

VALLEYCARE
**OLIVE VIEW-UCLA MEDICAL CENTER/HEALTH CENTERS
MEDICAL ADMINISTRATION
POLICY & PROCEDURE**

**NUMBER: 2134
VERSION: 1**

**SUBJECT/TITLE: TEMPERATURE REGULATION IN NON RESPONSIVE PATIENTS
POST CARDIAC ARREST**

POLICY:

1. Function(s)

Adult medical/surgical patients status/post “Code Blue” or “Full Arrest” who are non-responsive following return to spontaneous circulation.

Patients will be evaluated for:

- 1) Temperature regulation (Goal of T36. to 37. degree C)
- 2) Therapeutic Hypothermia (Goal of T 32-34 degrees C)

These patients will be cared for in the ED, ICU or OR and will have their core temperature monitored and be assessed for controlled hypothermia. Patients who are deemed suitable for controlled hypothermia will have cooling measures followed as outlined below. All other post arrest patients will have cooling measures taken to target a temperature of 36.0 to 37.0 Centigrade. The respiratory therapist, registered nurse and physician will work together to achieve the core temperature desired.

2. Circumstances

- a. **Setting** 5BICU, ED, OR
- b. **Supervision** SSNI/Charge Nurse, SSNII and Nurse Manager. A medical intern, resident and attending is available at all times for consultation.
- c. **Orders:** Physician will write orders for target temperature.
- d. **Patient Conditions** Patients with a diagnosis of status post arrest remaining unresponsive.
- e. **Other** All post code patients, either in house or out of house will be considered for temperature regulation.

PURPOSE: Controlled hypothermia in the unresponsive post arrest patient may enhance cerebral function and optimize outcome.

DEPARTMENTS: Nursing, Medical Staff, Respiratory Therapy, Emergency Department Staff, OR Staff.

DEFINITIONS: Many patients who survive a “code blue” or “full arrest” are left with severe

**SUBJECT/TITLE: TEMPERATURE REGULATION IN NON RESPONSIVE PATIENTS
POST CARDIAC ARREST**

Policy Number: 2134

Page Number: 2

neurologic impairment. Recent studies looking at out of hospital survivors of ventricular fibrillation compared normothermia to hypothermia and found that early induction of hypothermia using simple measures led to improved neurologic outcomes. The American Heart Association ACLS handbook recommends post resuscitation temperature control. "Cerebral metabolic rate increases about 8% per degree centigrade of body temperature elevation. The regional cerebral metabolic rate determines the regional blood flow requirements. Thus elevation of temperature above normal can create significant imbalance between oxygen supply and demand, and it should be *aggressively* treated in the post ischemic period." In 2002 the New England Journal of Medicine published 2 prospective randomized trials comparing mild hypothermia to normothermia in comatose patients status post arrest. Both studies looked only at patients with return of spontaneous circulation on mechanical ventilation with persistent coma after out of hospital cardiac arrest due to Ventricular Fibrillation. Patients with severe cardiogenic shock were excluded as were patients with systolic blood pressure <90 despite inotropes, and causes of coma other than cardiac arrest. Both studies used mild hypothermia with a goal of core temperature between 32 and 34 degrees Celsius for 12 –24 hours. In one study 75 of 136 (55%) of the hypothermia patients had a favorable outcome versus 54 of 137 (39%) in the normothermic group. The number needed to treat was 6. In the second study 21 of 43 (49%) of the hypothermic patients had a good neurologic outcome compared to 9 of 34 (26%) of the normothermic group. The number needed to treat was 4. Mortality at discharge was also significantly reduced in both treatment groups. There were trends towards increased adverse events in the hypothermia group which included a significant decrease in cardiac index, higher SVR, increased blood sugar and an insignificant increase in cases of pneumonia, bleeding and sepsis. In October 2002 the Advanced Life Support Task Force of the International Liason Committee on Resuscitation (ILCOR) made recommendations, which are consistent with this policy and procedure.

PROCEDURE:

- All adult patients who have return of spontaneous circulation status post arrest and are receiving mechanical ventilation will have continuous monitoring of core temperature for a minimum of 36 hours. Core temperature can be measured with a PA catheter, bladder temperature or rectal probe. All post arrest patients will be evaluated for benefit from instituting mild hypothermia (32-34 degrees centigrade) by the senior physician present. Those patients who are **not** candidates for hypothermia will have core temperature targeted at 36-37 degrees centigrade by controlling the temperature of inhaled gases on the ventilator and a cooling blanket, if necessary. Respiratory Therapy and Nursing will check the temperature q hour and make the required adjustments to maintain the temperature of 36 to 37 degrees centigrade. The physician will write an order for the desired temperature.

