Therapeutic Hypothermia for Survivors of Cardiac Arrest

A) Cardiac Arrest (Pre-hospital and ED)
- Resuscitate as per ACLS guidelines
- Remove clothing: expose patient to ambient air while maintaining privacy and dignity
- Pre-hospital: notification and transfer to receiving ED

Is there return of spontaneous circulation?

No
- Continue ACLS
- Search for reversible causes of cardiac arrest
- Consider termination of resuscitation

Yes

B) Survivor: Assess Eligibility for hypothermia

Inclusion Criteria
1. Primary cardiac arrhythmia*
2. Collapse to ACLS <15 min
3. Collapse to ROSC <60 min
4. Persistent Coma (GCS <10)
5. Adult Victim (>18)

Exclusion Criteria
1. Improving neurological status
2. Coma secondary to non-cardiac factors
3. Arrest secondary to non-cardiac factors
4. Persistent hypoxia: O2 sat <85% for >15 min
5. Hemodynamic Instability despite vasopressors
   SBP < 90 mmHg for > 30 min
   MAP < 60 mmHg for > 30 min
6. Coagulopathy
7. History of terminal Illness

* Best evidence of benefit is in survivors of VF/VT cardiac arrest. There is theoretical benefit in survivors of other primary cardiac arrest rhythms (Non VF/VT rhythms) if they meet other eligibility criteria. The decision to initiate hypothermia in the non-VF/VT patient should be made in consultation with receiving ED or ICU.

Not eligible
- Continue standard care

Eligible for Hypothermia

C) Post- Arrest Care of the Cardiac Arrest Survivor (First 15 minutes)
- Stabilize cardio-respiratory system
- Goal MAP > 75 mmHg (vasopressor use recommended if required)
- Goal oxygen saturation > 98%
- Baseline neurological exam (see I)
- Baseline vital signs and temperature
- Communicate induction of hypothermia with accepting ED/ ICU
- Sedation and Paralysis (see II)

D) Initiate Therapeutic Hypothermia

I Baseline Neurological Exam
1. Pupillary reaction
2. Corneal reflex
3. Oculo-cephalic (Doll’s Eye) reflex
4. Motor response to noxious stimuli
5. Glasgow Coma Scale

II Sedative and Paralysis Options

Sedative Options
- Midazolam Infusion: 0.04-0.2 mg/kg/hr
- Propofol Infusion: 1-5 mg/kg/hr
- Fentanyl Infusion: 0.7-10 ug/kg/hr

Paralytic Agent Options
- Vecuronium
  - Bolus: 0.08 mg/kg
  - Infusion: 50-70 ug/kg/hr
- Atracurium
  - Bolus: 0.5 mg/kg
  - Infusion: 0.6-1.2 mg/kg/hr
- Rocuronium 0.6-1 mg/kg q 1h
- Pancuronium 0.1mg/kg q 2h

III Cooling Options: Target Temperature 32-34° C within 2-6 hours
- Expose patient to ambient air
- Ice packs to head, axillae, and groin
- Wet sheet and fan
- Cold saline infusion (30 ml/kg of 4°C NS over 30-60 minutes)
- Cooling Blanket