



THERAPEUTIC INDUCED HYPOTHERMIA GUIDELINES

Guidelines for Inclusion: (check all that apply)

Cardiac arrest patients with any of the following:

- Ventricular fibrillation
- Pulseless Ventricular tachycardia
- Pulseless electrical activity PEA
- Asystole

- Downtime less than 30 minutes. Defined as the time from the onset of cardiac arrest to the initiation of advanced cardiac life support
- Comatose Patients (Glasgow Coma Scale - GCS less than 9)
Patients who do not respond appropriately to verbal commands after return of spontaneous circulation (ROSC). Agitated comatose patients are comatose by this definition.
- Total ACLS time less than 60 minutes
- Hemodynamically stable with a mean arterial pressure greater than 70mm Hg 1 hour post ROSC either spontaneously or with fluid and pressors
- Men and women age 18 years or older. Women of child bearing age must have a negative preg. test
- Intubation with mechanical ventilation

Guidelines for Exclusion: (check all that apply)

- CPR longer than 45 minutes
- Unwitnessed Asystolic PEA cardiac arrest with CPR and/or ACLS for more than 15 minutes
- Arterial O₂Sat less than 85% for more than 15 minutes after ROSC despite supplemental oxygen
- Refractory shock/hypotension (MAP 70mm Hg) despite IV fluids and vasopressors
- Recurrent ventricular fibrillation or refractory ventricular tachycardia in spite of appropriate therapy
- Severe coagulopathy with clinical evidence of bleeding and/or platelets less than $30 \times 10^3/\text{mm}^3$ and/or INR greater than or equal to 2.5
- Other causes of coma (e.g. drug overdose, head trauma, stroke, overt status epilepticus)
Consider CT scan, MRI, EEG if clinically indicated
- Pregnancy
- Temperature of less than 30 degrees after cardiac arrest
- Therapeutic Hypothermia is appropriate for implementation.**

ST MARYS GENERAL HOSPITAL
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THERAPEUTIC INDUCED HYPOTHERMIA PREPRINTED ORDER SET

Hypothermia is NOT to be initiated in Emergency Department. Emergency patient for induced hypothermia is priority for Critical Care bed

ACTIVE COOLING

Note: do not delay active cooling measures

Procedures that must be done before patient's temperature is less than 35 degrees or can induce lethal arrhythmias:

Intubation and mechanical ventilation
Insertion of central line
Insertion of pulmonary artery catheter

- Initiate MSICU admission order set
- Avoid heat humidification on ventilator
- Therapeutic induced hypothermia protocol – initiate cooling measures and maintain target temperature, 32-34 degrees C for 24 hours
- Ensure 2 methods of temperature monitoring, ensure at least one is core
- Discontinue cooling measures if patient hemodynamically unstable, defined as MAP less than 60mmHg, despite fluid resuscitation and administration of vasopressors
- IV Cooled NS 0.9% x 1 litre over 4 hours, then maintenance at 125 mls/hr
- Insert arterial line
- Insert orogastric tube

Assessments and Blood Work

- Maintain SaO₂ greater than 92% and PaO₂ greater than 90 mm Hg
- Maintain mean arterial pressure 70-100 mm Hg
- CVP every 4 hours and as needed (maintain CVP 8-12 mm Hg)

- Baseline neurological assessment, then every hour and as needed (rely on pupil reaction)
- Baseline skin assessment, then every 2 hours when using cooling blanket; every 20 minutes when using ice packs
- Baseline QT interval measurement, then every 4 hours
- Baseline blood work:
Potassium, Magnesium, Phosphate, Calcium, Glucose, ABGs, SvO2 (if available) PTT, INR, platelets, fibrinogen, AST, ALT, lipase, bilirubin, alkaline phosphatase
- Potassium, Magnesium, Phosphate, Calcium, PTT, INR, platelets every 4 hrs and as needed
- CK, Troponin
- Monitor for shivering and for seizure activity
- Discontinue all active cooling measures 24 hours from the time target temperature (32-34 degrees C) achieved and initiate passive rewarming

Medications

ANALGESIA:

- Fentanyl 50 mcg IV bolus
- Fentanyl 25 - 75 mcg/hr IV infusion

SEDATION:

- Propofol 20 mg IV bolus
- Propofol 10 - 50 mcg/kg/min IV infusion
- Midazolam 2.5 mg IV bolus
- Midazolam 2 - 10 mg/hr IV infusion
- Titrate Sedatives to MAAS sedation level of Zero = unresponsive
- Evaluate sedation level every 2 hours and as needed

NEUROMUSCULAR BLOCKING AGENTS:

- Obtain a baseline Train of Four (TOF) then:
- Cisatracurium 0.1 mg/kg IV bolus

- Cisatracurium 1 - 5 mcg/kg/min IV infusion
- Titrate Cisatracurium to maintain TOF at 2:4 or to suppress shivering
- Titrate Cisatracurium to maintain TOF at 2:4 or to suppress shivering
- Other: _____ IV bolus: _____
- IV _____ IV infusion: _____
- Titrate _____ to maintain TOF at 2:4 or to suppress shivering
- TOF monitoring every 4 hours and as needed to maintain TOF at 2:4
- Continue above medications during cooling, while temperature maintained between 32-34 degrees C, and during passive re-warming

OTHER:

- ICU intravenous Insulin Infusion Protocol
- Heparin 5,000 units subcutaneously bid
- Demerol 25 mg intravenous every 4 hours as needed for shivering

PASSIVE RE-WARMING

Note: there is no rush to rewarm; it can take 16 hours or longer

- Continue with induced hypothermia non medication orders during rewarming
- Keep patient on sedation, analgesics +/- neuromuscular blocking agents as ordered until core temperature reaches 36 degrees C and then re-evaluate
- Resume heat humidification on ventilator
- Maintain continuous core temperature monitoring for next 24 hours
- Do not actively re-warm patient with cooling blanket or Bair Hugger unless core temperature less than 32 degrees C.

PHYSICIAN

ADM.PAT.zcus.sb.induced.hypothermia.2.RP

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DATE

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