ORDER SET NAME: PILOT
HYPOTHERMIA AFTER CARDIAC ARREST

IMPORTANT: PLEASE WRITE LEGIBLY. Orders with a Box □ Require a Check Mark to Activate

INCLUSIONS

- Resuscitated post out-of-hospital VF or VT cardiac arrest

[Use of MIH for in-hospital cardiac arrest or non-VT/VF cardiac arrest has not been adequately studied, however, implementation of this protocol in such cases is at the discretion of the attending of record. Please document rhythm and location of patient at time of arrest.]

RELATIVE EXCLUSIONS

- Patients < 17 years of age, pediatric telephone consult with Children’s Hospital pediatrician on-call recommended

DOCUMENT RHYTHM

- Return of spontaneous circulation < 60 minutes after arrest

- Coma

Glasgow Coma Scale

<table>
<thead>
<tr>
<th>Eye Opening:</th>
<th>Motor Response:</th>
<th>Verbal Response:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous with blinking 4</td>
<td>Moves to command 6</td>
<td>Oriented 5</td>
</tr>
<tr>
<td>Opening to verbal stimuli 3</td>
<td>Moves purposefully to pain 5</td>
<td>Confused, answers questions 4</td>
</tr>
<tr>
<td>To pain only 2</td>
<td>Withdrawing from pain 4</td>
<td>Inappropriate words 3</td>
</tr>
<tr>
<td>No response 1</td>
<td>Flexion to pain 3</td>
<td>Incomprehensible speech 2</td>
</tr>
<tr>
<td></td>
<td>Extension to pain 2</td>
<td>No Speech 1</td>
</tr>
</tbody>
</table>

DOCUMENT LOCATION

- Location at time of arrest

- Time from arrest to ROSC

ABSOLUTE EXCLUSIONS

- Preexisting code status DO NOT RESUSCITATE and/or DO NOT INTUBATE

- Pregnant

- Urine HCG results

- Sustained hypotension (SBP < 80 mmHg or MAP < 50 mmHg) > 30 minutes despite vasopressor support

- Absolute body temperature < 30°C / 86°F

- Known CNS hemorrhage

- CT scan results

Physician Signature: __________________________ Date: ___ Time: _____ Beeper: ________

Printed Name: ________________________________

RN Signature: _______________________________ Date: ___ Time: _____ Fax Time: _____

Form Last Updated 01/20/2008   MR – Pilot - 98
**Patient Comfort:**
Prior to the use of any paralytic agent, the patient’s pain must be well controlled and adequate sedation must have been achieved.

<table>
<thead>
<tr>
<th>Patient weight in kg: ______________</th>
</tr>
</thead>
</table>

**Pain**

- Fentanyl
  - Loading dose: ________ mcg IVP (suggested 50 – 100 mcg)
  - Continuous gtt: ________ mcg/hr

- Morphine
  - Start at ________ mg/hr

**Sedation – RASS goal of “Deep Sedation” -4**
No response to voice; movement or eye opening to physical stimulation.

**Choose One of the following:**

- Lorazepam
  - Loading dose: ________ mg IVP (suggest 2 – 6 mg IV push)
  - Continuous gtt: ________ mg/hr

- Midazolam
  - Loading dose: ________ mg IVP (suggest 2 – 6 mg IV push)
  - Continuous gtt: ________ mg/hr

- Propofol (avoid if hypotensive)
  - Start at 5 mcg/kg/hr then titrate to comfort (max 80 mcg/kg/hr)

**Shivering:**
- Demerol 25 mg IV Q4H PRN shivering
  [Shivering MUST be eliminated.]

**Cooling:**

**Procedures and Labs on arrival: Time _________**

- Urine HCG
- CBC
- *Acute Care Profile
- PT/INR and PTT
- Mg
- Phos
- Lactate
- Cardiac Enzymes
- Cortisol
- Blood Cultures
- Urine Culture
- Sputum Culture

*Exact temperature must be recorded on the label and when ordering every ACP as results are adjusted significantly in the laboratory for temperature*

- ECG
- Place arterial line if possible
- CT scan to rule out CNS hemorrhage

- Record temperature Q30 minutes on Critical Care flowsheet using 2 of the following methods: (please indicate which methods are being used)
  - Foley temperature probe
  - Tympanic temperature probe
  - Pulmonary Artery Catheter temperature probe
  - Other

- Maintain MAP > 90 mmHg (preferably) using IVF and vasopressors if needed
- Insulin protocol for goal serum glucose < 150 mg/dL
Paralysis:
DO NOT PARALYZE A PATIENT WHO IS NOT ADEQUATELY SEDATED
Once sedation has been achieved, initiate train of four (TOF).

☐ Vecuronium
  ▪ Loading dose: 0.05 – 0.1 mg/kg (goal TOF 1 of 4)
  ▪ Maintenance dose: 0.8 – 1.7 mcg/kg/minute

☐ Nimbel (Cisatracurium)
  Note: Recommended for patients with liver and renal impairment
  ▪ Loading dose: 0.15 to 0.2 mg/kg IV bolus (goal TOF 1 of 4)
  ▪ Maintenance dose: 1 to 3 mcg/kg/min

☐ Train of Four initiated at start of infusion.
  Train of Four to be assessed and documented every shift and with rate changes of the paralytic infusion.

