Rate control was more cost-effective than rhythm control in persistent atrial fibrillation


**Question**
In patients with persistent atrial fibrillation, is rate control more cost-effective than rhythm control for reducing cardiovascular morbidity and mortality?

**Methods**
**Design:** Cost-effectiveness analysis (from a societal perspective) of a randomized controlled trial (RAte Control versus Electrical cardioversion [RACE]).

**Allocation:** Concealed.*

**Blinding:** Blinded (outcome assessors and monitoring committee).*

**Follow-up period:** Mean 2.3 years.

**Setting:** 31 centers in the Netherlands.

**Patients:** 522 patients who had recurrent persistent atrial fibrillation or flutter, 1 to 2 electrical cardioversions during the previous 2 years, and no contraindications to oral anticoagulation. Exclusion criteria were arrhythmia lasting >1 year, New York Heart Association class IV heart failure, current or previous treatment with amiodarone, or use of a pacemaker.

**Intervention:** Rate control (n=256) or rhythm control (n=266). Rate control included use of digitalis, a nondihydropyridine calcium-channel blocker, and a β-blocker, alone or in combination. Target resting heart rate was <100 beats/min. Patients in the rhythm control group received serial electrical cardioversion and serial antiarrhythmic drugs using sotalol, 160 to 320 mg/d, as the first choice, followed by class IC antiarrhythmic drugs, with amiodarone used as the last choice.

**Outcomes:** Incremental cost savings per avoided composite endpoint of death from cardiovascular causes, heart failure, thromboembolic complications, bleeding, need for pacemaker implantation, or severe effects of antiarrhythmic drugs. Costs of care (including cardioversions, medications, outpatient visits, hospital admissions, general practitioner visits, thrombosis laboratory, professional help, informal care, and travel costs) (discounted at a rate of 4%) were estimated in euros at 2000 rates.

**Patient follow-up:** 82% of patients (mean age 69 y, 63% men) were included in the intention-to-treat cost-effectiveness analysis.

**Main Results**
The groups did not differ for the composite endpoint; however, rate control was more cost-effective than rhythm control (Table).

**Conclusion**
In patients with persistent atrial fibrillation, rate control was more cost-effective than rhythm control for reducing cardiovascular morbidity and mortality.

**Sources of funding:** Center for Health Care Insurance; Interuniversity Cardiology Institute; 3M Pharma.

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*See Glossary.

| Rate control vs rhythm control in persistent atrial fibrillation at mean 2.3 years† |  |
|---|---|---|
| Outcomes | Rate control | Rhythm control | Difference (95% CI) |
| Composite endpoint | 17.5% | 21.2% | −3.7% (−11.2 to 3.9)%‡ |
| Cost-effectiveness ratio |  |  |  |
| Mean cost per patient | €7386 | €8284 | €24 944 |

†Composite endpoint = death from cardiovascular causes, heart failure, thromboembolic complications, bleeding, need for pacemaker implantation, or severe effects of antiarrhythmic drugs.‡Defined in Glossary.

‡Difference not significant.

For the older RACE and AFFIRM types of patients, no clear QOL, mortality, and now cost-based reason exists to support a strategy aimed at maintaining sinus rhythm.

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**References**