Guidelines for the use of hypothermia after cardiac arrest

Canadian Association of Emergency Physicians (CAEP) and the CAEP Critical Care Committee*

See also State of the Art article on page 109.

Position Statement

Patients who present with non-perfusing ventricular tachycardia or ventricular fibrillation, are resuscitated to hemodynamic stability but remain unresponsive should undergo therapeutic hypothermia. These patients should be cooled to a core temperature of 32°–34°C for the purpose of neuroprotection. Cooling should begin as soon as the clinical situation allows.

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Summary of Recommendations

Primary Recommendations — The use of therapeutic hypothermia (32°–34°C) after cardiac arrest.

- Cardiac arrest patients who present with non-perfusing ventricular tachycardia or ventricular fibrillation, are resuscitated to hemodynamic stability but remain unresponsive should undergo therapeutic hypothermia. (Grade A)
- Cardiac arrest patients who present with asystole or pulseless electrical activity felt to be of cardiac origin, are resuscitated to hemodynamic stability but remain unconscious should be considered for therapeutic hypothermia. (Grade D)
- Patients under 18 years of age and pregnant women may benefit from this therapy, but its role is unproven. Consideration in these populations should be on a case-by-case basis. (Grade D)

Secondary Recommendations — The practical application of therapeutic hypothermia.

- Therapeutic hypothermia should be initiated as soon as possible (Grade A); however, patients who are successfully cooled within 8 or more hours of return of spontaneous circulation may still derive benefit. (Grade B)
- Patients undergoing therapeutic hypothermia should be given paralytic agents and sedation. (Grade B)
- In a patient who is sedated and paralyzed, therapeutic hypothermia can be attained using ice packs to the groin, axillae and neck. (Grade A) Potentially helpful adjuncts include cooling helmets, cooling blankets, fan and mist, and cooled saline boluses. (Grade C)
- Patients undergoing therapeutic hypothermia should have their core temperature continuously or frequently monitored. Bladder, esophageal, rectal and pulmonary artery temperatures are acceptable, but tympanic membrane temperatures should be avoided. The device must be designed to measure temperatures in the hypothermic range. (Grade D)
- For patients presenting to community hospitals, cooling should be considered before transfer to a tertiary care centre. Temperature monitoring should continue during transport. (Grade D)
- When readily available, PCI (Percutaneous Coronary Intervention) is the treatment of choice for STEMI (ST segment Elevation Myocardial Infarction) in the hypothermic patient. (Grade D)
- Thrombolysis may be used in the hypothermic patient with STEMI, but there are theoretical reasons why the effectiveness of some thrombolytics may be reduced in hypothermic patients. (Grade D)
- Mild therapeutic hypothermia should not be delayed for either PCI or thrombolytic therapy and should be initiated concurrently when indicated. (Grade D)

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*For complete lists of the Primary and Secondary Review committees, please see Appendices 1 and 2, page 108.

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