Rate vs. Rhythm

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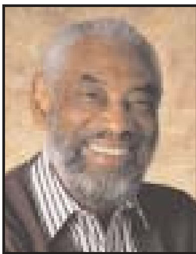
CardioCase Presentation

Mr. Estlin's Dilemma



Mr. Estlin, 67, presents to your office for a routine examination. He is asymptomatic with a normal cardiovascular examination, except for an irregular pulse.

A 12-lead electrocardiogram demonstrates atrial fibrillation (AF), with a ventricular response of 112 beats per minute (bpm). Upon further questioning, Mr. Estlin reports he was told he had an irregular pulse when he was recovering from cataract surgery six months ago.

Mr. Estlin has a history of hypertension, but this is well-controlled with a thiazide diuretic. Mr. Estlin's blood pressure is 130/75 mmHg. He denies a history of diabetes, stroke, or previous myocardial infarction. His exercise tolerance is excellent.

What should be done about Mr. Estlin's irregular pulse?

What's Your CardioCase Diagnosis?

CardioCase Discussion

How should you manage Mr. Estlin?

Mr. Estlin has asymptomatic AF of unknown duration, and his cardiac risk factors include his age (> 65) and treated hypertension.

A number of studies and articles have been published in the last two years that can help guide us in our treatment of Mr. Estlin.[1-3] Of these trials, the Atrial Fibrillation Followup Investigation of Rhythm Management (AFFIRM) study has had the most significant impact on clinical practice. The AFFIRM trial, which compared a rate versus rhythm control strategy, enrolled patients with AF who were not severely symptomatic. All patients received warfarin. In the rhythm control group, warfarin could be discontinued if sinus rhythm was maintained for at least four weeks. Over 4,000 patients with recurrent AF, aged 69.7±9.0 years with at least one cardiovascular risk factor, were followed for 3.5±2.5 years.

Total mortality in the AFFIRM trial was 23.8% in the rhythm group, and 21.3% in the rate control group (p=0.08). More significantly, 7.1% of patients in the rhythm control group and 5.5% in the rate control group suffered ischemic strokes (p=0.79). The majority of strokes occurred when patients were either off warfarin or when their international normalized ratios (INRs) were subtherapeutic. There was no difference reported in quality of life between the two groups. However, in the rhythm control group, there were more adverse events and more hospitalizations.

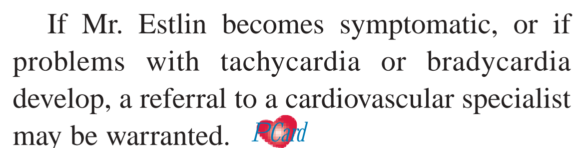
These results have led to a substantial paradigm shift towards a rate control strategy in the treatment of recurrent AF. The results also stress the importance of appropriate anticoagulation, whether rate control or rhythm control is adopted. Patients with "lone" AF (age < 65, with a structurally normal heart, and no other cardiac risk factors) are at low risk of stroke, and may not require anticoagulation.

Despite Mr. Estlin's normal physical examination, an elective outpatient echocardiogram should be ordered to rule out any underlying structural heart disease. Prior to initiating treatment, all common reversible causes of AF need to be excluded (*i.e.*, hyperthyroidism, excessive alcohol intake).

Mr. Estlin should be started on a rate-controlling agent (such as a beta blocker), a rate-controlling calcium-channel blocker (diltiazem, verapamil), or digoxin. His heart rate should be maintained below 80 bpm at rest, or 110 bpm with mild activity.

Mr. Estlin should be started on warfarin, with a goal INR between 2 and 3. Anticoagulation needs to be maintained, even if his AF is paroxysmal in nature.

If Mr. Estlin becomes symptomatic, or if problems with tachycardia or bradycardia develop, a referral to a cardiovascular specialist may be warranted.



References

1. Wyse DG, Waldo AL, DiMarco JP, et al: A comparison of rate control and rhythm control in patients with atrial fibrillation. N Engl J Med 2002; 347(23):1825-33.
2. Caine ME: Atrial fibrillation—Rhythm or rate control? N Engl J Med 2002; 347(23):1822-3.
3. Falk RH: Management of atrial fibrillation—Radical reform or modest modification? N Engl J Med 2002; 347(23):1883-4.