

## Post Arrest Hypothermia Management in the ICU

### Procedures:

- A. Therapeutic Hypothermia should be considered for patients with the following conditions and prescribed by a physician (this list is not all inclusive)
  1. Cardiac arrest with a return of spontaneous circulation (ROSC) in < 1hour.
  2. Unresponsive or not following commands after cardiac arrest
  
- B. Patients presenting with the following conditions meet the relative exclusion criteria for therapeutic hypothermia (this list is not all inclusive)
  1. Awake and responsive to verbal commands after cardiac arrest
  2. Pregnant
  3. Less than 18 years of age
  4. Existing do-not-resuscitate orders (DNR)
  5. End stage terminal illness
  6. Traumatic arrest
  7. Expected Survival <3 months
  8. Other exclusions at the discretion of the admitting attending physician:
    - a. Caution if known coagulopathy (not related to Coumadin or heparin therapy)
    - b. Mean arterial pressure < 60 mmHg despite adequate intravenous fluid replacement and stable levels of vasopressor.
  
- C. Consider the following pre-printed order sets if clinically relevant:
  1. Sedation Management for the Mechanically Ventilated Patient in the ICU (MED 46597)
  2. Neuromuscular Blockade Agent – (MED 90086)
  3. Shivering Order Set- (PENDING)
  4. Intravenous (IV) Insulin infusion- (END 90533)
  
- D. When initiating Neuromuscular Blockade Agent (NMBA) on a mechanically ventilated patient you must:
  1. Ensure the patient has patent central IV access.
  2. Assess patient for pain and sedation with corresponding measurement scale to ensure that patients meet sedation and analgesia end point goals prior to NMBA therapy. Adequate sedation and analgesia must be administered before NMBA is initiated and continued throughout neuromuscular blockade.
  3. Refer to Neuromuscular Blocking Agents in Adult Special Care Units Policy for monitoring.
  
- E. Record temperature using two methods
  1. Primary temperature via bladder probe or rectal probe (if UOP is <0.5ml/kg/hr DO NOT USE Temp Sensing Foley for temp)
  2. Secondary temperature via pulmonary artery catheter, temporal artery or rectal probe
  3. Goal time frame from Return of Spontaneous Circulation (ROSC) to goal temperature is 4 hours.

F. Skin Care: See Appendix A (Available online)

G. Hypothermia

1. Obtain hypothermia machine, chest/leg wraps and/ or cooling blanket from Supply Depot or Unit Specific Supply Room.
2. For cardiac arrest patients cool to goal temperature between (32-34°) **as quickly as possible**. The goal is be at the desired temperature within 4 hours.
3. Document time patient reaches goal temperature in the electronic medical record.
4. Neurological checks every 2 hours.
5. Continue neuromuscular blockade (NMBA) during cooling phase if ordered (i.e. only until patient reaches goal temperature).
6. Hold the administration of neuromuscular blockade if ordered once goal hypothermic temperature is reached to assess for seizure activity hourly.
7. Reinstigate neuromuscular blockade therapy or shivering order set if patient begins to shiver at goal temperature. **DO NOT** allow your patient to shiver.
8. Discontinue cooling 24 hours after goal temperature is reached for cardiac arrest patients.
9. Assess for skin breakdown every 2 hours and as needed to avoid cold related injury. Wipe excess moisture with cleansing wipe if needed.

H. Re-Warming

1. Re-warming should start 24 hours after goal temperature is achieved for post cardiac arrest patients.
2. Consider discontinuing all potassium administration 6 hours prior to re-warming if potassium is >3.
3. Strongly consider the discontinuation of the neuromuscular blockade at start of the re-warming phase. Reinstigate neuromuscular blockade or shivering protocol during re-warming phase if patient begins to shiver.
4. Discontinue neuromuscular blockade once goal of 37.5° Celsius has been achieved.
5. Re-warm at a rate of 0.5° Celsius per hour until goal temp of 37.5°Celsius is reached. (Warm over 8 to 12 hours).
6. Maintain 37.5° Celsius for 24 hours

# Post-Arrest Management Protocol

**\*\* Attempts should be made to not move the patient during cooling. If it is deemed necessary to move patient for imaging etc. then follow these steps:**

- Patients will be removed from the external cooling device for ease of transportation
- Ice packs will be placed on both sides of the neck, under both axillas, and in the groin region to maintain 34° C body temperature
- Ice packs will be removed during study but replaced to transport the patient
- Once at final destination, patients will be cooled by external cooling device to allow for

**EMS:**

- Initiate ACLS protocols
- Intravenous infusion saline 4° C at 30cc/kg
- Immediate transport to receiving ED

**Following Return of spontaneous circulation (ROSC) in ED:**

- Early EKG
- Early interventional cardiology consult
- Initiate hypothermia protocol: intubation and sedation
- Head CT prior to transfer to ICU
- Place CVC and arterial lines if not going to cath. lab

**Inclusion Criteria:**

- VF/VT arrest
- Any arrest rhythm with <1 hour to ROSC

**Exclusion Criteria:**

- Awake and responsive
- Pregnant
- < 18 years of age
- DNR Status
- End-stage illness/terminal disease (expected survival <3 months)
- Traumatic arrest
- Other exclusions at the discretion of the admitting attending physician:
  - Coagulopathy



