Notes/Educational Pearls

Key Considerations

1. Patients at risk for heat emergencies include neonates, infants, geriatric patients, and patients with mental illness
2. Contributory risk factors may come from:
   a. Prescription and over-the-counter herbal supplements
   b. Cold medications
   c. Heart medications
   d. Diuretics
   e. Psychiatric medications
   f. Drug abuse
   g. Accidental or intentional drug overdose
3. Heat exposure can occur either due to increased environmental temperatures or prolonged exercise or a combination of both
   a. Environments with temperature *greater than* 90°F and humidity *greater than* 60% present the most risk
4. Heat stroke is associated with cardiac arrhythmias independent of drug ingestion/overdose Heat stroke has also been associated with cerebral edema
5. For patients with signs and symptoms of heat stroke, rapid cooling takes priority over other interventions (e.g., cardiac monitoring, IV access)
6. Do not forget to look for other causes of altered mental status such as low blood glucose level, or, in the proper circumstances (i.e., endurance exercise events), consider exercise associated hyponatremia (EAH), especially in the patient with altered mental status, normal blood glucose, and normal temperature
7. *Controversy:* shivering may occur while treating heat stroke
   a. It is uncertain how harmful shivering is to heat stroke patients
   b. Cooling should be continued until the above temperature and mental status goals are met
   c. Treat shivering as above
   d. Research does not demonstrate the value of one benzodiazepine over another in shivering patients or any value of other medications
8. Hyperthermia not from environmental factors has a differential that includes the following:
   a. Fever and delirium
   b. Hyperthyroid storm
   c. Delirium tremens (DTs)
   d. CNS lesion or tumor
   e. Adverse drug event: neuroleptic malignant syndrome, malignant hyperthermia
   f. Mental status changes without hyperthermia in the correct circumstances could be exercise associated hyponatremia
9. There is no evidence supporting EMS obtaining orthostatic vital signs as a clinical indicator

Pertinent Assessment Findings

1. Warning signs: fever, altered mental status
2. Blood glucose level for AMS