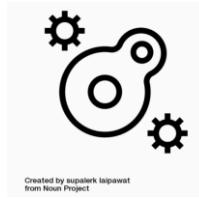


Target Temperature Management



Infographic Author:
Roberta Miller, MSN,
RN, CPN, CPEN,
TCRN

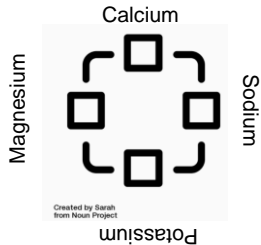


Images from
Microsoft
PowerPoint

Clinical Intervention

Targeted temperature management plays a key role in the contemporary management of critically ill neonates and children with acute brain injury

<https://doi.org/10.1016/j.pediatrneurol.2018.07.004>



Safety

Effective targeted temperature management is dependent on accurate temperature monitoring

During induction and maintenance, electrolytes shift intracellularly. Careful monitoring and replacement are crucial to maintaining normal electrolyte level and prevent potential arrhythmias

Benefits

- Reduces brain metabolism
- Lowers intracranial pressure
- Reduces initiation of brain cell apoptosis-cell death
- Decreases production of free radicals

<https://www.asha.org/practice-portal/clinical-topics/pediatric-traumatic-brain-injury/>

Shivering

The body's natural defense mechanism against cold, shivering increases metabolic activity & enhances oxygen consumption & rewarming.

INTERVENTIONS TO HELP PREVENT SHIVERING:

- Adequate sedation & counter warming of extremities
- Using a neuromuscular blockade during induction & rewarming can tightly control the patient's temp
- During the maintenance phase, a bolus dose of neuromuscular blockers may be given **IF** shivering or microshivering occurs

2012 Guideline Recommendation

Moderate (32–33°C) hypothermia is suggested for ICP control. Introduction of hypothermia within eight hours of injury to 32 to 33 degrees Celsius for greater than 24 hours. Rewarming should occur no faster than 0.5 C / hour

<https://doi.org/10.1016/j.bj.2019.12.003>

Pain and Sedation

CHALLENGES IN MANAGING PAIN AND SEDATION IN A HYPOTHERMIC PATIENT:

- Hypothermia diminishes the body's ability to respond to stimulation.
- Hypothermia affects drug metabolism
- Evaluating the level of neuromuscular blockade is difficult. Cooling and intracellular electrolyte shifts can slow nerve conduction, *making train-of-four monitoring not as reliable*. Be mindful of this.