ENVIRONMENTAL EMERGENCIES

Overview

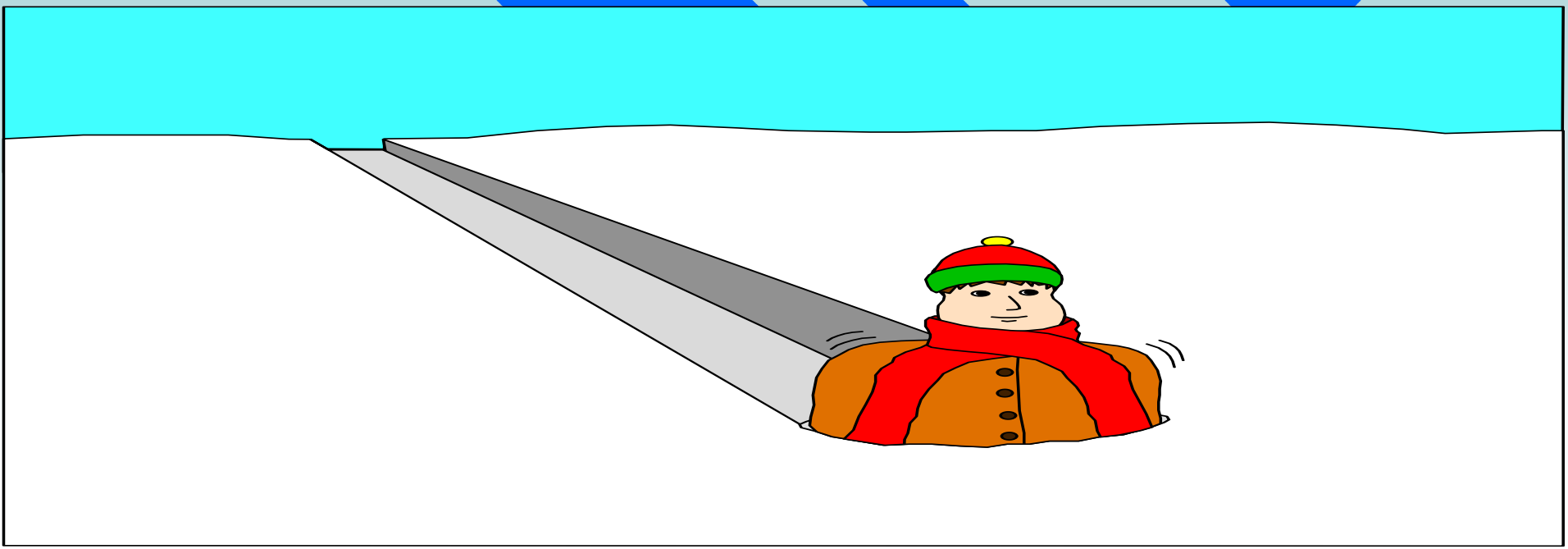
5-6 Identify basic facts and terms about emergencies related to heat, cold, water immersion with at least 80% accuracy.

Overview

- Temperature Regulation
- Exposure to Cold
- Exposure to Heat
- Near Drowning/Drowning
- Bites and Stings

HYPOTHERMIA

- Heat loss exceeds heat gained



Heat Loss

- Radiation
  - Transfer heat from warmer to cooler environment
- Conduction
  - Transfer heat from warmer to cooler environment by direct contact

Heat Loss

- Convection
  - Currents of air or water pass over the body
- Evaporation
  - When a person perspires or gets wet

Heat Loss

- Breathing
  - Loss of heat through warm exhaled air

Heat Loss

- EMT-B must be aware of methods of heat loss to prevent further heat loss

Questions to Ask

- Source
- Environment
- Loss of consciousness

Questions to Ask

- Effects
  - General
  - Local
- Duration

Generalized Hypothermia

- When the body is unable to maintain its proper core (internal) temp after being exposed to cold over a period of time

Generalized Hypothermia

- If allowed to continue, hypothermia leads to <u>death</u>

Predisposing Factors

- Cold environment
  - Non-immersion
  - Immersion
- Age
  - Very old
  - Very young

Predisposing Factors

- Medical conditions
  - Shock
  - Head injury
  - Burns

Predisposing Factors

- Medical conditions
  - Generalized infection
  - Injuries to spinal cord
  - Diabetes and hypoglycemia

Generalized Hypothermia

- Sign/symptoms
  - –Environmental conditions of cold exposure
    - »Obvious exposure
    - »Subtle exposure

Generalized Hypothermia

- Sign/symptoms
  - Cool/cold skin
  - Decreasing mental status
    - »Correlates with severity of hypothermia

Generalized Hypothermia

- Sign/symptoms
  - Stiff/Rigid posture
  - Muscular activity
  - Shivering
  - Breathing variations

