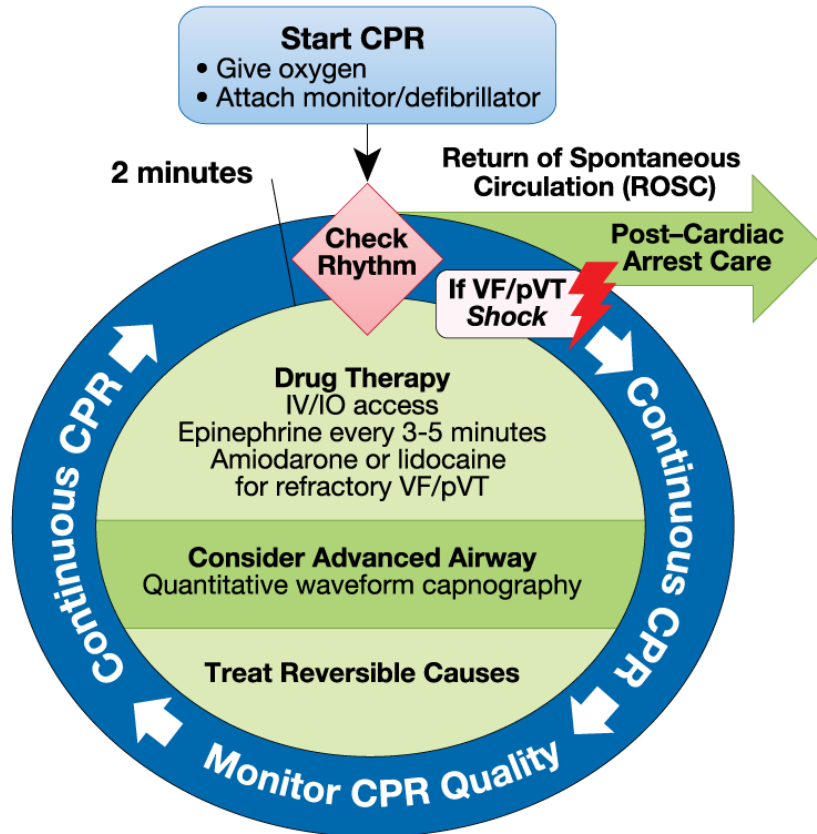


ACLS STUDY
GUIDE
2020



- www.CprClassesPa.com
- (484) 265-1792
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Adult Cardiac Arrest Circular Algorithm— 2018 Update



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If $PETCO_2 < 10$ mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
 - If relaxation phase (diastolic) pressure < 20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
 - **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
- OR-
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

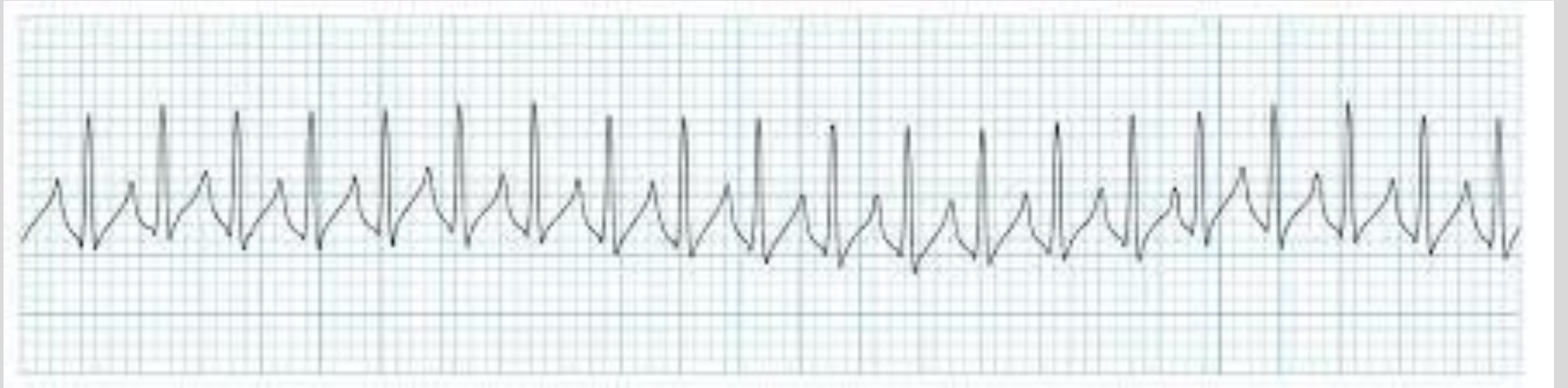
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $PETCO_2$ (typically ≥ 40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- | | |
|---------------------------|-------------------------|
| • Hypovolemia | • Tension pneumothorax |
| • Hypoxia | • Tamponade, cardiac |
| • Hydrogen ion (acidosis) | • Toxins |
| • Hypo-/hyperkalemia | • Thrombosis, pulmonary |
| • Hypothermia | • Thrombosis, coronary |

