# ENVIRONMENTAL & OTHER EMERGENCIES

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# SEIZURES

**Definitions:**

- Grand Mal- characterized by unconsciousness and a generalized severe twitching of all the body's muscles lasting several minutes or longer
- Petit Mal- characterized by brief lapse of attention, common in children

# COMMON CAUSES OF SEIZURES

- Forgot to take medications
- Congenital
- Epilepsy disorder
- TBI(traumatic brain injury)
- Alcohol or Drug overdose
- Fever- febrile for children
- Hypoxia
- Hypoglycemia

# EXAMPLES

- https://www.youtube.com/watch?v=eH-eEE52F6Y
- https://www.youtube.com/watch?v=zrQr1zRme5Y

# TREATMENT

**Specific tips to consider:**

- Request ALS
- Most patients require medical evaluation
- Consider all possible causes
- Patient history and examination is critical after the seizure
- Clear their surroundings!
- If suspected head injury use c-spine
  -try to cushion head if need be during the seizure
- Protect airway
  -have suction readily available!
- Place in recovery position after the seizure
- Be kind and professional at all time
  - all muscles relax after the seizure is over
- For children
  - may be febrile(elevated temperature), so keep them cool and fan them if need be

# ALTERED MENTAL STATUS(AMS)

**Definition:**

- a disruption in how your brain works that causes a change in behavior. This change can happen suddenly or over days. AMS ranges from slight confusion to total disorientation and increased sleepiness to coma

# COMMON CAUSES OF AMS

Could be physical, psychological, or environmental influences:

- Alcohol or drug consumption or overdose
- Hypoxia
- Hypoglycemia or hyperglycemia
- Seizures
- Dehydration
- Hypothermia
- Head Trauma
- Psychiatric problems
- Trauma
- Brain diseases
- Other diseases-uremia

# COMMON SIGNS AND SYMPTOMS

- Lack of concentration or forgetfulness
- Slow responses
- Hallucinations and changes in sleep patterns
- Decreased or increased movement
- Agitation or rambling speech
- Cannot or will not follow reasonable requests
- Cannot be aroused from sleep
- Alcohol on breath
- Fruity breath- ketoacidosis

# TREATMENT

**Specific Tips to Consider:**

- Request ALS
- Approach the patient from the front so that they can see you!
- Scene safety
- If family or friends or officer(s) are around ask if this is how they normally act
- LOC (level of consciousness)
- Do not just assume that they have been drinking, as most AMS patients you will deal with are
  -having bias views can
- Take suicide and threats seriously
  - request UPD if need be
- Take blood glucose
  -Oral glucose(for diabetics or those who are hypoglycemic:
    -fasting for 8 hours, BG=70-99mg/dL
    -2 hours after eating, BG=less 140bg/mL
- Airway- use suction if need be
- Provide privacy to patients and be respectful
  -they could be doing embarrassing things (ie. taking off clothes if they are drunk)

# SYNCOPE(FAINTING)

**Definition:**

temporary loss of consciousness and posture, described as "fainting" or "passing out." It's usually related to temporary insufficient blood flow to the brain. It most often occurs when the blood pressure is too low (hypotension) and the heart doesn't pump a normal supply of oxygen to the brain

# CAUSES

- Hypoglycemia
- Heat illnesses

  -overheating, dehydration, heavy sweating or exhaustion
- Alcohol or drug overdose
- Emotional stress
- Blood pooling in legs due to a quick change in body position

# SIGNS AND SYMPTOMS

- Pale skin
- Cold, clammy skin
- Shortness of breath
- Lightheadedness
- Nausea
- Yawning
- Blurred vision
- Tunnel vision

# TREATMENT

- Request ALS
- Cool down (ie ice in arm pits and sides of the neck, water, air conditioner)
- Guide them down

  -clear surroundings
- Monitor breathing and LOC

# HEAT ILLNESS

- 3 stages
  - Heat cramps
  - Heat exhaustion
  - Heat stroke
- Vary in severity
- Common occurrences in Florida
  - 5k's, football, soccer, lacrosse, outdoor rallies/concerts
  - Any where it is hot or where a pt. may be overexerting themselves

# HEAT CRAMPS

- Painful muscle spasm's
  - Muscles fatigued by heavy work or exercise
  - Primary cause is water and sodium loss
    During environmental heat stress, 1 to 3L of water may be lost per hour
- Patient presentation
  - Alert
  - Hot, sweaty skin
  - Tachycardia
  - Normal BP may become hypotensive especially when brought from sitting to standing
- Treatment
  - Remove from environment
  - Replace water and sodium (1/4 water Gatorade)

# HEAT EXHAUSTON

- Temperature elevation (<104° F [40° C])
- Presentation
  - Nausea, headache
  - Sweating
  - Muscular cramps in the lower limbs and abdomen
  - Breathing becomes fast and shallow
  - Pulse is rapid and weak
  - Fainting
  - Diarrhea, Vomiting
- Management
  - Remove from heat
  - Oral or IV fluids and electrolytes
  - Body position with Legs raised

