DECISIONS

Evaluation and care of a patient with new-onset atrial fibrillation

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A previously well 67-year-old woman presents to her family physician with new-onset palpitations and fatigue over the last 6 weeks. These symptoms have adversely affected her quality of life, and she reports difficulty in performing daily activities. She takes no medications. On physical examination, her heart rate is irregularly irregular at 112 beats/min, her blood pressure is 145/90 mm Hg, and there are no findings consistent with valvular heart disease. An electrocardiogram (ECG) shows atrial fibrillation with no other abnormalities.

Why does this patient have atrial fibrillation now?

This patient should be assessed for the most common risk factors associated with atrial fibrillation, the most important of which is hypertension.[1] Although rare, atrial fibrillation may be acutely precipitated by thyrotoxicosis, pulmonary conditions such as pulmonary embolism, sepsis and excess consumption of alcohol.[1] The ECG should be examined for evidence of cardiac structural disease, such as atrial enlargement (when in sinus rhythm), Q waves and left ventricular hypertrophy.[1,2] Guidelines also recommend transthoracic echocardiography to assess chamber sizes and ventricular and valve function.[1]

Stress testing can be considered for patients with symptoms or signs of ischemic heart disease or in the presence of Q waves on the ECG but no known coronary artery disease.[1] Complete blood count, liver enzyme and function, fasting blood glucose level, serum electrolytes and creatinine levels should be assessed in anticipation of subsequent therapy.[1,3] If a precipitating cause of fibrillation is identified, it should also be specifically treated. However, management of atrial fibrillation should not be delayed while awaiting the results of investigations.

A flow chart outlining an approach to the evaluation and management of new-onset atrial fibrillation is available in Appendix 1 (available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.130393/-/DC1).[1]

What is the patient's risk of stroke? Should oral anticoagulants be started?

The risk of stroke should be estimated for patients with atrial fibrillation using a validated tool (e.g., the $CHADS_2$ index).[3] The $CHADS_2$ score counts 1 point for a history of congestive heart failure, hypertension (blood pressure consistently ≥ 140/90 mm Hg or requiring medication), aged 75 years or older, or diabetes mellitus, and 2 points for a previous stroke. For a $CHADS_2$ score of 1, anticoagulation should be considered (or acetylsalicylic acid in selected patients); oral anticoagulation is recommended for patients with a score of 2–6.

Although the $CHADS_2$ index is simple to use, it fails to adequately stratify the risk of stroke for patients with a score of zero;[2,4] the risk for such patients can be further stratified (Appendix 2, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.130393/-/DC1). Patients with atrial fibrillation and prior stroke or mitral stenosis should be routinely started on oral anticoagulant therapy.[2,3]

This patient has a $CHADS_2$ score of 1 because of her hypertension; therefore, oral anticoagulant therapy, preferably with a novel oral anticoagulant, should be started, in light of her annual risk of stroke (Appendix 2).[2,3] The start of therapy does not need to be delayed until the echocardiography results are available. Even before confirming the diagnosis of hypertension, oral anticoagulant therapy should be considered for some patients on their first visit (Appendix 2).[2] This patient's hypertension was confirmed by follow-up visits.

Although the decision to start anticoagulant therapy should take into account the risk of bleeding, most patients are expected to derive a net benefit from such therapy.[2,5] In those with paroxysmal atrial fibrillation, the minimum duration of fibrillation that increases the risk of stroke is not known. The ASSERT study (Asymptomatic Atrial Fibrillation and Stroke Evaluation in Pacemaker Patients and the Atrial Fibrillation Reduction Atrial Pacing

Trial) suggests that a duration of fibrillation as short as 6 minutes increases the risk of stroke; however, current guidelines have not outlined a definite duration to prompt the initiation of oral anticoagulation.[2,6,] Clinical judgment should be used for such patients.

Which agent should be used for anticoagulation?

The Canadian Cardiovascular Society guidelines indicate a preference for novel oral anticoagulants, such as dabigatran, rivaroxaban or apixaban, over warfarin for patients with nonrheumatic atrial fibrillation.[2] In those with atrial fibrillation associated with mitral stenosis or a prosthetic valve, warfarin is the drug of choice.[2,3]

Low-dose dabigatran (110 mg twice daily) and rivaroxaban have been shown to be noninferior to warfarin for stroke prevention, while high-dose dabigatran (150 mg twice daily) and apixaban are more efficacious.[2] All novel anticoagulants significantly reduce the risk of intracranial bleeds relative to warfarin.[2] However, compared with warfarin, rivaroxaban 20 mg once daily and dabigatran 150 mg twice daily are associated with higher rates of gastrointestinal bleeding, while low-dose dabigatran and apixaban are associated with a lower risk of major bleeding.[2] All 3 novel anticoagulants should be avoided for patients with severe renal dysfunction (estimated glomerular filtration rate < 30 mL/min) and used cautiously with appropriate dose adjustment for patients with moderate renal impairment.[2] Although the inability to reverse anticoagulation with these agents is a concern, fatal bleeding occurred less frequently with novel anticoagulants than with warfarin in a clinical trial setting.[7]

How should this patient's symptoms and tachycardia be managed?

This patient has no signs of hemodynamic instability, and emergent treatment is not warranted. For stable patients with new-onset symptoms, urgent pharmacologic or electrical cardioversion can be considered if the duration of atrial fibrillation is established to be less than 48 hours.[8]

This patient's atrial fibrillation should be managed according to the severity of her symptoms as per the Severity of Atrial Fibrillation scale (Appendix 3, available at www.cmaj.ca/lookup /suppl/doi:10.1503/cmaj.130393/-/DC1).[8,9]

The Canadian Cardiovascular Society guidelines highlight the importance of controlling symptoms and improving quality of life, rather than only targeting sinus rhythm, with rate control to a target resting heart rate of less than 100 beats/min as the initial therapeutic strategy.[8] Although there is insufficient evidence to routinely recommend one class of atrioventricular nodal blockers over another, the Canadian Hypertension Education Program guidelines recommend against the use of β-blocker therapy for patients older than 60 years.[10] Therefore, it may be reasonable to start this patient on a long-acting rate-slowing calcium-channel blocker for rate control.

Because the goals of care are to reduce the risk of stroke and improve quality of life, close followup (initially at 2–4 wk) of this patient's symptoms to determine the impact of the atrial fibrillation, as well as adverse effects of medication, would be the priority in guiding further therapy rather than further testing (e.g., with a Holter monitor).

When should a patient see a specialist?

To rule out other forms of supraventricular tachycardia that may trigger this condition, referral should be considered for patients with uncontrolled symptoms, coexistent cardiovascular disease warranting specific attention, or those aged 35 years or younger with symptomatic atrial fibrillation.[8] If there is difficulty controlling the symptoms, referral may be considered for rhythm control or an ablation procedure.[8]

References

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