Protocol
5-2

SECTION: Environmental Emergencies

PROTOCOL TITLE: Environmental – Heat Exposure/Heat Exhaustion
Environmental – Heat Stroke

REVISED: 06/2017

HYPERTHERMIA

OVERVIEW:
The body temperature is contingent upon the balance between heat production and heat loss. Regulation of body temperature is dependent upon the principals of conduction, convection, and evaporation. Populations at a greater risk for hyperthermia emergencies include: the elderly, the poor (who lack adequate air conditioning), those who suffer from malnutrition, and those who have chronic illnesses or substance addiction. Predisposing factors commonly intervene over days rather than minutes or hours. Hyperthermia may occur in the presence of numerous host factors. These factors include many that affect thermoregulation through heat loss mechanisms (lack of acclimatization, fatigue, lack of sleep, dehydration, and skin disorders), while others contribute to heat production (obesity, lack of physical fitness, febrile illness, or sustained exercise). Changes in cognitive function appear to occur before the development of the physical symptoms associated with heat stress. Time distortion, memory impairment, and/or deterioration in attention are frequent characteristics associated with heat stress.

HPI	Signs and Symptoms	Considerations
• Past medical history • Medications • Exposure to increased temperatures, humidity • Extremes of age • Extreme exertion • Time, length of exposure • Poor PO intake • Fatigue, muscle cramping	• Altered mental status • Unconsciousness • Hot, dry, or sweaty skin • Pale, clammy skin • Hypotension, shock • Seizures • Nausea • Weakness, dizziness, syncope • Rapid, shallow respirations	• Fever • Dehydration • Medications • Hyperthyroidism (storm) • Delirium tremens (DT's) • Heat cramps • Heat exhaustion • Heat stroke • CNS lesions, tumors

	EMR	EMT	A	I	P
1. Perform general patient management.	•	•	•	•	•
2. Support life-threatening problems associated with airway, breathing, and circulation.	•	•	•	•	•
3. Remove the patient from the hot environment to a cool environment. Do not allow the patient to shiver with cooling techniques.	•	•	•	•	•
4. Administer oxygen, to maintain SPO_2 94 - 99%. Support respirations as necessary with a BVM.	•	•	•	•	•

Protocol 5-2 Continued

HYPERTHERMIA

	EMR	EMT	A	I	P
5. **Heat Cramps**: Signs and symptoms include muscle twitching, followed by painful spasms, especially involving the lower extremities and abdomen, nausea and vomiting, weakness and diaphoresis.					
a. PO fluids may be given as long as the patient maintains a patent airway and is not vomiting.	•	•	•	•	•
6. **Heat Exhaustion:** Signs and symptoms include: pallor, profuse sweating, orthostatic hypotension, headache, weakness, fatigue and thirst.					
a. Establish an IV of Normal Saline. Infuse the fluid amounts listed in the *Medical – Hypotension/Shock* protocol. If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO_2), slow the IV to KVO.			•	•	•
b. Place on cardiac monitor.				•	•
7. **Heat Stroke:** Signs and symptoms include: *altered mental status*, increased body temperature, minimal or no sweating, collapse, shortness of breath, shock, nausea and vomiting.					
a. Remove the patient's clothing.	•	•	•	•	•
b. *Do not* give anything by mouth.	•	•	•	•	•
c. Spray the patient's skin with a lukewarm water mist and fan the patient. Continue misting and fanning during transport.	•	•	•	•	•
d. Wrap the patient with wet sheets if there is good ambient airflow present.	•	•	•	•	•
e. Establish an IV / IO of Normal Saline. Infuse the fluid amounts listed in the *Medical – Hypotension/Shock protocol*. If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO_2), slow the IV to KVO.			•	•	•
f. Place on cardiac monitor and obtain *12 lead ECG* per assessment.				•	•
8. Transport and perform ongoing assessment as indicated.	•	•	•	•	•

PEARLS:

1. Extremes of age, young and old, are more susceptible to extreme temperatures.
2. Cocaine, amphetamines, and salicylates may elevate body temperature.
3. Sweating generally stops as core temperature rises above 104° F.
4. Intense shivering may occur as patient is cooled.