Supra Ventricular Tachycardia (SVT) Fast, Narrow and Regular



STABLE:

- Vagal Maneuver
- Adenosine 6mg
- Adenosine 12 mg

UNSTABLE:

- Cardioversion, 50J, 100J, 150J, 200J

Ventricular Tachycardia (VT) with a Pulse. Fast, Wide and Regular or *Monomorphic*



STABLE:

- Expert Consultation
- Consider Anti-Arrhythmic Infusion

UNSTABLE:

- Cardioversion- 100J, 150J, 200J

Torsades De Pointes (TDP) Fast, Wide and Irregular or *Polymorphic*



- Magnesium Sulphate, 1-2 grams
- Unsynchronized Cardioversion (Defibrillation)

Sinus Bradycardia



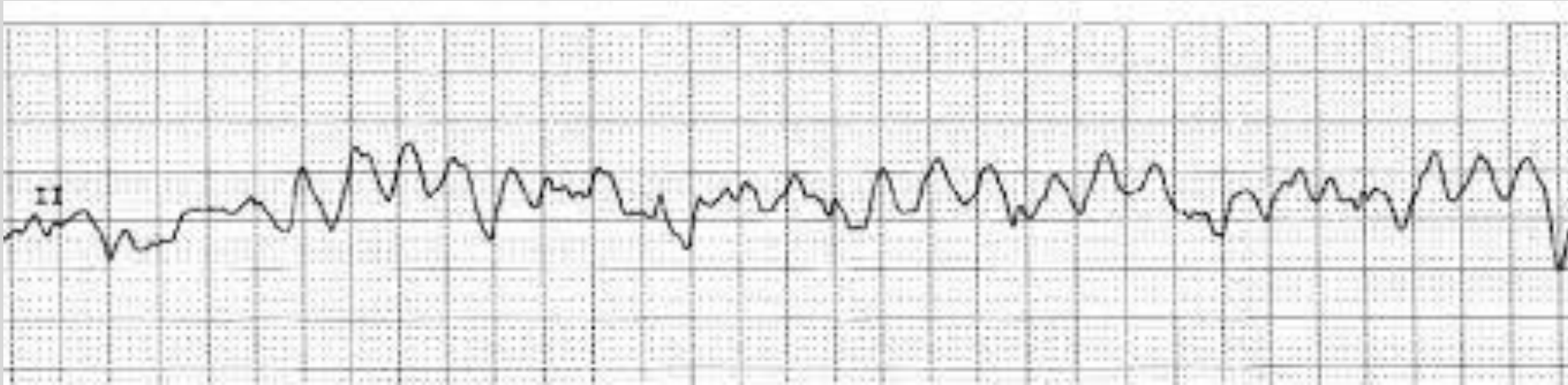
STABLE:

- Observe and Monitor, look for underlying causes

UNSTABLE:

- Atropine, 1.0mg repeat every 3-5 min- 3mg max
- Consider Dopamine Infusion 5-20mcg/kg/min
- Consider Epinephrine Infusion 2-10 mcg/min
- Consider Transcutaneous Pacing

Ventricular Fibrillation (VF)



FULL CARDIAC ARREST:

- High Quality CPR, 100-120 bpm, allow full chest recoil
- Defibrillation every 2 minutes
- Epinephrine 1mg every 4 minutes, no max dose
- Amiodarone 300mg then 150mg, 450mg max dose (*push opposite of Epi*)
- Consider Lidocaine, 1mg/kg

