Case Reviews

Walworth County Departments

Presented by Mercyhealth EMS System

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-Mercyhealth EMS Staff

Objectives & Recent Case

- Review Heat Emergencies Guidelines
  - Seizure Guidelines

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Case #1- **Unresponsive Patient from Heat Exhaustion**

Problem	Cause	Core Temperature	Clinical Findings and History
Heat Cramps	Dehydration Electrolyte imbalances	99-101.3 F	Most common in children and athletes Severe localized cramps in abdomen or extremities Normal vital signs Usually occur suddenly during or after strenuous physical activity
Heat Exhaustion	Inadequate fluid intake and excessive fluid loss	99-104 F	**General:** fatigue, weakness, anxiety, intense headaches, profuse sweating, nausea and vomiting, and limited to no urine output **Compensated:** Altered mental status--lethargy or irritability, Elevated pulse and respirations, Normal blood pressure **Decompensated**: Decreased level of consciousness, Decreased blood pressure, elevated pulse and respirations
Heat Stroke	Dangerous Core Temperature	> 105 F	Altered mental status, decreased level of consciousness, skin color temperature and moisture is not a reliable finding, increased pulse and respirations, hypotension,
Hyponatremia	Electrolyte depletion or dilution		Inadequate food or electrolyte intake, excessive water intake, frequent urination, altered mental status, ataxia, nausea and vomiting, headache

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Case #1 Lets talk about different points and notes….

Note:

- Heat emergencies can afflict any age patient, with or without underlying health problems, in a variety of ambient temperatures
- High temperatures, high humidity, and high exertion are often factors that lead to a heat emergency
- Heat emergencies are most common in elderly patients, infants and young children, morbidly obese patients, athletes, and other patients with underlying health problems
- Heat exhaustion is a circulatory system problem. It presents as hypovolemia. The patient has a normal or slightly elevated core temperature problem.
- Heat stroke is a life threatening neurological problem. The patient has an extremely high core temperature problem.
- 50% of heat stroke patients have hot, red, dry skin. 50% of heat stroke patients have hot, red, moist skin.
- Hyperthermia may be a result of illegal drug use
- Many medications and illnesses compromise body's ability to thermo regulate
- Water intake and urination frequency are key history findings to differentiate hyponatremia and heat exhaustion

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Case #1 First Response Report

Dispatched for male Pt who was unresponsive from heat exhaustion. On arrival, found a 24 y/o male laying supine. PD had the Pt on o2 via NRB @15 LPM.

Pt didn't respond to voice or painful stimuli. AED pads placed on Pt, showing a rapid HR of 200. ALS ambulance arrived on scene. Pt began to vomit what appeared to be mostly water. Pt was turned on his side to clear his airway.

Pt put on scoop stretcher and taken to the transporting ambulance. Pt on transporting ambulance stretcher to ambulance. ALS ambulance takes control. First responders clear. Recorded vitals and temps were from hospital.

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Case #1 Provider Impressions

Initial Impression includes:

A- Appearance

B-Breathing

C-Circulation

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Case #1 Provider Impressions

Primary Impression includes:

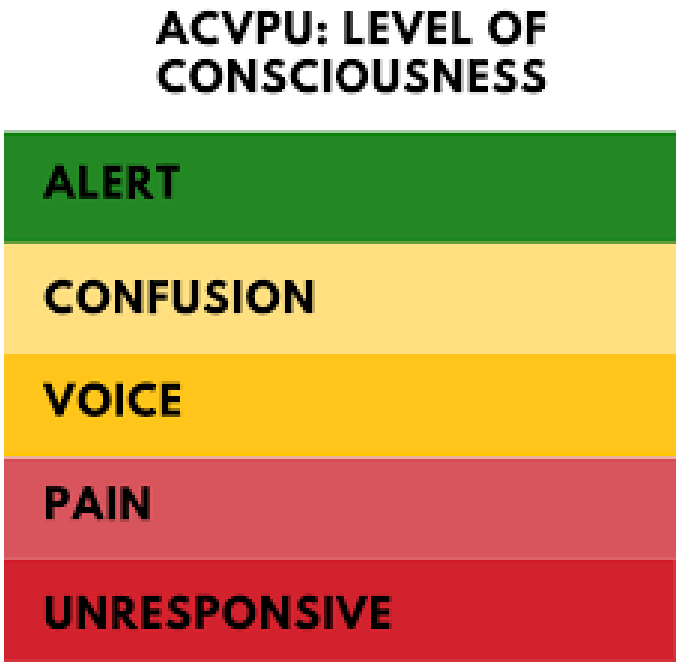
A- Airway

B-Breathing

C-Circulation

D- Disability

E- Exposure



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Case #1 Provider Impressions

Secondary Assessment includes:

S- Signs and Symptom

A- Allergies

M- Medications

P- Past Medical H

L- Last Oral Inta

E- Events Leadi

DONT FORGET

OPQRST

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Case #1 **Vital Signs**

- B/P: 94/52
- Pulse: 180-200
- GCS: 4
- BGM: 230
- Respiratory Rate: 24
  - Effort: Shallow
  - SPO2: 80

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Case #1 GCS Review

Glasgow Coma Scale (GCS)		
Best eye response (E)	**Best verbal response (V)**	**Best motor response (M)**
4 Eyes opening spontaneously	5 Oriented	6 Obeys commands
3 Eye opening to speech	4 Confused	5 Localizes to pain
2 Eye opening in response to pain	3 Inappropriate words	4 Withdraws from pain
1 No eye opening	2 Incomprehensible sounds	3 Flexion in response to pain
	1 None	2 Extension to pain
		1 No motor response

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Case #1 From the Guidelines…..

