

Bradycardia (Unstable) Protocol

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Preamble

Occasionally, patients experiencing an acute cardiac event present with bradycardia that is hemodynamically unstable. Under these circumstances, pharmacological intervention may be necessary to sustain life until definitive care is obtained at the hospital.

Requirements

1. Fully licensed Technician-Paramedic or Technician-Advanced Paramedic.
2. Certification in tracheal intubation or one of the double-lumen airways protocol by the Medical Director.
3. Certification in bradycardia (unstable) protocol by the Medical Director.
4. If equipped with a pacing-capable monitor, instruction in the pacing function of the monitor by the medical director.
5. Certification in the remaining “cardiac arrest” protocols by the Medical Director.
6. Current certification as an advanced cardiac life support provider.

Indications

1. Bradycardic patient (ventricular rate less than 50 beats per minute) with a systolic blood pressure less than 90 mm Hg, and one of the following:
 - decreased level of consciousness
 - chest pain
 - signs / symptoms of congestive heart failure
 - signs / symptoms of shock

Contraindications

1. Patient age less than 16 years.

Drug Dose and Frequency

atropine

IV: 0.5 mg IV bolus; repeat q3-5 minutes prn

ETT: 1 mg diluted in 10 ml normal saline; repeat q3-5 minutes prn
maximum total dose by any route: 3 mg

Procedure

1. Perform patient assessment and record vital signs.
2. Assess that patient meets criteria for this protocol.
3. Ensure there are no contraindications to use of this protocol.
4. Initiate basic life support treatment measures, including supplemental oxygen.
 - these take precedence over management using this protocol
5. Initiate cardiac monitoring by attaching monitor/defibrillator/pacing pads. Confirm cardiac rate and determine rhythm. If, at any time, a rhythm other than bradycardia appears, continue as per protocol for that rhythm.
6. Intubate (using endotracheal tube or double-lumen airway) if indicated.
7. Establish intravenous line of normal saline, TKVO.
8. Administer atropine as indicated.
9. If there is no response to the first dose of atropine, or if the response to atropine is transient, initiate transcutaneous pacing (if equipped). (See appendix.)
10. Initiate transport, unless other emergency condition requires immediate treatment.
11. Monitor and reassess patient en route.
12. Notify receiving facility of patient's condition and medication used.

Documentation Requirements

The following information must be documented on the patient care report form:

1. Patient's presenting signs and symptoms, including vital signs and initial cardiac rhythm.
2. Indications for protocol use.
3. All cardiac rhythm strips.
4. Dose(s), time(s), route(s), and effect(s) of atropine used.
5. If pacing is attempted, voltage setting at which capture is achieved.
6. Repeat assessment and vital signs, as indicated.
7. Changes from baseline, if any, that occur during treatment or transport.
8. Signature and license number of EMS personnel performing any transfer of function skills.

Certification Requirements

1. Attend in-depth classes and lectures on static and dynamic rhythm interpretation.
2. Demonstrate an understanding of the pharmacology and mechanism of action of atropine.
3. Demonstrate an understanding of the procedure for transcutaneous pacing.
4. Pass a written examination.
5. Pass practical scenarios incorporating variations of the bradycardia (unstable) protocol.
6. Certification is by the Medical Director.

Recertification Requirements

1. Review class and recertification is done every 12 months.
2. Current advanced cardiac life support provider certification.
3. A record will be kept to document all cases where this protocol is used.

Decertification

1. Decertification is at the discretion of the Medical Director or the Provincial Medical Director, Emergency Medical Services, Manitoba Health & Healthy Living.

Quality Assurance Requirements

1. Appropriate quality assurance policies must be in place. The Medical Director or designate must review all instances where this protocol is used. As a minimum, the following must be assessed:
 - i) appropriateness of implementation
 - ii) adherence to protocol
 - iii) any deviation from the protocol
 - iv) corrective measures taken, if indicated
2. Yearly statistics for protocol use compiled and forwarded to Emergency Medical Services, Manitoba Health & Healthy Living.

Appendix

Transcutaneous Pacing Procedure

1. Attach monitor/defibrillator/pacing pads to the patient in the same manner as for defibrillation.
2. Set monitor for pacing as per manufacturer's directions.
3. Set the pacing rate for 60 beats per minute. This rate can be adjusted up or down (based on patient clinical response) once pacing is established.
4. Set the pacing current to 40 milliamps (mamp), then adjust to 2 mamp above the lowest current at which consistent capture is observed..
5. Observe monitor for capture (illustrated by wide QRS complexes corresponding to the pacing rate).
6. Check pulse. Successful pacing will be reflected by a pulse corresponding to the pacing rate.
7. If certified to do so, administer parenteral analgesia and sedation as indicated.
8. Initiate transport, unless other emergency condition requires immediate treatment.