analyses were sufficiently reported, making the findings generalisable to other settings. The authors highlighted the strengths and limitations of their analysis.

Concluding remarks:

The cost-effectiveness analysis was satisfactorily performed and reported. The authors' conclusions appear to be appropriate.

Funding

Funded by the Medical Research Council, with support from the Midlands Research Practices Consortium, and the Primary Care Research Trust.

Bibliographic details

Jowett S, Bryan S, Mant J, Fletcher K, Roalfe A, Fitzmaurice D, Lip GY, Hobbs FD. Cost effectiveness of warfarin versus aspirin in patients older than 75 years with atrial fibrillation. *Stroke* 2011; 42(6): 1717-1721

PubMedID

21512184

DOI

10.1161/STROKEAHA.110.600767

Original Paper URL

<http://stroke.ahajournals.org/content/42/6/1717.abstract>

Indexing Status

Subject indexing assigned by NLM

MeSH

Aged; Anticoagulants /economics /therapeutic use; Aspirin /economics /therapeutic use; Atrial Fibrillation /drug therapy /economics; Cost-Benefit Analysis; Humans; International Normalized Ratio /economics; Quality-Adjusted Life Years; Risk Factors; Sensitivity and Specificity; Stroke /drug therapy /economics; Treatment Outcome; Warfarin /economics /therapeutic use

AccessionNumber

22011001088

Date bibliographic record published

17/08/2011

Date abstract record published

16/11/2011