

Cardiac Arrest – Pediatric Pulseless Electrical Activity Protocol

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Preamble

Cardiac arrest with pulseless electrical activity indicates the presence of cardiac electrical activity in the absence of cardiac contractile activity. This can occur due to a variety of conditions. Unless the underlying condition is identified and corrected, the patient is not likely to be resuscitated. This protocol manages some of the potentially correctable causes of pulseless electrical activity.

Potential causes of pulseless electrical activity include hypovolemia, hypoxia, acidosis, hyper / hypokalemia, hypothermia, drug overdose, cardiac tamponade, tension pneumothorax, and coronary or pulmonary artery thrombosis.

Requirements

1. Fully licensed Technician-Advanced Paramedic.
2. Certification in tracheal intubation – pediatric protocol by the Medical Director.
3. Certification in cardiac arrest – pediatric pulseless electrical activity protocol by the Medical Director.
4. Certification in other “cardiac arrest” protocols as determined by the Medical Director.
5. Certification in intraosseous cannulation and infusion protocol (if a treatment option).
6. Current certification as an advanced cardiac life support provider.
7. Current certification as a pediatric advanced life support provider.

Indications

1. Patient with cardiac electrical activity on the cardiac monitor but absent vital signs or evidence of spontaneous circulation.

Contraindications

1. Patient age 16 years or greater.

Drug Doses and Frequencies

1. epinephrine
IV / IO*: 0.01 mg / kg IV/IO* bolus; repeat q3-5minutes prn
ETT: 0.1 mg / kg diluted in normal saline to a total of 3-5 ml
repeat q3-5minutes prn

* intraosseous route is not permitted unless approved for use by the regional EMS medical director and the EMS personnel is certified in the intraosseous cannulation and infusion protocol

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 and continue cardiopulmonary resuscitation (CPR).
 - ensure effective bag-mask ventilation
5. Monitor ECG and confirm pulseless electrical activity.
6. Intubate and ventilate.

7. Initiate intravenous with normal saline, infusing wide open.
 - patient should be reassessed for return of vital signs every 10 ml / kg
 - when a maximum of 40 ml / kg has been reached, infuse at TKVO
 - consider intraosseous cannulation only if indicated, intraosseous route is approved for use by regional EMS medical director, and the EMS is certified in intraosseous cannulation and infusion protocol
8. Administer epinephrine. Repeat every 3-5 minutes prn.
9. Consider possible causes. If a particular cause is identified and can be managed using an alternate emergency treatment protocol, go to that protocol and begin treatment.
10. Reassess rhythm and pulse after each intervention.
11. Initiate transport.
12. Notify the receiving facility of patient's current condition, any changes in condition, and estimated time of arrival.

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), routes(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 static and dynamic rhythm interpretation.

2. Demonstrate an understanding of the pharmacology, mechanism of action, and potential side effects of epinephrine.
3. Demonstrate competency during practical scenarios incorporating variations of the cardiac arrest – pulseless electrical activity protocol.
4. Pass a written examination.
5. Pass practical scenarios incorporating variations of the cardiac arrest – pulseless electrical activity protocol.
6. Certification is by the Medical Director.

Recertification Requirements

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

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.