Radiofrequency catheter ablation versus medical therapy for initial treatment of supraventricular tachycardia and its impact on quality of life and healthcare costs

Bathina M N, Mickelsen S, Brooks C, Jaramillo J, Hepton T, Kasumoto F M

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
Radiofrequency catheter ablation for initial treatment of paroxysmal supraventricular tachycardia (SVT).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Male and female patients with newly documented paroxysmal SVT were included in the analysis.

Setting
Hospital. The economic study was conducted in Albuquerque, New Mexico.

Dates to which data relate
The main effectiveness data were derived from a single trial conducted between June 1995 and June 1996. Resource and cost data were taken from 1995-96 sources. The price year was 1996.

Source of effectiveness data
The estimates of health transition scores, quality of life, disease-specific symptoms, and number of emergency room visits were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
Eighty-four consecutive patients with newly documented paroxysmal SVT were included in the analysis. Patients were given the choice of treatment: ablation or medication. Seventy-nine patients formed the basis of the study: 39 chose initial therapy with radiofrequency catheter ablation (13 men) and 40 chose medical therapy (13 men). The mean age of patients was 51 (+/- 17) years in the ablation group and 51 (+/- 14) years in the medical group. Power calculations to determine the sample study were not undertaken.

Study design
This was a non-randomised controlled trial. The duration of the follow-up was 12 months. 3 patients were lost to follow-up and 2 patients died from apparently unrelated causes.

**Analysis of effectiveness**
The analysis of effectiveness was based on treatment completers only. The primary health outcomes were health transition scores, quality of life, disease-specific symptoms, and number of emergency room visits. Patients were given a self-administered questionnaire just before the baseline clinical evaluation and a self- or telephone-administered questionnaire after 12 months of follow-up.

**Effectiveness results**
Health transition scores were significantly improved in both the ablation group (pre, 39 +/- 21 versus post, 88 +/- 18, p<0.005) and the medical therapy group (pre, 43 +/- 5 versus post, 62 +/- 22, p<0.005). A significant difference in quality of life (QOL), favouring the ablation group was noted in the bodily pain (81 +/- 20, p<0.05), general health (79 +/- 21, p<0.001), vitality (66 +/- 22, p<0.005) and role emotion categories (94 +/- 17, p<0.05). No QOL categories favoured medical therapy. Both treatments resulted in a significant decrease in symptoms. More patients reported complete elimination of symptoms with ablation therapy (74%) than with medical therapy (33%). The number of emergency room visits in the 6 months preceding treatment with medical therapy or ablation were similar in both groups (medical therapy 55% versus ablation 56%). Patient groups were shown to be comparable.

**Clinical conclusions**
The study shows that ablation improves health-related QOL to a greater extent and in more aspects of general and disease-specific health than medication.

**Measure of benefits used in the economic analysis**
No summary benefit measures were used in the analysis and as such the authors conducted a cost-consequence analysis.

**Direct costs**
Procedural, hospital, drug therapy, annual clinic visit, emergency room visits, ablation procedures (chargeable goods, facility and physician costs), complications and routine follow-up costs were included in the analysis. Resources were not reported separately from the prices. The cost/quantity boundary adopted was the hospital. The price year was 1996.

**Statistical analysis of costs**
Not undertaken.

**Indirect Costs**
Not considered.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was performed.

**Estimated benefits used in the economic analysis**
Health transition scores were significantly improved in both the ablation group (pre, 39 +/- 21 versus post, 88 +/- 18, p<0.005).
p<0.005) and the medical therapy group (pre,43 +/- 5 versus post 62 +/- 22, p<0.005). A significant difference in quality of life(QOL), favouring the ablation group was noted in the bodily pain (81 +/- 20, p<0.05), general health (79 +/- 21, p<0.001), vitality (66 +/- 22, p<0.005) and role emotion categories (94 +/- 17, p<0.05). No QOL categories favoured medical therapy. Both treatments resulted in a significant decrease in symptoms. More patients reported complete elimination of symptoms with ablation therapy (74%) than with medical therapy (33%). The number of emergency room visits in the 6 months preceding treatment with medical therapy or ablation were similar in both groups (medical therapy 55% versus ablation 56%).

Cost results
The average cumulative cost of an ablation procedure was $7,272 (+/- 1,019). The yearly cost including one follow-up clinic visit was $342 for atenolol and $548 for verapamil. The cost of emergency room visits during the follow-up period for the medical therapy group averaged $1,039 +/- 680 per visit. Assuming a 12.5% emergency room visit rate at 6 months the cost of medical therapy will exceed ablation therapy after approximately 12 years of atenolol therapy and 9 years of verapamil therapy.

Synthesis of costs and benefits
Costs and benefits were not combined.

Authors' conclusions
Although both medical therapy and radiofrequency catheter ablation were associated with improved QOL, the benefits of medical therapy were limited to improvements in physical functioning, social functioning and mental health. Radiofrequency catheter ablation resulted in higher QOL in all health concepts, including vitality and general health.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator was clear. Medical therapy has traditionally been used for the treatment of patients with symptomatic SVT. You, as a user of this database, should consider whether this is a widely used health technology in your own setting.

Validity of estimate of measure of effectiveness
The data do not appear to have been used selectively.

Validity of estimate of measure of benefit
No summary benefit measure (e.g. quality-adjusted life years) was used in the analysis and as such the authors used a cost-consequence analysis.

Validity of estimate of costs
Resource and cost data were not reported separately. As no statistical analysis was conducted, the costs need to be treated with a degree of caution. Adequate details of methods of quantity/cost estimation were given and no important cost items appear to have been omitted.

Other issues
The authors' conclusions are likely to be justified given the uncertainties in the data. The issue of generalisability to other settings or countries was not addressed. However, appropriate comparisons were made with other studies in terms of improved QOL and cost-effectiveness. Results do not appear to have been presented selectively.

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