A randomized-controlled trial comparing conventional with minimal catheter approaches for the mapping and ablation of regular supraventricular tachycardias


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 objective was to compare the outcomes and costs associated with a conventional versus a minimal catheter approach for the treatment of regular supraventricular tachycardias. The authors concluded that the use of the minimal approach was as effective, safe and more cost-effective than the conventional approach. There were some limitations in the methodology and reporting of the study, especially for the cost analysis, and the results should be considered with caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to compare the outcomes and costs of a conventional versus a minimal catheter approach for the treatment of regular supraventricular tachycardia (SVT) and typical atrial flutter (AFL).

Interventions
There were three groups of patients: paroxysmal SVT (PSVT), ventricular pre-excitation, and AFL. For PSVT patients, the conventional approach used five catheters and the minimal approach used three catheters. For ventricular pre-excitation patients, five catheters were used in the conventional approach and one or two in the minimal approach. For AFL patients, three catheters were used in the conventional approach and two in the minimal approach.

Location/setting
UK/hospital.

Methods
Analytical approach:
The effectiveness and resource use data were derived from a single clinical trial. The time horizon was six weeks and the authors did not report the study perspective.

Effectiveness data:
The trial was a single-centre, randomised controlled trial conducted in the authors' institution. Two hundred patients were enrolled and were shown to be generally comparable in terms of their demographic and health characteristics. These patients were followed up for six weeks after their procedure. The primary outcome was procedural time. Secondary outcomes included fluoroscopy time, radiation dose, procedural success, complications, and the number of catheters.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The main measure of benefit was procedural time.

Cost data:
The catheter cost was included in the analysis.
Analysis of uncertainty:
There was no analysis of uncertainty.

Results
Procedural success was similar between the two groups and there was no significant difference in fluoroscopy time or radiation dose.

In the minimal approach, 5.4% of patients had a complication, whereas, in the conventional approach, 10.8% had a complication.

A median of three catheters was used for the minimal approach and five for the conventional approach. The catheter costs were significantly lower in the minimal approach (unit cost 6.1) compared with the conventional approach (unit cost 8.5; p<0.0001).

Authors’ conclusions
The authors concluded that the use of a minimal approach in the treatment of SVT and AFL was as effective, safe and more cost-effective than the conventional approach.

CRD commentary
Interventions:
Both interventions were very well described. The conventional approach appears to have been the current practice in the authors’ setting, and, although the minimal approach had previously been investigated in observational studies, it had not been tested in a randomised trial.

Effectiveness/benefits:
The use of a randomised controlled trial to generate the effectiveness data was appropriate. The method of randomisation, the sample size calculation, and loss to follow-up were all reported, and the study appears to have had a high degree of internal validity. An additional strength of the study was that the groups were shown to be largely comparable at baseline. No sensitivity analysis on the clinical results was reported, which makes it difficult to ascertain how sensitive the results were to variations in the estimates used in the model.

Costs:
The authors did not report a perspective so it was not clear if the relevant cost categories were included. Insufficient cost analysis was conducted; the cost of procedural time was excluded and would have favoured the minimal catheter approach. In general, the cost analysis was poorly reported: the source of the price data was not given, and neither the price year nor the currency was reported. No statistical analysis of the costs was performed.

Analysis and results:
No synthesis of the effectiveness and cost data was carried out; in effect, a cost-consequences analysis was performed. The results were clearly reported. The lack of any sensitivity analyses reduces the generalisability of these results to other settings. The authors acknowledged some limitations to their analysis.

Concluding remarks:
There were some limitations in the methodology and reporting of the study, especially for the cost analysis. Therefore, the results should be considered with a degree of caution.

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Bibliographic details