# HEAT STROKE

- Thermoregulatory mechanisms fail
  - Body temperature >104° F [40° C]
  - Multisystem tissue damage
  - Physiological collapse
- Medical Emergency
- Two types
  - Classic heat stroke
  - Exertional heat stroke
- Heat stroke assessment
  - Irritability, combativeness
  - Signs of hallucination, seizures
  - Pale and sweaty skin (exertional heatstroke)
  - Dry, red, hot skin (classic heatstroke)
  - Tachycardia, hypotension

# CLASSIC HEAT STROKE

- Usually Caused by High temperatures and humidity
  - Weather based
- Risk factors
  - Age
    - Infants, elderly
  - Chronic illness
    - Diabetes, heart disease, alcoholism
  - Medications
    - Diuretics, antihypertensives
- Common in cities during summer

# EXERTIONAL HEAT STROKE

- Caused by over exertion in warm or hot environments
  - Activity based
- Risk factors
  - Young, healthy patients
  - Athletes, military recruits
  - Vigorous exercise in high heat
  - Inadequate hydration
  - No acclimation
  - Weight

# THINGS TO CONSIDER WHEN IT'S HOT OUT!

- Clothing
- Pt. Activity
- Pt. Weight
- Drug/alcohol use
- Weakness/exhaustion
- Dizziness
- Fainting
- Perspiration

# HEAT STROKE TREATMENT

- Get them out of there!
  - After you initial assessment of the patient and you have established that your Pt. is in a heat related medical emergency, the easiest thing you can do is move them (if possible) to a cooler environment
  - Make sure transport is on the way
- High quality H2O
  - Pt. needs fluids with electrolytes, if they are able assist the Pt. in drinking fluids with electrolytes (1/4 water Gatorade)
- Ice Ice Baby
  - Place ice packs around the Pt. neck, armpits, and groin.
- Get a Leg up on it
  - Pt. may present as hypotensive, elevate the legs and be prepared for shock like symptoms

# HYPOTHERMIA

- Core Body Temp less than 95° F [35° C]
- May result from
  - Decrease in heat production
  - Increase in heat loss
  - Cold weather
- Risk factors
  - Outdoor enthusiasts
  - Older adults, young children
  - Medical/psychiatric illness
  - Trauma
  - Medications
    - Antidepressants
  - Alcohol
    - Alcohol is the most common cause of heat loss in urban settings:
      - Hinders body's attempt to insulate the core
      - Impairs shivering thermogenesis
      - Promotes cutaneous vasodilation ( Doesn't keep blood close to core)
      - Inadequate glycogen stores
      - Poor nutritional status
      - Impaired judgment

# HYPOTHERMIA STAGES

- Mild
  - Core temperature 93.2°-96.8° F (34°-36° C)
  - shivering – not under voluntary control
  - can't do complex motor functions but can still walk and talk
  - vasoconstriction to periphery (fingers, toes etc)
    - poor cap refill
- Moderate
  - Core temperature 86°-93.2° F (30°-34° C)
  - reduced level of consciousness
  - loss of fine motor coordination, particularly in hands due to restricted peripheral blood flow
  - slurred speech
  - violent shivering
  - irrational behavior, such as paradoxical undressing, where the casualty starts to remove clothing unaware that they are cold (they may say they feel hot)

# HYPOTHERMIA STAGES CONT.

- Severe
  - Core temperature below 86° F (30° C)
  - shivering occurs in waves, violent then pause, pauses get longer until shivering finally ceases because the heat output from burning glycogen in the muscles is not sufficient to counteract the continually dropping core temperature, the body shuts down on shivering to conserve glucose
  - casualty falls to the ground, curls up into a fetal position to conserve heat
  - muscle rigidity develops because peripheral blood flow is reduced and due to lactic acid and carbon dioxide buildup in the muscles
  - the skin becomes pale
  - pupils dilate
  - pulse rate decreases
  - at 32°C the body tries to move into hibernation, shutting down all peripheral blood flow and reducing breathing rate and heart rate. While vasoconstriction aids in retaining heat it does little to control heat loss from the head
  - at 30°C the body is in a state of 'metabolic icebox.' The casualty looks dead but is still alive. If treatment is not initialized, the breathing will become erratic and very shallow, the level of consciousness will continue to fall and cardiac arrhythmias may develop

# HYPOTHERMIA TREATMENT

- Treat the ways we gain and lose heat
  - Clothing, bundle up use blankets to prevent heat loss
  - Move them to warmer areas usually indoors if possible
- Rapid transport
- Avoid rough handling of hypothermic patients
  - When the body stiffens it can become easy to damage the Pt. they often wont even realize it
- Hypothermia and CPR
  - CPR may need to be performed on patients who develop arrhythmia an dare no longer perfusing or breathing adequately