

N01: Peri-Arrest Management

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Updated: December 19, 2023

Reviewed: December 19, 2023

Introduction

The peri-arrest period is the time either before or immediately following a full cardiac arrest, when the patient's condition is unstable. Paramedics and EMRs/FRs caring for a patient in the peri-arrest period (the so-called "crashing patient") have an opportunity to significantly improve outcomes in comparison to patients in cardiac arrest, provided they are able to recognize and respond to signs of imminent deterioration.

Essentials

A significant body of research demonstrates that many patients exhibit signs of clinical deterioration before experiencing cardiac arrest. The following features indicate that a patient is at high risk of being peri-arrest:

- Shock/hypotension (systolic blood pressure < 90 mmHg); pallor; sweating; cold, clammy extremities; confusion or impaired consciousness; poor oxygenation
- Syncope: transient loss of consciousness due to global reduction of blood flow to the brain
- Myocardial ischemia: typical ischemic chest pain and/or evidence of myocardial ischemia on 12-lead ECG
- Heart failure: pulmonary edema and/or raised jugular venous pressure
- Cardiac arrhythmias (relatively common in the peri-arrest period)

Additional Treatment Information

The specific clinical findings will dictate the need for appropriate immediate treatment in the peri-arrest period. Depending on the nature of any underlying arrhythmia and clinical status of the patient, in particular the presence or absence of adverse features, immediate treatment options for patients in the peri-arrest period can be divided into four categories:

1. No treatment needed
2. Simple clinical interventions (e.g., Vagal maneuvers)
3. Pharmacological therapies
4. Electrical therapies (e.g., cardioversion or pacing)

Most drugs act slowly, and less reliably, than electrical treatments, so defibrillation or cardioversion is generally preferred for unstable patients with adverse features. Once treated, paramedics must continue to assess and monitor the patient to detect any additional abnormalities that may require treatment.

Advanced Care Paramedics and above may consider the use of prophylactic antiarrhythmics following the successful termination of ventricular fibrillation or ventricular tachycardia. Although there are no studies that demonstrate improvement in long-term survival, the continued use of antiarrhythmic agents (particularly in cases where one was used to terminate a lethal arrhythmia) may be beneficial in maintaining a stable, perfusing rhythm and is supported by current American Heart Association Emergency Cardiovascular Care guidelines.

General Information

Non-technical skills such as leadership, teamwork, communication, and situational awareness, enables a more effective response to the deteriorating patient and are critical to ensuring an appropriate response to patients in the peri-arrest period.

If the patient is palliative or otherwise at the end of their life, treat in accordance with relevant clinical practice guidelines.

Interventions

First Responder

- Position patient supine, if appropriate; warning: do not ambulate the patient
- Supplemental oxygen as required:
 - → [A07: Oxygen Administration](#)
 - The maximum flow of a nasal cannula should be 5 L/min. The maximum flow of a non-rebreather mask should be 15 L/min. A nasal cannula may be placed under an NRB, CPAP, or BVM when flow rates above 5 L/min are required.
- Position defibrillator electrodes in anticipation of cardiac arrest

Emergency Medical Responder – All FR interventions, plus:

- Use vital signs and patient observations to recognize deterioration, and to guide decision-making
- Supplemental oxygen as required to maintain SpO₂ ≥ 94%:
 - → [A07: Oxygen Administration](#)
 - Paramedics and EMRs should use the lowest oxygen flow rate possible to achieve an SpO₂ of ≥ 94%. The maximum flow of a nasal cannula should be 5 L/min. The maximum flow of a non-rebreather mask should be 15 L/min. A nasal cannula may be placed under an NRB, CPAP, or BVM when flow rates above 5 L/min are required.
- Initiate conveyance to nearest emergency department with notification
- Consider intercept with additional resources

Primary Care Paramedic – All FR and EMR interventions, plus:

- Treat presenting symptoms per relevant BCEHS Clinical Practice Guidelines:
 - → [D01: Shock](#)

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Treat presenting symptoms per relevant BCEHS Clinical Practice Guidelines:
 - → [C02: Bradycardia](#)
 - → [C03: Narrow Complex Tachycardia](#)
 - → [C04: Wide Complex Tachycardia](#)

References

1. Massey D, et al. What factors influence ward nurses' recognition of and response to patient deterioration? An integrative review of the literature. 2017. [[Link](#)]
2. Panchal AR, et al. 2018 American Heart Association focused update on advanced cardiovascular life support use of antiarrhythmic drugs during and immediately after cardiac arrest: An update to the American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. 2018. [[Link](#)]

