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## POST CARDIAC ARREST THERAPEUTIC HYPOTHERMIA (PCATH) GETTING STARTED

1. Place the patient on the monitor either Nihon Kohden or Phillips.
2. Ensure arterial and central line placement prior to cooling.
3. Retrieve cooling unit, foley with temp probe, cold fluids, rolling cart (with PCATH supplies) from closet and Phillips Monitor (if you will be using).
4. Place recta temp probe and foley with temp probe (per physician's orders). You will be able to monitor the temp on a cardiac monitor and also the cooling unit at the same time.
5. Place the cooling blanket on the patient and attach the hoses to the cooling unit. Make sure the unit is filled with sterile water where you can see it in the bottom of the reservoir.
6. Retrieve cooling unit temp cable from cart and attach to either rectal probe or foley tem probe. Attach other end to upper right side of cooling unit.
7. Attach another cable (just like this) to new Nihon Kohden wall monitors in the 40's or the Nihon Kohden transport monitors (if in any room other than 40's). Attach patient end to either rectal probe or foley temp probe thereby monitoring the patient's temp with 2 devices.

**OR**

Retrieve Phillips temp cable from cart and attach to either rectal temp probe or foley temp probe if you will be using Phillips monitor. (Either temp cables will fit the rectal probe and the foley temp probe.)

8. Turn on the cooling unit at the right front switch.
9. Select Celsius or Fahrenheit at the left front switch.
10. Select 'Temp Set' and set target temp of 33.0 Celsius or 91.4 Fahrenheit (per physician's orders).
11. Select 'auto control.' Unit should automatically start cooling if the patient is greater than set target temperature. If the patient falls below the set target temperature, the unit will then begin to warm.  
**(DO NOT FORGET to UNCLAMP the HOSES).**
12. Complete the following:
  - A. Infuse cold fluids (4° Celsius or 39° Fahrenheit) per orders.
  - B. Sedate per orders.
  - C. Monitor strict I/O.
  - D. Monitor shivering.
  - E. Monitor vital signs.

### Bedside Shivering Assessment Scale (BSAS)

0 - None	No shivering
1 - Mild	Localized to neck/thorax, may only be seen on EKG
2 - Moderate	Intermittent involvement of upper extremities +/- thorax
3 - Severe	Generalized shivering or sustained upper extremity shivering

## Procedure

### **A. PROVIDE PATIENT/FAMILY EDUCATION AND SUPPORT**

1. Explain the purpose of hypothermia and the need for pharmacologic paralysis.
2. Encourage family to talk to the patient.
3. Provide emotional support and answer questions.
4. Offer pastoral care support to family.

### **B. GATHER EQUIPMENT AND SUPPLIES FOR COOLING**

1. Fluid resuscitation shall be performed with Plasmalyte stored at 4 °Celsius.
2. Central venous and arterial access
3. Hemodynamic monitoring device
4. External cooling unit
5. Temperature probe (if placing Foley, use temp probe catheter)
6. Neuromuscular blockade available
7. Sed Line monitor
8. Ensure fluid warmer available.

### **C. PREPARING FOR COOLING**

1. Verify prescriber's order.
2. Ensure arterial and central venous access is obtained BEFORE hospital cooling begins (Once cool access is more difficult to obtain).
3. Obtain baseline labs per prescriber's orders (Particular attention to electrolytes and ABG).
4. Obtain baseline EKG.
5. Place indwelling temperature probe (Bladder – ideal; if Foley already in place, use oral or rectal probe).
6. Thorough skin assessment
7. Remove heated humidity from ventilator circuit and place HME in line.

#### D. COOLING

1. Infuse hypothermic IV fluids as needed for resuscitation.
2. Up to 2 liters of Plasmalyte may be given per physician order (frequently begun in the ED).
3. Administer adequate continuous sedation and analgesic:
  - a) Sed Line monitor shall be used to assess sedation level.
  - b) CPOT shall be used to assess pain level.
4. Administer bolus paralytic per physician order as needed for shivering (typically needed at initiation of cooling).
5. Place blankets or wraps appropriate for the external cooling unit.
6. Use external cooling unit per manufacturer's policy.
7. Cooling is maintained for 24 hours from time target temperature is reached unless further ordered by Intensivist.

#### E. MONITORING

1. The goal is to maintain patient's core temperature between 32° - 34° Celsius for 24 hours.
2. Monitor closely for arrhythmias (if temperature < 32° Celsius).
3. Document temperature hourly.
4. Hemodynamic assessment

(Monitor and document appropriate hemodynamics as ordered and available (ScVO<sub>2</sub>, SVV, CO, CI, SVI))
5. Obtain laboratory values per physician orders:
  - a) ABG's shall be temp corrected.
  - b) All lab values and interventions shall be documented.
  - c) Electrolytes shall be drawn every 8 hours during cooling period.
  - d) Potassium shall be monitored every 4 hours during hypothermic diuresis.
6. Obtain EKG if any rhythm changes from baseline.
7. Urine output is monitored and documented hourly.

## F. RE-WARMING

1. Begin re-warming 24 hours after target temperature obtained unless ordered differently by the Attending Physician.
2. Re-warm  $0.5^{\circ}$  -  $1^{\circ}$ /hr unless ordered by Intensivist.
3. Re-warming too rapidly can cause vasodilation, hypotension, and rapid electrolyte shifts.
4. Potassium shifts to extra cellular compartments during re-warming:
  - a) STOP all potassium containing fluids.
  - b) Continue to correct hypokalemia as needed.
5. Monitor glucose levels closely.
6. Monitor electrolytes every 4 hours during re-warming period.
7. Remove HME from ventilator circuit and replace with heated humidity.
8. Obtain EKG if any rhythm changes from baseline.