Priorities	***Assessment Findings***
Chief Complaint	"Person hot, lethargic, acting funny, lethargic in a hot environment"
OPQRST	What led up to this? Where was the patient found?
Associated Symptoms/ Pertinent Negatives	Consider other causes of altered mental status—i.e. drug use, hypoglycemia, head injury, toxin inhalation or ingestion.
SAMPLE	Check for medications that could be contributory (beta blockers, psychiatric medications, sedatives, narcotics or barbiturates). Inquire about fluid consumption and frequency of urination
Initial Exam	Check ABCs and correct immediately life-threatening problems.
Detailed Focused Exam	**Vital Signs:** BP, HR, RR, Temp, SpO_2 If possible, obtain an oral or rectal temperature in the field with a digital thermometer. **General Appearance:** overdressed for environment, sweating, evidence of trauma? **Skin:** pale, cool clammy OR hot, red, dry OR hot, red, moist **Lungs:** breath sounds **Heart:** Rate and rhythm? **Neuro:** Loss of coordination, impaired judgment, altered mental status, decreased level of consciousness
Data	SpO_2, Blood glucose, 12-Lead EKG
Goals of Therapy	1. End the heat challenge and increase heat loss from conduction, convection, radiation, and evaporation 2. Support ABCs 3. NO oral or IV fluids to hyponatremia patients without electrolyte replacement
Monitoring	SpO_2, Cardiac Monitoring

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Case #1 Care Provided

EMERGENCY MEDICAL RESPONDER/EMT

- Routine Medical Care
- End the heat challenge. Remove the patient from the hot environment into an area with shade, air conditioning, air movement, etc.
- Protect the patient from hot surfaces, i.e. running track or asphalt road
- Remove excessive clothing
- No food or fluids if the patient has altered consciousness, nausea, vomiting, or is otherwise not in control of his/her own airway
- Oxygen 2-4- LPM per nasal cannula, or higher flow rate to keep SpO_2 ≥94%
- Begin rapid cooling
    - If possible, aggressively mist patient with tepid water and fan (Preferred method)
    - Apply ice packs in neck, armpits, groin, palms of hands, and soles of feet
    - As a last resort, cover patients with cool, wet sheets
    - Prepare for rapid transport
- Additional Heat Stroke Considerations
    - Do not delay transport to begin cooling patient on-scene
    - Start cooling en route to the hospital

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Case #1 Care Provided

AEMT

- IV/IO 0.9% NS
  - Run wide open, check vitals every 500 ml bolus x 2 for heat exhaustion or heat stroke patients
- Consider a second IV
- Do not delay transport to initiate an IV.

PARAMEDIC

- Consider external jugular or intra-osseous venous access, if an IV has not been established
- Consider endotracheal intubation, if the patient is unresponsive without a gag reflex
- To control seizures refer to *Seizure Guidelines*

Guess what happened to this guy?

SEIZING

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Case #1 Seizure Guideline

EMERGENCY MEDICAL RESPONDER/EMT

- Routine medical care
- Protect the patient with ongoing seizures from harming themselves by clearing away potential hazards and placing a pillow or padding under the head
- Oxygen 2-4 LPM per nasal cannula, to keep SpO2 $\geq$ 94%
- Consider Non-rebreather mask if necessary 10-15 LPM
- Obtain blood glucose. If < 70 refer to *Hypoglycemia Guidelines*
- Consider oropharyngeal or nasopharyngeal airway, if the patient is unable to maintain a patent airway

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Case #1 Seizure Guideline

AEMT

- IV 0.9% NS @ KVO or saline lock

PARAMEDIC

- If the patient is still seizing, give **Versed** 0.1mg/kg IV/IO/IN(max 5mg bolus) or 0.2mg/kg IM(max 10mg bolus)
- If seizures persist, repeat doses of Versed every 5 min until seizures stop. Maximum total dose: **Versed** 20mg unless medical control orders additional doses
- If there is need for RSA to control airway, only short acting paralytics should be used. Once the patient is paralyzed, muscular convulsions will cease, but occult CNS seizure activity may persist. Therefore, you must repeat doses of **Versed** every 5 minutes under the assumption of ongoing seizure activity while maintaining stable vitals.

FOOTNOTES:

[1] The causes of seizures include: fever in children up to about 6 yrs, epilepsy, eclampsia, hypoglycemia, hypoxia, drug or alcohol withdrawal, drug overdose, stroke and head trauma

[2] Characteristics of pseudoseizures are listed below:

- Identifiable trigger (emotional stress, crisis or grief)
- The patient usually has an audience
- Asynchronous or asymmetric motion during the seizure ("bicycling" or head turning)
- Mid-range and reactive pupils during the convulsion (they're widely dilated in a real seizure)
- Lack of tongue biting or incontinence
- Apparent purposeful movements
- Remaining consciousness, or even speaking, during the convulsion

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Case #1 ED Care Provided

Intubated with Long Acting Paralytics

Given Dantrlene

Temp 106.1 F

Cooled using ICE PACK and BAIR Hugger

Fluids (Cool)

Gastric Lavage

Foley Catheter Cooling

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Case #1 Diagnosis

Malignant Hyperthermia

Hyperkalemia

Acute Kidney Injury

Acute Respiratory Failure with Hypoxemia

Hyponatremia

Metabolic Acidosis

Seizures

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Case #1 Conclusion

Why SAMPLE is IMPORTANT

History: ADHD, Hyperhidrosis

Medications:

Anti Perspiration Medication-Glycopyrrolate

ADHD Medication-Adderall

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