

# Supraventricular Tachycardia and the Use of Telemetry in Hospitalized Patients



Ian McCormick, MD

## KEYWORDS

- Supraventricular tachycardia • Telemetry • Electrocardiography
- Atrioventricular conduction disease

## HOSPITAL MEDICINE CLINICS CHECKLIST

1. Always refer to the anatomy of the heart and conduction system to help identify supraventricular tachycardia and the components of the cardiac cycle.
2. There are multiple types of supraventricular tachycardia; the most common types are sinus tachycardia and atrial fibrillation, the latter of which has established risk factors.
3. If the history and examination reveal a hemodynamically unstable tachyarrhythmia, direct-current cardioversion should be performed without hesitation.
4. The 12-lead electrocardiogram can help distinguish supraventricular tachycardia and ventricular tachycardia.
5. Correct identification of the type of supraventricular tachycardia can be difficult, and an algorithm using components of the cardiac cycle can be used for accurate diagnosis.
6. Vagal maneuvers are generally safe, and can be used to help diagnose and treat some forms of supraventricular tachycardia.
7. Carotid sinus massage is contraindicated in patients with a carotid bruit or a transient ischemic attack/stroke in the preceding 6 months.
8. Nondihydropyridine calcium-channel blockers and adenosine are the pharmacologic agents of choice for the initial evaluation and management of supraventricular tachycardia in hemodynamically stable patients.
9.  $\beta$ -Blockers and calcium-channel blockers are used for rate control of atrial fibrillation with rapid ventricular response.

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Beth Israel Deaconess Medical Center, Harvard Medical School, 330 Brookline Avenue, Span 2, Boston, MA 02215, USA

E-mail address: [imccormi@bidmc.harvard.edu](mailto:imccormi@bidmc.harvard.edu)

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- 10. In patients with decompensated congestive heart failure, digoxin and amiodarone should be used in patients with atrial fibrillation with rapid ventricular response.
- 11. The use of telemetry for hospitalized patients should follow evidence-based guidelines delineated by the American College of Cardiology and American Heart Association.

**DEFINITIONS**

*What is a supraventricular tachycardia (SVT)?*

SVT is a term used to characterize any tachycardia that originates above or within the atrioventricular (AV) node,<sup>1</sup> with tachycardia defined as a sustained heart rate of 100 or more beats per minute. Possible anatomic origins of SVT include the sinus node, other foci of automaticity within the atria, a bypass tract between the atrium and ventricle, or a bypass tract within the AV node itself. The His-Purkinje system and ventricles are not sites of origin for SVT. In SVT, the QRS is usually less than 120 milliseconds, with some exceptions.

*What are the absolute and relative indications for the use of telemetry in hospitalized patients?*

The use of telemetry is commonplace in the hospital setting. Up to 70% of patients hospitalized with 1 of the top 10 admitting diagnoses may require telemetry.<sup>2</sup> The American Heart Association characterizes the indications for the use of telemetry using a class system (Table 1).<sup>3</sup> Class I patients benefit from the use of telemetry, class II patients may benefit from telemetry, and class III patients do not require telemetry.

Table 1 Indications for use of telemetry		
Indication	Benefit	Clinical Examples
Class I	Yes	Unexplained syncope or recurrent palpitation; suspected malfunction of pacemaker or ICD
Class IIa	Possible	Suspected Prinzmetal angina
Class IIb	Possible	Unexplained chest pain or dyspnea; neurologic event when AF or atrial flutter is suspected; CHF, postmyocardial infarction, assessing rate control during AF, or evaluation of SVT in patients with ICD; patients with known CAD and atypical chest pain
Class III	No	Syncope with nonarrhythmia etiology; valvular heart disease; preoperative evaluation for noncardiac surgery

*Abbreviations:* AF, atrial fibrillation; CAD, coronary artery disease; CHF, congestive heart failure; ICD, implantable cardioverter-defibrillator; SVT, supraventricular tachycardia.

*Adapted from* Crawford MH, Bernstein SJ, Deedwania PC, et al. ACC/AHA guidelines for ambulatory electrocardiography: executive summary and recommendations. A report of the American College of Cardiology/American Heart Association task force on practice guidelines (Committee to Revise the Guidelines for Ambulatory Electrocardiography). *Circulation* 1999;100:886–93; with permission.

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