

# Evidence-Based Clinical Pathway: Therapeutic Hypothermia

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Primary Sources: 1. Anon. Mild Therapeutic Hypothermia to Improve the Neurologic Outcome after Cardiac Arrest. N Engl J Med. 2002;346(8):549-556. 1. Bernard SA, Gray TW, Buist MD, et al. Treatment of Comatose Survivors of Out-of-Hospital Cardiac Arrest with Induced Hypothermia. N Engl J Med. 2002;346(8):557-563.

# Pathway applicability:

Patients with non-traumatic cardiac arrest that have return of spontaneous circulation (ROSC) and meet criteria:

- ROSC in < 60 minutes</li>
- Comatose (cannot follow commands or open eyes to pain)
- Age >= 18, not pregnant (if pregnant consult OB/GYN)
- Does not meet exclusion criteria

#### **Exclusion Criteria**

- Refractory hypotension (SBP<90 despite aggressive therapy)
- Refractory ventricular arrythmia
- Cause of coma more likely not ventricular fibrillation (drugs, stroke, sepsis, seizure, head injury)
- Coagulopathy or uncontrolled bleeding
  - Pre-existing terminal illness

### Initiate protocol

- Ensure stability of ABCs
- Activate Rapid Response (51212)
- Place 2 18ga or larger peripheral IV lines or central access
- Cardiac standard labs + Mg, Phos
- Core temperature monitoring (bladder, esophageal, or rectal probe

# Hypothermia induction

- Chilled (4°C) saline @ 30ml/kg, max 3L OR
- Chilled gastric lavage 500cc left for 5 minutes then removed, repeated until 30ml/ kg or 3L max (preferred in fluid overload or renal failure) OR
- Ice packs to axilla, groin, neck (not preferred)

## PLUS

 Application of non-invasive cooling device (Gaymar at HMC)

Goal temperature is 32-34°C within 2 hours

# Hypothermia medication

- Sedation with fentanyl and midazolam per HMC ICU sedation protocol
- Control myoclonus or seizure with fosphenytoin 20mg/kg IV loading then 100mg IV Q8H
- Paralysis for shivering patients with vecuronium 0.08mg/kg IV then maintenance at 0.015mg/kg IV as needed (generally 15-30 minutes)

# Hypothermia maintenance

- Maintain temperature 32-34°C with external cooling device for 24 hours
- Document temperature Q1H
- Maintain MAP 60-100ml Hg
- Glucose control to <150</li>
- Famotidine 20mg IV BID
- Pneumatic SCDs
- Cardiac standard labs Q6Hx24 hours
- Neuro checks Q2H

# Hypothermia termination

- Set external cooling device to 37°C on gradual rewarming setting
- Discontinue neuromuscular blockade
- Document temperature Q30 minutes
- Allow temperature to rise no faster than 0.5°C/hr
- If temperature > 37.5°C, use external cooling device and antipyretic medication to control