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## **Atrial fibrillation: restoration and maintenance of sinus rhythm and indications for anticoagulation therapy**

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### **Authors' objectives**

To review the efficacy and safety of electrical and pharmacological conversion of atrial fibrillation, strategies for maintenance of sinus rhythm, and the effectiveness of antithrombotic therapy.

### **Searching**

MEDLINE was searched to the end of 1995 (no start date given). Bibliographies, Current Contents, textbooks and recent abstracts were also examined for relevant material.

### **Study selection**

#### **Study designs of evaluations included in the review**

Randomised controlled trials (RCTs), and cohort studies where RCTs were not available.

#### **Specific interventions included in the review**

External and internal cardioversion (direct-current). For oral pharmacological conversion, the effectiveness of digoxin, amiodarone, sotalol, quinidine, flecainide, propafenone are examined. Intravenous agents discussed, include digoxin, amiodarone, sotalol, flecainide, propafenone, esmolol, disopyramide and pirlmenol. Maintenance of sinus rhythm is examined with reference to pharmacologic therapy using quinidine, disopyramide, sotalol, flecainide, amiodarone and beta-blockers. Cardiac pacing (both single- and dual-chamber ventricular pacing) is also examined in this context, along with surgical corridor and maze procedures.

In addition, antithrombotic therapy is examined, and the effectiveness of warfarin, aspirin and anticoagulants is assessed.

#### **Participants included in the review**

Patients with atrial fibrillation. A small number of studies included patients with fibrillation after cardiac surgery.

#### **Outcomes assessed in the review**

The main outcome was restoration of sinus rhythm. Reduction in incidence of ischaemic stroke and emboli is also discussed in the context of antithrombotic therapies.

#### **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 validity of the individual studies does not appear to have been assessed.

### **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 combined by a narrative review.

#### How were differences between studies investigated?

Some narrative examination of differences between the studies was undertaken.

#### Results of the review

Intravenous agents: 23 studies including 1,317 patients. Maintenance of sinus rhythm after cardioversion: 24 studies with approximately 2,000 patients (number of participants not given for 2 trials). Antithrombotic therapy: 6 studies with warfarin (number of patients not stated). For other interventions, the number of studies and patients included is either unclear or not stated.

Cardioversion restores sinus rhythm in more than 80% of patients. In atrial fibrillation of recent onset, pharmacological therapy has a success rate of 40 to 90%. Maintenance of sinus rhythm at 1 year is maintained in about 50% of patients receiving antiarrhythmic therapy, whilst maintenance occurs in only 30% of patients receiving no therapy. Successful cardioversion and maintenance are most effective when fibrillation is of brief duration.

Warfarin is effective in preventing ischaemic stroke and emboli in patients with nonvalvular atrial fibrillation (4.5 versus 1.4% in those receiving therapy). Aspirin is similarly effective in patients aged less than 75 years, without hypertension, history of thromboembolism or recent heart failure. Warfarin is more effective in patients aged more than 75 years, but with an added risk of haemorrhagic stroke and potentially disabling stroke.

#### Authors' conclusions

Sinus rhythm should be restored by electrical or pharmacological conversion in most patients with symptomatic atrial fibrillation and atrial fibrillation of recent onset. Therapy for maintenance of sinus rhythm should be determined on the basis of low risk of side-effects. The value of restoration and maintenance of sinus rhythm is unclear in chronic atrial fibrillation, or fibrillation with few symptoms.

Antithrombotic therapy is effective in reducing the incidence of ischaemic stroke and emboli in patients with chronic atrial fibrillation. In the presence of risk factors for thromboembolism, warfarin appears to be more effective than aspirin. In older patients (aged above 75 years) optimal management remains unclear due to the increased risk of side-effects with warfarin therapy.

#### CRD commentary

This review appears to meet the criteria for a systematic review, but there is insufficient information regarding several aspects of its methodology to be confident of its robustness. There is no systematic assessment of the quality of included studies and it is unclear why some studies are selected from the tables, to be described in detail. There are also no inclusion and exclusion criteria, and little information on some of the primary studies. Given the lack of evidence of a systematic approach to excluding or including studies, and the lack of consideration of quality, the authors' conclusions should be viewed with caution.

#### Bibliographic details

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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.