**SUBJECT/TITLE: TEMPERATURE REGULATION IN NON RESPONSIVE PATIENTS
POST CARDIAC ARREST**

Policy Number: 2134

Page Number: 3

- Post arrest patients should be screened for eligibility for therapeutic hypothermia. In accordance with ILCOR guidelines:
- **“Unconscious adult patients with spontaneous circulation after out-of hospital arrest *should* be cooled to 32 to 34 degrees centigrade for 12 to 24 hours when the initial rhythm was ventricular fibrillation.”**
- **“Such cooling may be beneficial for other rhythms or in-hospital cardiac arrests.**
- **Exclusions include severe cardiogenic shock (BP>90 on moderate pressors okay), pregnancy, ongoing arrhythmias, or patients with primary coagulopathy (thrombolytics okay).**
- The registered nurse and respiratory therapist should work together to achieve temperature goals.
 1. The patient should be assessed early for inclusion in the hypothermia protocol. Cooling should begin within 2 hours of presentation, but there may still be benefit even if delayed from 4 to 6 hours. Patients should be placed on a cooling blanket with a sheet or blanket over them. A blanket placed on top of the patient may also be necessary. Blanket should be placed on coolest setting. Ice packs may be placed at axilla and groin, neck torso and limbs. Consider wetting the hair to facilitate cooling. The ventilator humidifier temperature should be decreased to 30 to 34 degrees. Patient should be well sedated and shivering should be suppressed with neuromuscular blockade if needed. Intravenous magnesium sulfate, if not contraindicated may hasten the hypothermia and decrease shivering. Alarms may be set for the core temp of <32 degrees.
 2. Hypothermia does not need to be maintained after 12 –24 hours of achieving hypothermia. Rewarming is passive. Simply stopping cooling measures should allow the patient to SLOWLY warm to normal temperatures. If temperature rises rapidly, or overshoots, consider restarting cooling measures. If temperature rises slowly, consider warming blanket. Do not allow patient to shiver.

EDUCATION Patient/Family

The nurse/physician will instruct the patient and/or family, as appropriate, regarding therapeutic hypothermia. Consent is NOT required.

DOCUMENTATION

- The Registered Nurse and Respiratory Therapist will document the core temperature q 1hour.
- Physician will document justification for hypothermia in chart.
- Patient/Family teaching will be documented on the Multidisciplinary

**SUBJECT/TITLE: TEMPERATURE REGULATION IN NON RESPONSIVE PATIENTS
POST CARDIAC ARREST**

Policy Number: 2134

Page Number: 4

Patient/Family Teaching Record

**REQUIREMENTS FOR CERTIFICATION FOR PERFORMANCE OF STANDARDIZED
PROCEDURE:**

1. Education: Registered Nurse License
2. Training: Established clinical competencies, specifically for ED, OR and 5BICU
3. Experience: Minimum 6 months experience as a California Registered Nurse
4. Other: (Not applicable)
5. Initial Evaluation: Eligibility of Registered Nurse in the implementation of standardized practice will be determined by:
 - a. Clinical competency in the care of ED, OR 5BICU patients.
 - b. Documented attendance of inservice and understanding of purpose and legal responsibility in the implementation of standardized practice.
6. On-going Evaluation
Should be conducted by Nurse Manager or designee

**SUBJECT/TITLE: TEMPERATURE REGULATION IN NON RESPONSIVE PATIENTS
POST CARDIAC ARREST**

Policy Number: 2134

Page Number: 5

References: The Hypothermia after Cardiac Arrest Study Group. Mild therapeutic hypothermia to improve the neurologic outcome after cardiac arrest. <u>N Engl J Med</u> . 2002;346:549-556	
Bernard SA, Gray TW, Buist MD, et al. Treatment of comatose survivors of out-of hospital cardiac arrest with induced hypothermia. <u>N Engl J Med</u> . 2002;346:557-563	
Nolan JP et al. ILCOR Advisory Statement Therapeutic hypothermia after cardiac arrest. <u>Circulation</u> . 2003; 108:118-121	
Approved by: Carolyn Rhee (Chief Executive Officer), Dennis Cope (Chief Physician), Rima Matevosian (Chief Medical Officer)	Date: 07/19/2011
Review Date: 07/19/2014	Revision Date:
Distribution: Medical Administration	
Original Date: 07/19/2011	