Amiodarone reduces procedures and costs related to atrial fibrillation in a controlled clinical trial


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
Low-dose amiodarone was compared with other first-line therapy (sotalol or propafenone) for the treatment of atrial fibrillation (AF).

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients who had had an episode of symptomatic AF in the previous 6 months, for which chronic anti-arrhythmic drug therapy was planned. It was also required that there had been at least one episode of AF that had lasted greater than 10 minutes and electrocardiographic documentation of the arrhythmia.

Setting
The setting was secondary care. The economic study was carried out in Canada.

Dates to which data relate
The effectiveness data appear to have been collected during the study period, November 1996 to February 1998.

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

Link between effectiveness and cost data
It appears that the costing has been undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
The use of power calculations was not reported. Patients who had had a symptomatic fibrillation in the 6 months prior were enrolled in the trial at 19 cardiology centres throughout Canada. The patients were randomly assigned to either low-dose amiodarone (intervention) or sotalol or propafenone (control). There were 201 patients in the intervention group and 202 in the control group, of which 101 were prescribed sotalol and 101 propafenone.
Study design
This was a multi-centre randomised controlled trial. The duration of follow-up was one year. Eleven patients were lost to follow-up. The patients were randomly assigned to either low-dose amiodarone (intervention) or sotalol or propafenone (control). No further details of the randomisation were reported.

Analysis of effectiveness
The basis of the analysis was treatment completers only. The primary health outcomes used were whether patients had been hospitalised and if they had undergone a catheter ablation, pacemaker implantation or cardioversion. A significantly larger proportion of participants in the control group (sotalol or propafenone) had left ventricular hypertrophy, otherwise the two groups were similar.

Effectiveness results
The proportion of patients with a cardioversion was 32% in the amiodarone group compared with 54% in the control group, (p<0.0001).

The proportion of patients with a pacemaker was 2% in the amiodarone group compared with 5.5% in the control group, (p=0.07).

The proportion of patients with a catheter ablation was 1.5% in both groups, (p=1).

The average number of days in the hospital for AF was 0.47 in the amiodarone group compared with 0.97 in the control group, (p=0.01).

The average number of days in the intensive care unit (ICU) for AF was 0.07 in the amiodarone group compared with 0.11 in the control group, (p=0.48).

The average number of hospital visits was 0.58 in the amiodarone group compared with 0.59 in the control group, (p=0.91).

The average number of days in hospital was 4.11 in the amiodarone group compared with 3.79 in the control group, (p=0.76).

The average number of days in the ICU was 0.40 in the amiodarone group compared with 0.48 in the control group, (p=0.68).

The average number of emergency room visits was 1.20 in the amiodarone group compared with 1.24 in the control group, (p=0.89).

Clinical conclusions
Patients on amiodarone used significantly fewer resources for problems directly related to AF. For hospitalisations for all diagnoses there was no difference between the groups.

Measure of benefits used in the economic analysis
The health outcomes were left disaggregated and no summary measure of benefit was used. In effect, a cost-consequences analysis was conducted.

Direct costs
Discounting was not relevant since the costs were incurred during one year. The costs of hospitalisation were estimated using the Ontario Case Cost Project and, when data were not available from this source, they were taken from the Montreal Heart Institute. The costs were calculated using the most recent data available (1995/96). Resource use and the unit costs were not reported separately.
Statistical analysis of costs
The costs were compared using the Kruskal-Wallis Test.

Indirect Costs
The indirect costs were included in the Ontario Case Cost Project. The details of these costs were not given in this paper.

Currency
Canadian dollars (Can$).

Sensitivity analysis
No sensitivity analyses were conducted.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The mean cost of hospitalisations and procedures for AF was Can$532 in the amiodarone group and Can$898 in the control group, (p=0.03).

The mean cost of hospitalisations and procedures for AF and stroke was Can$541 in the amiodarone group and Can$947 in the control group, (p=0.02).

The total hospital costs were Can$1,854 in the amiodarone group compared with Can$1,834 in the control group, (p=0.96).

The total hospital and physician costs for Quebec patients were Can$2,586 in the amiodarone group and Can$2,482 in the control group, (p=0.83).

Synthesis of costs and benefits
Not relevant as, in effect, a cost-consequence analysis was carried out.

Authors' conclusions
The costs for atrial fibrillation (AF) hospitalisations were significantly lower in the amiodarone group. Cardioversions were significantly less frequent in the amiodarone group. There was no statistically significant difference in the total hospital cost, or the combined hospital and physician costs. The authors believed that this was most likely related to health problems unrelated to AF or amiodarone.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear. The authors stated that the prevention of AF recurrence has the potential to improve the outcomes and reduce the costs associated with hospitalisation. In addition, studies have shown that anti-arrhythmic drugs are very effective in reducing recurrence.

Validity of estimate of measure of effectiveness
The analysis of effectiveness was based on a randomised controlled trial, which appears to have been appropriate for
the study question. The study sample was representative of the study population and the samples were comparable at baseline.

**Validity of estimate of measure of benefit**
No summary measure of benefit was used as, in effect, a cost-consequences analysis was performed.

**Validity of estimate of costs**
The authors did not explicitly state the perspective of the study. However, it was likely to have been that of the health service. The authors limited their analysis to the direct costs, specifically those associated with hospitalisation. The price year was reported, which will help with reflation exercises. A sensitivity analysis of the prices was not conducted.

**Other issues**
The author made appropriate comparisons of their results with those from other studies, finding that the cost-advantage for amiodarone was consistent with that in other studies. The authors acknowledged that there were insufficient patients to warrant the use of an analysis of variance for the data analysis. However, the validity of the results was verified using the Kruskal-Wallis test. The issue of the generalisability of the results to other settings was addressed in that the authors pointed out that practice patterns for the treatment of AF differ throughout the world. No sensitivity analysis was conducted, which tends to limit the external validity of the analysis.

**Implications of the study**
The authors did not make any recommendations for policy or practice.

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None stated.

**Bibliographic details**

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**Other publications of related interest**

**Indexing Status**
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