

EDITORIAL



The RACE to Treat Atrial Fibrillation in the Emergency Department

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Atrial fibrillation is an increasingly common reason for presentation to the emergency department, representing nearly 0.5% of all such visits.¹ Appropriate patient care must consider the relief of symptoms, the safety of discharge from the emergency department, the plan for follow-up care, and the use of resources. However, there is great variation in the management of this condition, including the use of cardioversion.²⁻⁵

Pluymaekers and colleagues⁴ now report in the *Journal* the results of the RACE 7 ACWAS randomized noninferiority trial involving 437 patients with recent-onset (<36 hours) atrial fibrillation who presented to 17 emergency departments in the Netherlands. The majority of the patients in this trial had a history of atrial fibrillation, but none had episodes that had lasted more than 48 hours. The patients were randomly assigned to undergo either immediate cardioversion (early-cardioversion group) or a wait-and-see approach with medication (delayed-cardioversion group). The primary end point was sinus rhythm at 4 weeks after the initial emergency department visit.

In the early-cardioversion group, approximately equal numbers of patients underwent electrical or pharmacologic cardioversion, with flecainide being the most commonly used agent in the latter approach. In the delayed-cardioversion group, rate-control medications were used to achieve a heart rate of less than 110 beats per minute and relief of symptoms. Then patients were discharged home, with an outpatient visit scheduled for the following day and a referral for cardioversion (as close as possible to 48 hours after symptom onset) if there had been no resolution of atrial fibrillation.

At the 4-week evaluation, sinus rhythm (as determined on 12-lead electrocardiography [ECG]) was present in 91% of the patients in the delayed-cardioversion group and in 94% in the early-cardioversion group, findings that met the criteria for the noninferiority of the wait-and-see approach. In the delayed-conversion group, 69% of the patients had spontaneous conversion and 28% underwent cardioversion within 48 hours. In the early-cardioversion group, nearly 95% of the patients left the emergency department in sinus rhythm (16% after spontaneous conversion while waiting for the procedure and 78% after cardioversion). The median duration of the stay in the emergency department was 120 minutes in the delayed-cardioversion group and 158 minutes in the early-cardioversion group. There were no significant between-group differences in the patients' quality of life⁶ or clinical outcomes at 4 weeks. Among the 335 patients for whom ambulatory ECG recordings were available, nearly a third had a recurrence of atrial fibrillation within 4 weeks, and the time until a first recurrence was similar in the two groups. Fewer than 2% of the patients required hospitalization, 7% required repeat visits to the emergency department because of atrial fibrillation, and cardiovascular complications occurred in 4%.

RACE 7 was a well-designed and well-executed trial with results that can be applied to a sizable population, since 30% of the patients with atrial fibrillation who presented to the emergency department at the two sites that maintained systematic screening logs ultimately were eligible to participate in the trial. Patients were excluded because they presented more than 36 hours after symptom

onset (35% of the patients), they had episodes that lasted more than 48 hours (18%), or their condition was hemodynamically unstable (11%), along with multiple other individual and administrative reasons. The findings suggest that rate-control therapy alone can achieve prompt symptom relief in almost all eligible patients, with good quality of life and a low risk of complications, while facilitating rapid discharge from the emergency department. The trial's inclusion criteria identified a large group of patients who had more than a two-thirds chance of a spontaneous return to sinus rhythm, in whom unnecessary cardioversions were averted. In this pragmatic trial, the wait-and-see strategy reduced the median length of stay in the emergency department to 2 hours, as compared with the 3 to 10 hours expected from observational studies.^{2,3,7} However, for these results to be broadly applicable, defined treatment algorithms⁷ and access to prompt follow-up are needed, which may not be practical in all settings.

The results of this trial greatly simplify the current controversy regarding the safety of cardioversion between 12 and 48 hours after the onset of atrial fibrillation.^{8,9} For most patients with recent-onset atrial fibrillation, the wait-and-see approach may become the preferred strategy, unless they have a history of persistent atrial fibrillation or there are barriers to implementing this approach. Early cardioversion remains an option for patients who have had atrial fibrillation for more than 36 hours if they are receiving long-term anticoagulation, have been classified as low risk on transesophageal echocardiography, or have a low risk of stroke and atrial fibrillation with a duration of 36 to 48 hours.⁸ Early cardioversion remains an option for any patient with hemodynamic instability.

Within 1 year after a visit to the emergency department for atrial fibrillation, 5 to 10% of patients will die from any cause, and 10 to 20% will have a stroke, embolism, or myocardial infarction or be hospitalized for heart failure.¹⁰ Although observational studies suggest that sinus rhythm at the time of discharge from the emergency department is associated with an improved prognosis,⁵ such reports have confounding factors, since patients in sinus rhythm tend to be healthier. In RACE 7, cardiovascular complications were infrequent and similar in the two trial groups.

Since the early-cardioversion strategy did not significantly increase the rate of sinus rhythm at 4 weeks, it is implausible that such treatment would improve long-term outcomes, a finding that is consistent with the results comparing long-term rate control with pharmacologic rhythm control.¹¹ However, long-term prognosis can be improved with oral anticoagulation and risk-factor modification,^{10,12} which can be initially addressed in the emergency department visit and then effectively managed with routine specialist follow-up.^{12,13} Therapy to prevent recurrent hospitalization for atrial fibrillation^{11,14} is another key component of long-term care, since most patients who present to the emergency department have recurrent atrial fibrillation.^{10,12} The management of atrial fibrillation in the emergency department is not only a sprint to eliminate symptoms and facilitate safe discharge but also the start of a marathon to improve long-term outcomes for patients.

Disclosure forms provided by the authors are available with the full text of this editorial at NEJM.org.

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