ADVANCED CARDIAC LIFE SUPPORT (ACLS) PROTOCOL
Emergency Medicine Department
Version 2025.1

OVERVIEW
This protocol provides comprehensive guidelines for adult cardiac arrest management in accordance with American Heart Association guidelines.

IMMEDIATE ACTIONS
1. Verify unresponsiveness and absence of normal breathing
2. Activate emergency response system
3. Begin high-quality CPR immediately
4. Attach monitor/defibrillator when available

PRIMARY MEDICATIONS

EPINEPHRINE (Adrenaline)
- Dose: 1mg IV/IO every 3-5 minutes
- Concentration: 1mg/10ml (1:10,000)
- Route: Intravenous or Intraosseous
- Frequency: Every 3-5 minutes during arrest
- Maximum: No maximum limit during cardiac arrest
- Notes: First-line vasopressor for all arrest rhythms

ATROPINE
- Dose: 1mg IV/IO every 3-5 minutes
- Indication: Asystole and slow PEA (< 60 bpm)
- Route: Intravenous or Intraosseous
- Maximum total dose: 3mg
- Contraindications: Do not use for VF/VT

AMIODARONE
- Loading dose: 300mg IV bolus
- Second dose: 150mg IV if VF/VT persists
- Indication: Refractory VF/VT after defibrillation
- Route: Intravenous push
- Dilution: May be given undiluted for cardiac arrest

LIDOCAINE (Alternative to Amiodarone)
- Dose: 1-1.5mg/kg IV bolus
- Maintenance: 1-4mg/min continuous infusion
- Indication: Alternative antiarrhythmic for VF/VT
- Route: Intravenous

PROCEDURES

CPR GUIDELINES
- Compression rate: 100-120 per minute
- Compression depth: At least 2 inches (5cm)

- Allow complete chest recoil
- Minimize interruptions
- Switch compressors every 2 minutes

DEFIBRILLATION
- Initial energy: 200J (biphasic)
- Subsequent shocks: Same or higher energy
- Resume CPR immediately after shock
- Check rhythm every 2 minutes

AIRWAY MANAGEMENT
- Bag-mask ventilation initially
- Consider advanced airway if trained
- Continuous waveform capnography
- Ventilation rate: 10 breaths/minute

CONTRAINDICATIONS AND PRECAUTIONS

EPINEPHRINE CONTRAINDICATIONS
- None in cardiac arrest setting
- Use caution in hypothermic patients

ATROPINE CONTRAINDICATIONS
- Ventricular fibrillation

- Ventricular tachycardia
- Do not use for bradycardia with good perfusion

AMIODARONE PRECAUTIONS
- Monitor for hypotension
- Avoid in known iodine allergy
- May cause bradycardia post-resuscitation

SPECIAL CONSIDERATIONS

REVERSIBLE CAUSES (H's and T's)
- Hypovolemia: IV fluid resuscitation
- Hypoxia: Ensure adequate oxygenation
- Hydrogen ion (acidosis): Consider sodium bicarbonate
- Hypo/hyperkalemia: Treat electrolyte imbalances
- Hypothermia: Warm to 32°C before terminating efforts
- Tension pneumothorax: Needle decompression
- Tamponade: Pericardiocentesis
- Toxins: Specific antidotes
- Thrombosis: Consider thrombolytics

PEDIATRIC MODIFICATIONS
- Epinephrine: 0.01mg/kg IV (0.1ml/kg of 1:10,000)
- Atropine: 0.02mg/kg IV (minimum 0.1mg)
- Defibrillation: 2-4J/kg initial, 4-10J/kg subsequent

TERMINATION OF EFFORTS
Consider termination if:
- No ROSC after 20 minutes of ACLS
- No reversible causes identified
- Prolonged downtime without CPR
- Significant comorbidities

DOCUMENTATION REQUIREMENTS
- Time of arrest recognition
- Time of first CPR
- Time of first defibrillation
- Medications given with times and doses
- Rhythm strips at key intervals
- Time of ROSC or termination

This protocol should be used in conjunction with current AHA guidelines and local medical direction.

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