Mark electrode placement for ongoing assessment. Monitor paralysis using Train of Four with goal therapy 1 of 4.

Cooling:
☐ Arctic Sun
  [Cannot be used for patients with BSA > 2.4 m². If BSA > 2.4 m², then use cooling blankets and ice packs as described below.]
  ▪ Place cooling pads around patient’s torso and legs. [For patients weighing 45 – 100 kg (100 – 220 lbs) use a standard pad kit consisting of 4 pads. For patients weighing > 100 kg, use 1 or 2 additional pads.]
    ▪ Set cooling device to AUTOMATIC MODE.
    ▪ Begin cooling to goal temperature of 33°C (91.4°F) to be reached as quickly as possible.
    ▪ Begin rewarming 24 hours after the initiation of cooling.

☐ Cooling blankets and ice packs
  ▪ Place 2 cooling blankets on patient. One under patient and one on top of patient. The cooling blankets should have sheets between them and the patient. Cooling blankets should NOT have direct contact with patient’s skin.
  ▪ Place ice packs in the following areas: groin, axilla, around chest (not on chest), and sides of neck.
  ▪ Goal temperature is 33°C (91.4°F).
  ▪ Cold saline infusion may also be employed via peripheral IV or femoral venous line only. DO NOT USE jugular or subclavian lines. Infuse 1 – 2 liters of 4°C normal saline at 30 cc/kg over 30 minutes.
  ▪ Once goal temperature is achieved, remove ice packs and maintain goal temperature using cooling blankets. Ice packs may be replaced as needed.
  ▪ Begin rewarming 24 hours after the initiation of cooling.

Physician Signature: ___________________________ Date: ____ Time: ______ Beeper: ______
Printed Name: __________________________________________

RN Signature: __________________________________________ Date: ____ Time: _____ Fax Time: _____
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Cooling:

‘Procedures and Labs at 6 hours after initiation of cooling: Time _______

- CBC
- Phos
- PT/INR and PTT
- *ACP
- Mg
- Cardiac Enzymes
- Lactate
- ECG

- Skin care – check for burns caused by cooling apparatus

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‘Procedures and Labs at 12 hours after initiation of cooling: Time _______

- CBC
- Phos
- PT/INR and PTT
- *ACP
- Mg
- Cardiac Enzymes
- Lactate
- ECG

- Skin care – check for burns caused by cooling apparatus

‘Procedures and Labs at 18 hours after initiation of cooling: Time _______

- CBC
- Phos
- PT/INR and PTT
- *ACP
- Mg
- Cardiac Enzymes
- Lactate
- ECG

- Skin care – check for burns caused by cooling apparatus

‘Procedures and Labs at 24 hours after initiation of cooling: Time _______

- CBC
- Phos
- PT/INR and PTT
- *ACP
- Mg
- Cardiac Enzymes
- Lactate
- ECG

- Skin care – check for burns caused by cooling apparatus

Physician Signature: ___________________________ Date: ____ Time: _____ Beeper: ______

Printed Name: ________________________________

RN Signature: _________________________________ Date: ____ Time: _____ Fax Time: _____
Re-Warming:

Stop all potassium containing medications/infusions 8 hours before initiation of re-warming.

Re-warming at 24 hours after initiation of cooling:

Time_________

☐ Controlled re-warming with the Arctic Sun
  ▪ Begin re-warming at a maximum rate of 0.25°C per hour or 1.0°C over 4 hours.
  ▪ Set goal temperature to 37°C (98.6°F) and program machine to maintain this temperature for 48 hours.
  ▪ Discontinue paralytic agents at core temperature of 36°C (96.8°F). Paralytics should be discontinued BEFORE sedatives.
  ▪ Titrate sedative agents down to comfort/vent compliance once a TOF 4/4 is reached.

☐ Passive rewarming
  ▪ Begin passive re-warming at a maximum rate of 0.25°C per hour or 1°C over 4 hours.
  ▪ Do not exceed this rate as the potential for significant complications (arrhythmias, status epilepticus and rebound hyperthermia) increases.
  ▪ Goal temperature is 36°C (96.8°F) and temperatures above 37°C (98.6°F) should not be tolerated. Use acetaminophen 650 mg PO Q6 hours for temperature >36.5°C. If unable to maintain temperature <36.5°C, use cooling blankets as well.
  ▪ Discontinue paralytic agents at core temperature of 36°C (96.8°F). Paralytics should be discontinued BEFORE sedatives.
  ▪ Titrate sedative agents down to comfort/vent compliance once a TOF 4/4 is reached.

Procedures and labs one hour after initiation and every hour during rewarming:

☐ *ACP ☐ Vital Signs (heart rate, blood pressure, temperature, O₂ sat)

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