



# VENTRICULAR FIBRILLATION PULSELESS VENTRICULAR TACHYCARDIA

Cardiac Arrest Protocol AC 3

	<p><b>Begin Continuous CPR Compressions</b>  <b>Push Hard (≥ 2 inches)</b>  <b>Push Fast (110 compressions / min)</b>  <b>Change Compressors every 2 minutes</b>  <i>(Limit changes / pulse checks ≤ 10 seconds)</i>  <b>Ventilate 1 breath every 6 seconds</b>  <b>Monitor EtCO2</b></p>
P	<p><b>At compression # 180 of each cycle:</b>  <b>Charge defibrillator at 200 joules</b>  <b>If SHOCKABLE rhythm present, deliver shock and immediately continue chest compressions</b>  <b>If NONSHOCKABLE rhythm present, utilize DISARM soft key</b></p>
	AED Procedure <i>if available</i>
P	Defibrillation Procedure
	IV / IO Access Protocol UP 6
A	<p><b>EPINEPHRINE 1:10,000 1 mg IV / IO</b>  Repeat every 3 to 5 minutes  <i>If VF / VT refractory to defibrillation, delay Epinephrine administration until after 2nd defibrillation</i></p>
	Search for Reversible Causes
	<p><b>Continue CPR Compressions</b>  <b>Push Hard (≥ 2 inches) Push Fast (110 / min)</b>  <b>Change Compressors every 2 minutes</b>  <i>(Limit changes / pulse checks ≤ 10 seconds)</i></p> <p><b><u>If Rhythm Refractory</u></b>  Continue CPR and give Agency specific Anti-arrhythmics and Epinephrine  Continue CPR up to point where you are ready to defibrillate with device charged.  Repeat pattern during resuscitation.</p>
P	<p><b>AMIODARONE 300 mg IV / IO</b>  May repeat <b>150 mg IV / IO</b> if refractory  <i>If rhythm converts &amp; ROSC is achieved with HR &gt; 60, see Notes for Post Resuscitation drips</i></p> <p>Or</p> <p><b>LIDOCAINE 1.0 – 1.5 mg/kg IV / IO</b>  May repeat <b>0.75 mg/kg IV / IO</b> if refractory  <b>(Maximum 3 mg/kg)</b>  <i>If rhythm converts &amp; ROSC is achieved with HR &gt; 60, see Notes for Post Resuscitation drips</i></p> <p><b>Refractory</b>  <b>MAGNESIUM SULFATE 2 gm IV / IO</b></p>
	<p>Defibrillation Procedure  <i>If VF / VT refractory after 3 shocks, consider changing vector of defibrillation pads</i></p>

### Reversible Causes

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

### AT ANY TIME

Return of Spontaneous Circulation



Go to Post Resuscitation Protocol AC 10



Notify Destination or Contact Medical Control



Adult Cardiac Protocol Section 1



# VENTRICULAR FIBRILLATION PULSELESS VENTRICULAR TACHYCARDIA

### Post Resuscitation

#### AMIODARONE DRIP INSTRUCTIONS:

- Remove 1 mL of Normal Saline from a 50 mL bag
- Inject 50 mg (1mL) of Amiodarone into the 49 mL bag of Normal Saline.
- Amiodarone concentration: 50 mg/50mL = 1mg/mL
- Utilize a 60 gtt set.

#### DRIP RATE

1 mg/min = 60 gtt/min

Calculation formula for **NON-WEIGHT** based dosing:

$$\frac{\text{desired dose (mg/min)} \times \text{drop set (60 gtt/mL)}}{\text{concentration (1 mg/mL)}} = \text{gtt/min}$$

#### MAGNESIUM SULFATE INFUSION INSTRUCTIONS

**DOSE: 2 g infused over 10 minutes**  
**Packaged 4 g/100 mL BAG or 5 g/10 mL VIAL**

- Remove 50 mL (2 g) from 100 mL (4 g) bag of Magnesium Sulfate
- Reserve withdrawn 50 mL (2 g) in case repeat dose is needed
- **OR**
- Withdraw 2 g from vial and inject into 50 mL Normal Saline bag
- Using a 10 gtt IV set, administer 50 gtt/minute

### Post Resuscitation

#### LIDOCAINE DRIP INSTRUCTIONS:

- Remove 10 mL of Normal Saline from a 50 mL bag
- Inject 200 mg of Lidocaine (2 x 100mg / 5 mL) into the 40 mL of Normal Saline
- Lidocaine concentration: 200 mg/50 mL = 4 mg/mL
- Utilize a 60 gtt set.

#### DRIP RATES

1 mg/min = 15 gtt/min  
 2 mg/min = 30 gtt/min  
 3 mg/min = 45 gtt/min  
 4 mg/min = 60 gtt/min

Calculation formula for **NON-WEIGHT** based dosing:

$$\frac{\text{desired dose (mg/min)} \times \text{drop set (60 gtt/mL)}}{\text{concentration (4 mg/mL)}} = \text{gtt/min}$$

### Pearls

- **Team Focused Approach / Pit-Crew Approach recommended; assigning responders to predetermined tasks. Refer to optional Team Focused CPR Protocol AC 11 or development of local agency protocol.**
- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
- **DO NOT HYPERVENTILATE: Ventilate 1 breath every 6 seconds with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- **Passive oxygenation optional in agencies practicing Team Focused Approach / Pit-Crew Approach.**
- **Reassess and document BIAD and / or endotracheal tube placement and EtCO2 frequently, after every move, and at transfer of care.**
- **IV / IO access and drug delivery is secondary to high-quality chest compressions and early defibrillation.**
- **IV access is preferred route. Follow IV or IO Access Protocol UP 6.**
- **Defibrillation:**
  - Follow manufacture's recommendations concerning defibrillation / cardioversion energy when specified.
  - Charge defibrillator during chest compressions, near the end of 2-minute cycle, to decrease peri-shock pause.
  - Following defibrillation, provider should immediately restart chest compressions with no pulse check until end of next cycle.
- **End Tidal CO2 (EtCO2)**
  - If EtCO2 is < 10 mmHg, improve chest compressions. Goal is ≥ 20 mmHg.
  - If EtCO2 spikes, typically > 40 mmHg, consider Return of Spontaneous Circulation (ROSC)
- **Special Considerations**
  - Maternal Arrest** - Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport preferably to obstetrical center if available and proximate. Place mother supine and perform Manual Left Uterine Displacement moving uterus to the patient's left side. IV/IO access preferably above diaphragm. IV access is preferred route. Defibrillation is safe at all energy levels.
  - Renal Dialysis / Renal Failure** - Refer to Dialysis / Renal Failure Protocol AM 3 caveats when faced with dialysis / renal failure patient experiencing cardiac arrest.
  - Opioid Overdose** - If suspected, administer Naloxone per Overdose / Toxic Ingestion Protocol TE 7 while ensuring airway, oxygenation, ventilations, and high-quality chest compressions.
  - Drowning / Suffocation / Asphyxiation / Hanging / Lightning Strike** – Hypoxic associated cardiac arrest and prompt attention to airway and ventilation is priority followed by high-quality and continuous chest compressions and early defibrillation.
- **Magnesium Sulfate is not routinely recommended during cardiac arrest, but may help with Torsades de points, prolonged QT, low Magnesium States (malnourished / alcoholic), and suspected digitalis toxicity**
- Return of spontaneous circulation: Heart rate should be > 60 when initiating anti-arrhythmic infusions.
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.