Bradycardia: Care of the Patient on Cardiac Wards

Site Applicability

St. Paul's Hospital - Cardiac inpatient wards only.

Practice Level

Specialized: RNs who have received specialized education in cardiac rhythm interpretation and management. Nurses must meet the standard set out in the Cardiac Monitoring protocol.

Need to Know

Bradycardia is typically defined as a heart rate under 60 bpm in adults. It can be further broadly categorized as disorders of sinus node dysfunction or atrioventricular blocks.

Sinus node dysfunction can manifest as pauses or ectopic atrial, junctional or ventricular escape rhythms. Atrioventricular blocks are conduction disturbances that influence impulse transmission from the atria to the ventricles. These disturbances can include delayed conduction from the atrium to ventricle (First degree AV block), intermittent atrial conduction to the ventricle (Second degree AV block) or complete block of conduction to the ventricles (Third degree AV block).

While bradycardias can be normal physiologic responses, they may also indicate other pathophysiologic causes. Assessment of any heart rhythm with an accompanying slow rate must be directed towards determining the hemodynamic impact of the heart rate. Heart rate is a key factor determining cardiac output.

Symptomatic bradycardia is defined as a heart rate less than 60 bpm with associated signs *and* symptoms related to decreased cardiac output. These symptoms include decreased systolic BP (more than 20 mmHg from baseline), fatigue, dizziness, lightheadedness, decreased level of consciousness or confusion, angina, shortness of breath, diaphoresis, cool, clammy skin.

Atropine is the first-line drug for acute **symptomatic bradycardia**. It is classified as an anticholinergic (inhibits transmission of parasympathetic nerve impulses), and causes increased firing of the SA node and conduction through the AV node by blocking the action of the vagus nerve on the heart. Atropine works well for bradycardias due to excess vagal tone or for blocks at the atrioventricular level.

Atrioventricular block within or below the bundle of HIS will not respond to atropine. In practice, it is not always apparent where the site of atrioventricular block is. Generally, atropine is less likely to be effective for second degree type 2 and third degree block. In the event of symptomatic bradycardia for these rhythms, it is still acceptable to try atropine, however, do not delay calling a code blue.

Do not give atropine to patients post heart transplant. Transplanted hearts that are denervated, will not respond to atropine. In these cases, call a CODE BLUE and (if wires available) initiate temporary epicardial pacing as per protocol B-00-13-10083 Care of the Patient during Temporary Epicardial Pacing on the Cardiac Surgery Ward

Protocol

Initial Patient Assessment and Interventions

- Assess patient's response (signs and symptoms, vital signs) to cardiac rhythm. If symptomatic bradycardia, call for assistance. Attach patient to portable cardiac monitor.
- Administer oxygen if SpO_2 is less than 94% or patient is short of breath.
- Establish IV access, if no IV present. Consider placing patient in Trendelenburg.
- Administer atropine 0.5mg IV direct, as per order.

  NOTE: Notify responsible physician/NP of arrhythmia immediately and patient's response to 1st dose of atropine and any other interventions.
- Reassess rhythm and response to intervention.
- Perform blood pressure every 5 minutes until heart rate resolves or directed otherwise by physician/ nurse practitioner
- If vital signs or level of consciousness deteriorates further, or does not improve, **call Code Blue, and support patient as necessary.**
- Inform family of patient's change in condition.

Exceptions:

- Do not administer atropine to patients who are post heart transplant, call code blue.
- For 2nd degree AV block type II and 3rd degree AV block, administer atropine AND call Code Blue immediately, as atropine is unlikely to work. Support patient as necessary.
- For cardiac surgery patients with epicardial pacing wires in-situ, initiate temporary epicardial pacing as per protocol B-00-13-10083. For surgical patients WITHOUT pacing wires or if epicardial pacing is ineffective, atropine should be administered.

Documentation

- ECG Rhythm Strip Flow Sheet – analyze and mount ECG rhythm strip showing bradycardia and of rhythm following atropine administration
- Electronic Health Record:
  - Document assessments, interventions and provider notification in iView.
  - Write narrative note for event.
  - Consider flagging the low heart rate with comment.
  - MAR - document time and dose of medication administered

Patient and Family Education

- Explain to patient what has happened and anticipated care for next few hours
- Direct patient to report feelings of chest discomfort, nausea, dizziness, sweatiness or shortness of breath

Related Documents

1. B-00-13-10011 - Cardiac monitoring (SPH & MSJ)
2. B-00-07-10060 - Cardiac Arrest (Code Blue): Initiating (SPH & MSJ)
3. B-00-13-10083 - Epicardial Pacing, Temporary: On Cardiac Surgery Ward, Initiating

References

1. Homoud, M.K. (2021). Sinus Bradycardia. In T.W. Post (Ed.), UpToDate. Waltham, MA. : UpToDate. Retrieved from www.uptodate.com.
2. Kusumoto, F. M., Schoenfeld, M. H., Barrett, C., Edgerton, J. R., Ellenbogen, K. A., Gold, M. R., Goldschlager, N. F., Hamilton, R. M., Joglar, J. A., Kim, R. J., Lee, R., Marine, J. E., McLeod, C. J., Oken, K. R., Patton, K. K., Pellegrini, C. N., Selzman, K. A., Thompson, A., & Varosy, P. D. (2019). 2018 ACC/AHA/HRS guideline on the evaluation and management of patients with bradycardia and cardiac conduction delay: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *Heart Rhythm*, 16(9), e128–e226. https://doi.org/10.1016/j.hrthm.2018.10.037

Groups/Persons Consulted:

Clinical Nurse Specialist, Heart Rhythm Program

Clinical Nurse Leader, Cardiac Medicine

Nurse Educator, Cardiology

Nurse Practitioners 5B

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