

HYPERTHERMIA

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Information Needed:

- Patient activity level
- Medications: tranquilizers, alcohol, diuretics, antidepressants (especially tricyclic antidepressants, rave drugs), etc.
- Associated symptoms: chest pain, cramps, headache, orthostatic symptoms, nausea, weakness
- Air temperature and humidity; presence of excessive clothing

Objective Findings:

Heat Cramps

- Temperature- Usually normal
- Mental Status- Alert
- Skins signs- Sweaty, may be warm or cool to touch
- Neuro exam- Normal except for muscle cramps (usually legs and abdomen)

Treatment:

- Routine medical care
- Take temperature
- Remove excess clothing
- Move patient to cool area
- Consider cool/cold liquids PO as tolerated
- Oxygen as indicated

Heat Exhaustion

- Temperature- Normal to slight elevation
- Mental status- Alert to slight confusion
- Skins signs- Pallor, sweaty,
- Neuro exam- No loss of control of extremities, but feels very weak, with preservation of normal neuro function

Treatment:

- Routine medical care
- Note patient's temperature if possible
- Remove excess clothing
- Move patient to cool area
- Consider cool/cold liquids PO as tolerated
- Cardiac monitor
- IV access, consider a fluid challenge of 250 to 1000 ml

- Oxygen as indicated

Heat Stroke

- Temperature- Core temperature 104.0°F or greater
- Mental status- Altered (can range from extreme agitation to obtunded/comatose)
- Skins signs- Usually flushed, hot; may or may not be diaphoretic if exercise-induced
- Neuro exam- At risk for persistent seizures

Treatment:

- Routine medical care
- Take patients temperature.
- Remove excess clothing
- Move patient to cool area
- Ice packs to pulse points (neck, axillae, groin)
- Wet patient and maximize external ventilation (consider opening windows of the ambulance)
- Cardiac monitor
- IV access
- Pulse oximetry
- Oxygen as indicated
- If hypotensive (SBP<90 or signs of poor perfusion), fluid challenge of 250-1000 ml NS. If SBP remains <90 continue fluid resuscitation. Titrate to SBP of 90 or symptoms of improved perfusion. Do not exceed 2 liters total
- Continue cooling measures during transport
- See Altered Mental Status/Seizure Protocols as needed

Precautions and Comments:

- Those at great risk of hyperthermia are the elderly, individuals in endurance athletic events, and patients on medications which impair the body's ability to regulate heat (e.g. beta blockers, tricyclic antidepressants)
- Be aware that heat exhaustion may progress to heat stroke
- Do not place towels or blankets on the patient as they may increase core temperature
- Do not use ice water or cold water to cool patient due to potential vasoconstriction and induction of shivering
- Be alert for signs of occult trauma, e.g. falls, and institute appropriate treatment if suspected