Limitations of transesophageal echocardiography in the risk assessment of patients before nonanticoagulated cardioversion from atrial fibrillation and flutter: an analysis of pooled trials

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Authors’ objectives
To compare the embolic risk from the pooled results of transesophageal echocardiography (TEE) trials with that of historical controls with blind cardioversion in anticoagulated or nonanticoagulated participants.

Searching
MEDLINE was searched from 1966 to 1993 for English language studies using the following search headings: 'transesophageal echocardiography', 'atrial fibrillation', 'cardioversion' and 'thromboembolic events'. References in review articles and recent cardiology abstracts were also examined. There was no attempt to identify unpublished literature.

Study selection
Study designs of evaluations included in the review
Only studies comprising series of more than 10 patients were included.

Specific interventions included in the review
Study participants received TEE and cardioversion (spontaneous, pharmacological or electrical), without prophylactic anticoagulation. The control group received cardioversion without TEE screening, either with or without prophylactic anticoagulation.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Patients who had atrial fibrillation or atrial flutter for longer than 48 hours were included.

Outcomes assessed in the review
The outcome was the reported episodes of systemic embolic events including embolic stroke, transient ischaemic attack or peripheral embolus occurring within 10 days of cardioversion.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The authors do not report the method used to assess quality, or how the quality assessment was performed.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were not formally combined. The incidence of embolic events following cardioversion in patients who had undergone TEE, was compared with the incidence in historical controls who had received blind cardioversion.

How were differences between studies investigated?
No tests of heterogeneity were reported.

Results of the review
Seven studies using TEE screening (374 participants), and 18 control studies (3,271 participants) were included.

The incidence of embolic events was 1.34% in patients who had received TEE and 2% in the historical controls group (p=0.26). The incidence in the TEE patients was significantly higher than the anticoagulated control group, who had an incidence of 0.33% (p=0.039).

Authors’ conclusions
TEE-guided cardioversion of nonanticoagulated patients was not safer than blind cardioversion of nonanticoagulated patients. Furthermore, it was associated with a higher risk of embolic events, compared to blind cardioversion, of patients receiving conventional prophylactic anticoagulation.

CRD commentary
Results of a review based on a comparison of separate study groups and historical controls should be treated with caution. There are very few details concerning the included studies (i.e. participants and design), their selection and quality assessment, or the data extraction. The exclusion of smaller studies by the same group may mean that some relevant data is omitted from the review: smaller studies are not necessarily a subset of a larger one. Since the search included English language studies only, and also made no attempt to locate unpublished literature, findings may have been biased.

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**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.