

Review: Many drugs are effective for conversion of AF and maintenance of sinus rhythm

Miller MR, McNamara RL, Segal JB, et al. Efficacy of agents for pharmacologic conversion of atrial fibrillation and subsequent maintenance of sinus rhythm. A meta-analysis of clinical trials. *J Fam Pract.* 2000 Nov;49:1033-46.

QUESTION

In patients with atrial fibrillation (AF) that was not associated with surgery, which drugs are the most effective for conversion to and maintenance of sinus rhythm?

DATA SOURCES

Studies were identified by searching the Cochrane Library and the Cardiovascular Randomized Controlled Trial Registry, MEDLINE (1966 to May 1998), and the "see related" feature of PubMed for important studies; by hand searching relevant journals; and by contacting content experts.

STUDY SELECTION

Randomized controlled trials were selected if adults with AF were studied, data on pharmacologic management of AF were provided, and AF had not occurred after surgery.

DATA EXTRACTION

Data were extracted on study quality (22 questions), patient characteristics, drugs studied (quinidine, disopyramide, propafenone, flecainide, amiodarone, sotalol, ibutilide, dofetilide, diltiazem, verapamil, and digoxin), drug regimen, follow-up duration, adverse effects, and rates of conversion to and maintenance of sinus rhythm.

MAIN RESULTS

130 articles were reviewed, and 36 met the inclusion criteria (25 studied conversion to and 15 studied maintenance of sinus rhythm). The mean age range was 47 to 71

years, and 7 trials studied patients with a mean age > 65 years. Follow-up duration for conversion studies was < 24 hours and for maintenance studies, 1 to 15 months. Conversion of AF was obtained using ibutilide or dofetilide, flecainide, propafenone, quinidine, and amiodarone (Table). Disopyramide and sotalol were not associated with an increased rate of conversion. Maintenance of sinus rhythm was obtained using quinidine, disopyramide, flecainide, propafenone, and sotalol (Table). Adverse effects were poorly reported, and no syntheses of these data were done, although withdrawal or dosage de-

creases occurred for 0% to 58% of patients. Data were not analyzed for diltiazem, verapamil, or digoxin.

CONCLUSION

Several drugs are effective for conversion of AF and maintenance of sinus rhythm.

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Conversion of atrial fibrillation and maintenance of sinus rhythm for various drug therapies*

| Conversion | Number of studies | Control event rate | Odds ratio (95% CI) | RBI (CI) | NNT (CI) |
|-------------------------|-------------------|--------------------|---------------------|---------------------|------------------|
| Ibutilide or dofetilide | 3 | 20% | 29 (9.8 to 86) | 1770% (734 to 3100) | 3 (2 to 7) |
| Flecainide | 4 | 9% | 25 (9 to 68) | 675% (418 to 847) | 2 (2 to 3) |
| Propafenone | 12 | 31% | 4.6 (2.6 to 8.2) | 119% (75 to 1560) | 3 (2 to 5) |
| Quinidine | 3 | 24% | 2.9 (1.2 to 7.0) | 100% (15 to 189) | 5 (3 to 29) |
| Amiodarone | 3 | 57% | 5.7 (1.0 to 33) | 55% (0 to 72) | 4 (3 to 410) |
| Maintenance | | | | | |
| Quinidine | 4 | 22% | 4.1 (2.5 to 6/7) | 145% (8 to 199) | 4 (3 to 5) |
| Disopyramide | 2 | — | 3.4 (1.6 to 7.1) | Cannot calculate | Cannot calculate |
| Flecainide | 3 | 6% | 3.1 (1.5 to 6.2) | 174% (45 to 366) | 10 (5 to 35) |
| Propafenone | 4 | 26% | 3.7 (2.4 to 5.7) | 118% (77 to 158) | 4 (3 to 5) |
| Sotalol | 2 | — | 7.1 (3.8 to 13.4) | 610% (280 to 1240) | Cannot calculate |

*Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article. Follow-up for conversion < 24 h and for maintenance range 1 to 15 mo.

COMMENTARY

No single "best drug" exists for conversion of AF and maintenance of sinus rhythm. The drugs have different levels of efficacy for conversion and for maintenance. Longitudinal data to assess outcomes are limited. Patients with congestive heart failure may do better with dofetilide, while those with hypertension may do better with propafenone (1).

Drugs, electrical cardioversion, pacing, surgery, and ablation have benefited patients with AF in overlapping clinical settings. Chronicity and AF in the presence of dilated atria are associated with poorer conversion to and rates of maintenance of sinus rhythm. On the basis of decision analysis, for now, combination therapy of cardioversion, antiarrhythmic medication, and antithrombotic agents is the most cost-effective approach (2, 3); the combination of rate control and antithrombotic therapy, however, still may be the most practical. The Atrial Fibrillation Follow-Up Investigation of Rhythm Management (AFFIRM) trial, which compares anticoagulation with maintenance of

sinus rhythm or ventricular rate control, is one of several trials under way to evaluate rate and rhythm control (4).

The prime dictum in treating AF must be "to preserve the brain" (1). Current literature supports the premise that patients should be maintained on aspirin or warfarin, depending on their thromboembolic risk, regardless of whether the patients convert and are in sinus rhythm or are being managed with rate control.

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