



Atrial fibrillation

● Patient history, new symptoms, and assessment findings prompt a call for the rapid response team

By Felice Hefferan, MSN, RN

ROBERT MEYERS, who's 68 years old, receives a porcine mitral valve replacement without left atrial appendage. Four days later, he complains to you of a "fluttering feeling with chest discomfort and weakness." His medical history includes hypertension and diabetes.

Assessment

Your physical assessment findings include audible breath sounds, no jugular vein distention, and an apical heart rate (HR) of 150 beats/minute (bpm); the telemetry monitor shows a narrow QRS complex and inconsistent R-R interval. Vital signs are blood pressure (BP) 80/50 mm Hg, respiratory rate 24, and pulse oxygenation 94%. Robert's new symptoms combined with these vital signs prompt you to call the rapid response team (RRT).

On the scene

The RRT places Robert on 2 liters of oxygen by nasal cannula. A 12-lead electrocardiogram (ECG) reveals atrial fibrillation with a ventricular HR of 150 bpm. Orders from the RRT physician include a 5 mg I.V. bolus of metoprolol administered over 2 minutes, a saline infusion over 8 hours, and a continuous heparin infusion. A standing order is placed for oral metoprolol 50 mg every 12 hours with parameters to withhold the medication if Robert's HR is below 50 bpm and his BP is less than 100/60 mm Hg. The RRT's goal is to control Robert's ventricular rate and heart rhythm and prevent stroke.

Outcome

After the I.V. metoprolol and the saline infusion, Robert's HR is 100 bpm (but the atrial fibrillation continues), his BP is 110/60 mm Hg, and he reports no further chest discomfort. The next day, Robert converts to sinus rhythm. He remains on a heparin infusion with the intent to place him on warfarin for 3 to 6 months along with 81 mg per

day of aspirin. A postdischarge consult is scheduled with the electrophysiologist.

Education

Atrial fibrillation, a common arrhythmia in patients after valve surgery even when the patient has no history of arrhythmias, results from rapid electrical activity that arises from different ectopic foci. Uncoordinated atrial pumping and ineffective contraction can lead to blood stagnation in the atria because it can't be fully emptied, placing patients at risk for thrombus and stroke. Other causes of atrial fibrillation after cardiac surgery include coronary heart disease, left ventricular hypertrophy, pulmonary disease, and left-side heart failure.

Management

Definitive diagnosis of atrial fibrillation is made with a 12-lead ECG. Pharmacologic treatment includes selective beta 1 adrenergic receptor blockers to decrease the automaticity of contractions, thereby controlling the HR, although they typically don't convert the abnormal heart rhythm. When beta blockers are contraindicated in patients with severe reactive airway disease, calcium channel blockers are used to inhibit calcium from entering cells, resulting in controlled HR. Other pharmacologic treatments include amiodarone for patients with a decreased ejection fraction and antiarrhythmic agents to restore normal heart rhythm. When pharmacologic agents aren't effective, other options include ablation and cardioversion.

Follow up

Robert returns to his cardiologist for his annual check-up with no further complaints of fluttering, chest discomfort, or weakness. A routine ECG confirms a sinus rhythm resulting from pharmacologic treatment and normal left ventricular function. Robert remains symptom free. ★

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