

DEPARTMENT: General Nursing	POLICY TITLE: Maintaining Normothermia in Brain or Spinal Cord Injured Patients
Page 1 of 2	REPLACES POLICY DATED: New, 10/10,11/13
EFFECTIVE DATE: 10/16	REFERENCE NUMBER: 653-211

PURPOSE:

To initiate moderate, controlled Normothermia after severe brain or spinal cord injury for the indication of reducing risk of secondary brain injury and or permanent disability. Patients who have experienced severe brain or spinal cord injury may experience improved neurologic outcome when maintaining the patient's body temperature.

See Order Set: PPO-583 Normothermia for Brain/Spinal Cord Injury Orders

See Policy: PPO 783-110 for Therapeutic Hypothermia for Refractory ICP

SCOPE:

This Policy Applies to:

x	Medical City Plano
	Medical City of Frisco, a facility of Medical City Plano

POLICY:**A. Target Population:**

1. Traumatic Brain Injury (TBI)
2. Subarachnoid hemorrhage (SAH) patients with GCS <12
3. Intracerebral hemorrhage
4. Post-craniectomy
5. Ischemic Stroke
6. Spinal Cord Injury

B. Definition of Fever:

1. Core temperature >38°C (100.4°F) on two consecutive measures two hours apart despite the use of medications
2. Two or more temperatures >38°C (100.4°F) in a single 24 hour period

C. Temperature Goal:

Maintain normothermia (36.5°C-37.5°C) (97.7°F-99.5°F) in patients during the acute phase of:

- a. TBI – admit up to 7 days
- b. Ischemic Stroke and Intracerebral Hemorrhage – admit up to 7 days
- c. Aneurysmal SAH with vasospasm – admit up to 14 days

D. Temperature Control Guidelines:

1. Confirm that patient has hyperthermia per fever definition
2. Interventions for temperature reduction include:
 - a. Administration of antipyretics per physician orders
 - b. Decrease room temperature, direct fan to patient
 - c. Cooling blanket (do not start if cooling device is being used)
 - d. Endovascular cooling catheter or surface cooling device
3. Monitor patient's temperature via esophageal, rectal, or foley probe
4. Monitor the patient for shivering, as it generates heat through repetitive muscle contractions and counters cooling effects. Assess for presence of shivering every one hour using the Bedside Shivering Assessment Scale (BSAS). Palpate the pectoralis muscles and neck/mandible region for presence of



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early shivering. Note: a humming or vibration may be detected and indicative of early shivering. Treatment to counter shivering should be instituted as early as possible to minimize the development of rigorous shivering. GOAL is BSAS ≤ 1 . Document BSAS score on the flow sheet every 30 minutes until temperature goal attained, then hourly.

- a. *Non-pharmacologic method for shivering*: insulate the hands, feet, and head:
 - i. Apply insulative wraps to the hands and feet by using socks.
 - ii. Apply an insulative head wrap using a towel.
 - b. *Pharmacologic method for mechanically vented patients only*:
 - i. Sedatives and analgesics in *continuous* infusion per physician order should be initiated prior to beginning cooling.
 - ii. A single dose of vecuronium per physician order may also be used. Consider vecuronium or cisatracurium infusion for refractory shivering. (Ensure adequate sedation prior to administering paralytic.)
5. Do not administer Mannitol through Alsius CoolGardTM catheter.

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

References

- Bader, M. K., Hepburn, M., & Presiutti, M. (2012). Shivering management during therapeutic temperature modulation: nurses' perspective. *Critical Care Nurse*. 32(1), 33-41. Doi:10.4037/ccn2012189
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