Generalized Hypothermia

- Sign/symptoms
  - Slowly responding pupils
  - Pulse
  - Low to absent blood pressure
  - Poor judgment

Generalized Hypothermia

- Sign/symptoms
  - Complaints of joint/muscle stiffness
  - Skin

Treatment

- Remove patient from the environment
- Remove wet clothing/cover with blanket
- Handle patient extremely gently

Treatment

- Don't let patient walk/exert themselves
- Administer oxygen
- Assess pulse
  - 30-45 seconds before starting CPR

Treatment

- If patient is alert or responding appropriately
  - –Actively rewarm
    - »Warm blanket
    - »Heat packs
    - »Warm ambulance

Treatment

- If patient is unresponsive or not responding appropriately
  - Rewarm passively
    - »Warm blanket
    - »Warm ambulance

Treatment

- Do not allow patient to eat or drink stimulants
- Do not massage extremities

Local Cold Emergencies

Predisposing factors

- Exposure to wet conditions
- Inadequate insulation
- Restricted circulation

Predisposing Factors

- Circulatory disease
- Fatigue
- Poor nutrition
- Alcohol or drug abuse

Predisposing Factors

- Hypothermia
- Diabetes
- Cardiovascular disease
- Older age

Local Cold Emergencies

- Tend to occur on the extremities and exposed ears, nose, and face

Signs and Symptoms

- Early/Superficial injury
  - Blanching of skin
  - Loss of feeling/sensation
  - Skin remains soft
  - If rewarmed, tingling sensation

Signs and Symptoms

- Late or deep injury
  - White, waxy skin
  - Firm to frozen feeling
  - Swelling/blisters
  - If thawed may appear flushed

Late or Deep Injury

Late or Deep Injury

Late or Deep Injury

Late or Deep Injury

Treatment

- Remove patient from environment
- Protect from further injury
- Oxygen
- Remove wet/restrictive clothing

Treatment

- Early or superficial cold injury
  - Splint
  - Cover
  - Don’t rub or massage
  - Do not re-expose to cold

Treatment

- Late or Deep Cold Injury
  - Remove jewelry
  - Cover with dry clothing or dressing

DO NOT

- Break blisters
- Rub or massage area
- Apply heat
- Re-warm
- Allow patient to walk on the affected extremity

Local Cold Injury

When an extremely long or delayed transport is inevitable

- Immerse affected part in warm water
- Monitor water

Local Cold Injury

- Continuously stir water
- Continue until part is soft and color and sensation return
- Dress the area with dry sterile dressing

Local Cold Injury

- Protect against re-freezing
- Expect patient to complain of severe pain

Exposure to Heat

- Predisposing factors
  - Climate
  - Exercise and activity
  - Age
  - Pre-existing illness/Conditions
  - Drugs/Medications

Signs and symptoms

- Muscular cramps
- Weakness/Exhaustion
- Dizziness/Faintness

Signs and symptoms

- Skin
  - Moist pale skin that's normal to cool
  - Hot, dry or moist – dire emergency

Signs and symptoms

- Rapid heart rate
- Altered mental status to unresponsiveness

Emergency Care

- Patient with moist, pale, normal to cool temperature skin
  - Remove patient from environment
  - Oxygen

Emergency Care

- Loosen/Remove clothing
- Cool by fanning
- If responsive and not nauseated
  - »Have patient drink water
- If unresponsive or nauseated
  - »Transport on left side

Emergency Care

- Patient with hot, dry or moist skin temperature
  - Remove patient from environment
  - Remove clothing
  - Oxygen

Emergency Care

- Apply cool packs
  - »Groin
  - »Axillary
  - »Cervical area
- Keep skin wet
- Fan aggressively
- Transport immediately

Near-Drowning/ Drowning

- Ensure the safety of rescue personnel

Near-Drowning/ Drowning

- Suspect spinal injury
- Consider length of time in cold water

Near-Drowning/ Drowning

- Emergency medical care
  - In-line immobilization
  - Suction as needed
  - Oxygen

Gastric Distention

- Place patient on left side
- Have suction ready
- Apply firm pressure to relieve distention

Bites and Stings

Signs and symptoms

- History
- Pain at site
- Redness
- Swelling
- Weakness
- Dizziness
- Chills
- Fever
- Nausea
- Vomiting
- Bite marks
- Stinger

Emergency Care

- If stinger is present remove it
- Wash area gently

Emergency Care

- Remove jewelry
- Place injection site slightly below heart

Emergency Care

- Do not apply cold to snake bites

Emergency Care

- Consult medical direction regarding constricting bands

Emergency Care

- Observe for development of signs and symptoms of allergic reaction

Review

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