Ventricular Fibrillation

Pulseless Ventricular Tachycardia

Criteria for Death / No Resuscitation
Review DNR / MOST Form

P

CPR Procedure
AED Procedure if available
Cardiac Monitor; place Zoll Stat Padz and secondary set of pads

Manual defib procedure 200J
If VF/ pulseless VT
Repeat every two minutes as needed

Consider reversible causes

IV / IO Procedure
Epinephrine 0.1mg/mL (1:10,000) 1 mg IV / IO
Every 5 minutes

Normal Saline Bolus 500 mL IV/IO
May repeat as needed
Maximum 2 L

Amiodarone 300 mg IV / IO
May repeat if refractory
Amiodarone 150 mg IV / IO
Refractory
Consider Lidocaine 1.5 mg/kg IV / IO
May repeat if refractory
Lidocaine ½ initial dose IV / IO

Refractory after three (3) defibrillation attempts?
Change defibrillation vector

Refractory after four (4) defibrillation attempts?
Consider DSED

P

ROSC? YES

Termination on scene Protocol
Post Resuscitation Protocol

Notify Destination or Contact Medical Control

Decomposition
Rigor mortis
Dependent lividity
Blunt force trauma
Injury incompatible with life
Extended downtime with asystole
Do not begin resuscitation
Follow Deceased Subjects Policy

Consider Intra-Arrest Targeted Temperature Management Therapy for refractory VF

Reversible Causes
Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypothermia
Hypo / Hyperkalemia
Tension pneumothorax
Tamponade; cardiac Toxins
Thrombosis; pulmonary (PE)
Thrombosis; coronary (MI)

Torsades de pointes
Low Magnesium States
(Malnourished / alcoholic)
Suspected Digitalis Toxicity

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Defibrillate 200 J
Consider
Magnesium Sulfate 2g IV / IO

Utilize this protocol with Team Focused Resuscitation Protocol

Airway protocol(s) As indicated

ROSC at any time Go to Post Resuscitation Protocol

Histories

★ SAMPLE
★ Estimated downtime
★ Events leading to arrest
★ Suspected hypothermia. Overdose
★ End stage renal disease
★ DNR, MOST, or Living Will

Signs and Symptoms

★ Pulseless
★ Apneic
★ VF or pulseless VT on ECG

Differential

★ See Reversible Causes below
★ Artifact
★ Device failure
★ Cardiac
★ Endocrine / metabolic
★ Drugs
★ Pulmonary

This protocol has been altered from the original NCCEP Protocol by the Johnston County EMS System Medical Director.
It is important to minimize interruptions in chest compressions, especially prior to and immediately post shock. Compressions must continue while the defibrillator is charging.

- Coarse ventricular fibrillation (VF) is most likely to convert to a perfusing rhythm.
- If a patient goes into ventricular fibrillation (VF) or pulseless ventricular tachycardia in front of you, immediate defibrillation is needed.
- Airway management should never be a priority with patients in VF/pulseless VT.
- Medications should never be administered through an ET tube.
- Resuscitation efforts should never be discontinued on a patient in VF.
- High quality CPR has been proven to increase chances of converting rhythms along with defibrillation. Continuously monitor the quality of compressions and adjust as needed.

- If applicable, continuously monitor filtered rhythm for changes.
- Monitor EtCO2 and improve compressions. A low EtCO2 could be due to compression quality and not ventilations. Adjust compressions and keep the ventilation rate at 10 breaths per minute.
- If BVM/OPA or BIAD is effective, continue its use. Studies show endotracheal intubation within the first 15 minutes of a working code can increase mortality.
- Naloxone has no role in cardiac arrest.

**Pearls**

- **Team Focused Approach / Pit-Crew Approach** recommended; assigning responders to predetermined tasks.
- Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.
- **DO NOT HYPERVENTILATE**: Maintained controlled ventilations at rate of 10 per minute or as guided by EtCO2, with continuous uninterrupted compressions. Administer controlled ventilations of 400-600 mL air volume. This can be accomplished by providing a half squeeze of the adult BVM or a full squeeze of a pediatric BVM.
- Consider early IO placement if available and / or difficult IV access anticipated.
- Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.
- Consider **Passive oxygenation** during first 2 defibrillations, focus on high quality compressions and early defibrillations versus obtaining an airway.
- Reassess and document BIAD and / or endotracheal tube placement and EtCO2 frequently, after every move, and at transfer of care. ETsCO2 must be utilized with ventilations.
- IV / IO access and drug delivery is secondary to high-quality chest compressions and early defibrillation.
- **Defibrillation**: Follow manufacturer's recommendations concerning defibrillation / cardioversion energy when specified.
- **End Tidal CO2 (EtCO2)**
  - If EtCO2 < 10 mmHg, improve chest compressions.
  - If EtCO2 doesn’t increase, further evaluate and inquire about extended downtime.
  - If EtCO2 spikes, typically > 40 mmHg, consider Return of Spontaneous Circulation (ROSC)
- Magnesium Sulfate is not routinely recommended during cardiac arrest, but may help with **Torsades de points**, **Low Magnesium States** (Malnourished / alcoholic), and **Suspected Digitalis Toxicity**.
- Sodium bicarbonate should be considered in the dialysis / renal patient, known hyperkalemia, or suspected tricyclic overdose at 50 mEq IV / IO.
- Consider placement of LUCAS3 after four (4) rounds of CPR after implementation of initial ALS.