Post Resuscitation

Return of Spontaneous Circulation

Repeat Primary Assessment

Optimize Ventilation and Oxygenation
- Respiratory Rate 10 / minute
- Maintain SpO2 92 – 98%
- ETCO2 ideally 35 –45 mm Hg
- DO NOT HYPERVENTILATE

Airway Protocol(s) AR 1, 2, 3, 4 ***as indicated***

B — 12 Lead ECG Procedure CSP 1

IV / IO Access Protocol UP 6

P — Cardiac Monitor

Monitor Vital Signs / Reassess

Search for reversible causes

Chest Pain and STEMI Protocol AC 4 ***if indicated***

Hypotension / Shock Protocol AM 5 ***as indicated***

P — *Consider* **Push-Dose Vasopressor Agent** See Physician Notes

A / P — **Optimize Systolic BP and Mean Arterial BP**
Systolic BP > 90 mmHg
Mean Arterial BP > 65 mmHg

Appropriate Arrhythmia Protocol(s) AC 2, 6, 7 ***as indicated***

Seizure Protocol UP 13 ***as indicated***

Post Intubation BIAD Management Protocol AR 8

Notify Destination or Contact Medical Control

Transport Destination Decision

Post-resuscitation patient is medically complex.

Consider facility capabilities:
- 24-hour cardiac cath lab
- Medical ICU service
- Cardiology service
- Neurology service
- Pulmonology service
- Targeted Temperature Management

Arrhythmias are common and usually self limiting after ROSC

If Arrhythmia Persists follow Rhythm Appropriate Protocol

Reversible Causes

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

Adult Cardiac Protocol Section

Post Resuscitation

Push-Dose Vasopressor Agent

1. **Indications**
   a. Peri-intubation hypotension
   b. Post-arrest (post-ROSC) hypotension
   c. Hypotension requiring initiation of vasopressor drip – prior to drip setup
   d. Unstable bradycardia (as a supplement to other therapy)
2. **Instructions**
   a. Draw up 1mL of 1:10,000 epinephrine
   b. Waste 1mL of saline from a 10mL saline flush
   c. Add the 1mL of epinephrine to the remaining 9mL of saline
      i. This yields epinephrine in a concentration of 10mcg/mL
   d. Place a medication added label on this syringe to identify it as a vasopressor
   e. Administer 10mcg (1mL) every 2 minutes as needed to achieve desired blood pressure or heart rate

Pearls

- **Recommended Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro**
- **Continue to search for potential cause of cardiac arrest during post-resuscitation care.**
- **Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided. Titrate FiO_2 to maintain SpO_2 of 92 - 98%.**
- **Pain/sedation:**
  Patients requiring advanced airways and ventilation commonly experience pain and anxiety.
  Unrelieved pain can lead to increased catecholamine release, ischemia, immunosuppression, and prolonged hospitalization.
  Ventilated patients cannot communicate pain / anxiety and providers are poor at recognizing pain / anxiety.
  Vital signs such has tachycardia and / or hypertension can provide clues to inadequate sedation, however they both are not always reliable indicators of patient's lack of adequate sedation.
  Pain must be addressed first, before anxiety. Opioids are typically the first line agents before benzodiazepines. Ketamine is also a reasonable first choice agent.
- **Ventilator / Ventilation strategies:**
  Tailored to individual patient presentations. Medical Control can indicate different strategies above.
  In general ventilation with BVM should cause chest rise. With mechanical ventilation a reasonable tidal volume should be about 6 mL/kg and peak pressures should be < 30 cmH20.
  Continuous pulse oximetry and capnography should be maintained during transport for monitoring.
  Head of bed should be maintained at least 10 – 20 degrees of elevation when possible to decrease aspiration risk.
- **EtCO2 Monitoring:**
  Initial End tidal CO2 may be elevated immediately post-resuscitation, but will usually normalize.
  Goal is 35 –45 mmHg but avoid hyperventilation to achieve.
- **Titrate fluid resuscitation and vasopressor administration to maintain SBP of 90 – 100 mmHg or Mean Arterial Pressure (MAP) of 65 – 80 mmHg.**
- **STEMI (ST-Elevation Myocardial Infarction)**
  Consider placing 2 IV sites in the left arm: Many PCI centers use the right radial artery for intervention.
  Consider placing defibrillator pads on patient as a precaution.
  Document and time-stamp facility STEMI notification and make notification as soon as possible.
  Document the time of the 12-Lead ECG in the PCR as a Procedure along with the interpretation (Paramedic).
- **Consider transport to facility capable of managing the post-arrest patient including hypothermia therapy, cardiology / cardiac catheterization, intensive care service, and neurology services.**
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post-resuscitation management may best be planned in consultation with Medical Control.