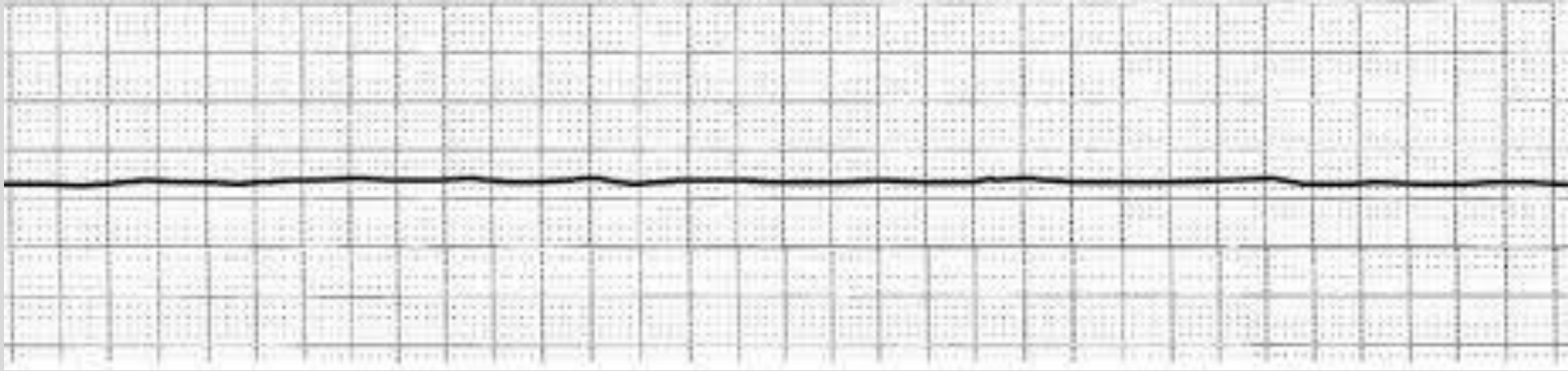
Pulseless Ventricular Tachycardia (pVT)



FULL CARDIAC ARREST:

- High Quality CPR, 100-120 bpm, allow full chest recoil
- Defibrillation every 2 minutes
- Epinephrine 1mg every 4 minutes, no max dose
- Amiodarone 300mg then 150mg, 450mg max dose (*push opposite of Epi*)
- Consider Lidocaine, 1mg/kg

Asystole



FULL CARDIAC ARREST (no electrical or mechanical activity)

- High Quality CPR, 100-120 bpm, allow full chest recoil
- Non-Shockable Rhythm
- Epinephrine 1mg every 4 minutes, no max dose
- Amiodarone/Lidocaine are not indicated

Pulseless Electrical Activity (PEA)



FULL CARDIAC ARREST (no mechanical activity)

- High Quality CPR, 100-120 bpm, allow full chest recoil
- Non-Shockable Rhythm
- Epinephrine 1mg every 4 minutes, no max dose
- Amiodarone/Lidocaine are not indicated
- *** Any rhythm that “can” perfuse, but no pulse is present**

Hypothermia Protocol (Targeted Temperature Management)

- Patient MUST be intubated and Comatose
- Cool to 32-36 degrees Celsius for at least 24 hrs
- Optimizes Neurologic Recovery
- Maintain Hemodynamics
- ***Ok to send patient to Cath Lab for PCI***

Reversible Causes (H's and T's)

- Hypovolemia= **Fluids/volume**
- Hypoxia= **Oxygen**
- Hydrogen Ion Acidosis (Respiratory/Metabolic) = **Ventilation, Sodium Bicarb**
- Hyperkalemia= **Insulin, Dextrose, Calcium Gluconate**
- Hypokalemia= **Potassium**
- Hypothermia= **Warm the patient**

- Tension Pneumothorax= **Needle decompression/Chest tube**
- Tamponade (Cardiac)= **Cardiocentesis**
- Toxins= **Antidote**
- Thrombosis (Cardiac)= **Fibrinolytics**
- Thrombosis (Pulmonary)= **PCI- Cath Lab**

Waveform Capnography

- Measures the expired Carbon Dioxide
- Normal levels: 35-45 mmHg
- Less than 10 mmHg during CPR indicates poor quality CPR
- 10-20 mmHg during CPR indicates high quality CPR
- Helps identify ROSC (Return of Spontaneous Circulation)
- Sharp and sustained increase in ETCO₂ (above 35 mmHg)
- Presence of Pulse Oximetry

Noteworthy Considerations

- Use a CPR Coach to maximize high quality chest compressions
- CPR Coach can be used to defibrillate the patient
- Consider using Chest Compression Fraction (CCF) Goal: at least 80%
- Charge defibrillator 15 seconds before rhythm check, while compressing the chest; If shockable rhythm, shock it. Non shockable: Cancel the shock
- Hover hands over chest during defibrillation (Maximizing chest compressions)
- Consider using Epinephrine as soon as you have IV/IO access, no need to wait
- Attempt intubation during chest compressions to minimize “hands of the chest time”
- During CPR with ET Tube in place, continue compressions for every 2-minute cycle, deliver 1 breath every 6 seconds (10 per minute)
- Post arrest O2 saturation 92-98% (Avoid oxygen toxicity)

Thank you!

**We are looking
forward to
exceeding
your
expectations!**

CMR  **CPR**
EXCEEDING YOUR EXPECTATIONS