

Cardiac Arrest - Trauma Protocol

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Preamble

Cardiac arrest due to a traumatic injury is associated with a very poor outcome. Unless the underlying condition is identified and corrected, the patient is not likely to be resuscitated. Prehospital management of a patient who has suffered a traumatic cardiac arrest is limited to fluid resuscitation and rapid transport to hospital.

EMS personnel should consider the possibility that a cardiac arrest was the primary event that lead to traumatic injury. If there is a suspicion a cardiac arrest is the primary event, analysis of the cardiac rhythm and management of an abnormal cardiac rhythm may be appropriate. Scene time should be kept to an absolute minimum because of the overriding need to transport the patient to hospital.

Requirements

1. Fully licensed Technician-Paramedic.
2. Certification in tracheal intubation or one of the double-lumen airways protocol by the Medical Director.
3. Certification in cardiac arrest – trauma protocol by the Medical Director.
4. Certification in other “cardiac arrest” protocols as determined by the Medical Director.
5. Current certification as an advanced cardiac life support provider.

Indications

1. Cardiac arrest secondary to significant trauma.

Contraindications

1. Patient under the age of 16 years.
2. Patient meets criteria for determination of death.

Drug Doses and Frequencies

1. epinephrine

IV: 1 mg IV bolus; repeat q3-5minutes prn

ETT: 2 mg diluted in 10 ml normal saline; repeat q3-5minutes prn

Procedure

1. Perform patient assessment and record vital signs, level of consciousness, and pupil size.
2. Assess that patient meets criteria for this protocol.
3. Ensure there are no contraindications to use of this protocol.
4. Initiate and continue cardiopulmonary resuscitation (CPR).
5. Attach patient to ECG monitor. If rhythm is ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at 360 J (or biphasic equivalent as per manufacturer).
6. Subsequent shocks will be at 360 J (or biphasic equivalent as per manufacturer)
7. If at any time, a rhythm other than ventricular fibrillation or pulseless ventricular tachycardia appears, treat as per the protocol for that rhythm.
8. Intubate (using endotracheal tube or double-lumen airway) and ventilate. Ensure C-spine precautions and immobilization are maintained.
9. Establish a large bore intravenous of normal saline running wide open. Reassess patient after each 500 ml bolus has been infused.
 - maximum fluid infusion is 2000 ml.
10. Administer initial dose epinephrine.
11. Initiate transport.
12. Reassess after 1 minute of CPR. Defibrillate at 360 J (or biphasic equivalent as per manufacturer) if indicated.
13. Repeat epinephrine and reassess after 1 minute of CPR. Defibrillate at 360 J (or biphasic equivalent as per manufacturer) if indicated.

Note:

- under no circumstances should EMS personnel delay initiation of transport in the setting of an obvious traumatic injury requiring medical intervention
 - traumatic arrests involve injuries that require timely hospital-based interventions
 - even minor, unnecessary prehospital delays are not indicated unless there is a clearly identified and correctable cause for the traumatic arrest
- all medications should be circulated for 30 – 60 seconds prior to defibrillation
- if a perfusing rhythm occurs, treat the patient as per the appropriate emergency treatment guidelines for traumatic injury

Documentation Requirements

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

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

Certification Requirements

1. Attend in-depth classes and lectures on kinematics or trauma, trauma resuscitation, and static and dynamic rhythm interpretation.
2. Demonstrate an understanding of the pharmacology, mechanism of action, and potential side effects of epinephrine.
3. Pass a written examination.
4. Pass practical scenarios incorporating variations of the cardiac arrest - trauma protocol.

5. Certification is by the Medical Director.

Recertification Requirements

1. Review class and recertification is done every 12 months.
2. Advanced cardiac life support provider certification must be kept current.
3. Basic trauma life support provider certification must be kept current.
4. 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, 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.