Chapter 15
Medical Emergencies

Objectives

- Describe the pathophysiology of anaphylactic shock
- List the common signs and symptoms of anaphylactic shock
- Describe the treatment of anaphylaxis
- Describe the pathophysiology of asthma
- Describe the signs and symptoms of asthma and list those that indicate a very serious condition

Objectives

- Identify the treatment for a patient experiencing an acute asthma attack
- Define the term status asthmaticus
- List three priorities of care for COPD
- Identify five conditions that may cause hyperventilation
- Describe the care given to patients who hyperventilate
Objectives

- Recall three patients who are at risk for pulmonary embolism
- Identify four signs and symptoms of pulmonary embolism
- Describe the mechanism of spontaneous pneumothorax
- List five signs and symptoms of stroke
- Describe the importance of airway management in the stroke patient
- Identify five intracranial causes of coma

Objectives

- Identify five causes of coma that originate outside the nervous system
- Describe the patient care priorities for coma
- List four types of seizures
- Describe the patient care priorities for seizure
- List four causes of headache
- Describe the patient care priorities for abdominal pain

Objectives

- List four causes of gastrointestinal bleeding
- Describe the patient care priorities for gastrointestinal bleeding
- Describe five signs and symptoms of hypoglycemia
- Describe the care given to patients with hypoglycemia
- List five signs and symptoms of diabetic ketoacidosis
Objectives

- Describe the most common presentation of hyperosmolar hyperglycemic nonketotic coma
- Describe the care given to patients with hyperglycemia
- Identify four routes of exposure to poison
- List four items of information needed when assessing a patient who ingested a poison
- Identify five areas to assess with a poisoned patient

Objectives

- Describe the proper use of syrup of ipecac
- List the common signs and symptoms of carbon monoxide poisoning
- Describe care provided for patients with heat cramps, heat exhaustion, and heat stroke
- Describe the care for frostbite
- Describe the care for hypothermia

Allergic Reaction and Anaphylactic Shock

- Anaphylaxis—severe allergic reaction
  - Pathophysiology
    - Antigen
    - Antibody
    - Mast cell
    - Histamine
Allergic Reaction and Anaphylactic Shock

- Mechanisms of anaphylactic shock
  - Skin contact
  - Injection
  - Inhalation
  - Ingestion

- Common allergens

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Allergic Reaction and Anaphylactic Shock

- Signs and symptoms—anaphylactic shock
  - Sense of uneasiness/agitation
  - Swelling of soft tissues
  - Skin flushing and hives
  - Coughing, sneezing, wheezing
  - Rales, rhonchi, or absent breath sounds
  - Tingling, burning, or itching skin
  - Abdominal pain

- Signs and symptoms—anaphylactic shock
  - Tachycardia
  - Weak, thready pulse
  - Profound hypotension
  - Confusion
  - Decreased level of responsiveness
  - Weakness
  - Profuse diaphoresis

- Signs and symptoms—anaphylactic shock
  - Retraction of intercostal spaces and accessory muscle use
  - Deep or shallow, labored respirations
  - Cyanosis
  - Anxiety
  - Peripheral edema
Allergic Reaction and Anaphylactic Shock

- Ask patient about:
  - Recent insect bite or sting
  - History of food or drug allergy
  - Medications taken
    - Name, dosage, when taken prior to reaction
  - New cosmetics, soaps, clothing, etc.
- Perform head-to-toe examination

Allergic Reaction and Anaphylactic Shock

- Care for allergic reaction
  - Benadryl 25 mg slow IV push or IM if:
    - Vital signs normal
    - No respiratory symptoms
    - Only itching, rash, and/or swelling outside body
  - Breathing adequately
    - Oxygen

Allergic Reaction and Anaphylactic Shock

- Care for anaphylactic shock
  - Aggressive airway management
  - Ventilatory support
  - Oxygen
  - Circulatory support
  - Give epinephrine (1:1000) 0.1-0.5 mL if:
    - Wheezing or stridor
    - Edema of pharynx, soft palate, or tongue
    - Hypotension
    - Confusion
    - Weak, thready pulse
    - Tachycardia
### Allergic Reaction and Anaphylactic Shock

- **Care for anaphylactic shock**
  - Continual reassurance
  - Adequate airway
  - Endotracheal intubation and high-concentration O₂ if:
    - Patient unable to maintain airway
    - Ventilatory assistance needed
    - Severe respiratory distress
    - Cyanosis
    - Hypotensive (<70 mm Hg)

- **IV line**
- **Epinephrine**
- **Patient has own autoinjector (Epi-Pen)**
  - EMT-I may assist in giving injection
- **If wheezing or stridor present:**
  - Nebulized bronchodilator: 
    - Albuterol
    - Isoetharine

- **Identify priority patient**
- **Reassess vital signs**
- **Transport**
- **ECG**

- **Consult with medical direction**

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**Note:**

- **Epinephrine autoinjector**
- **Consult with medical direction**
Allergic Reaction and Anaphylactic Shock

- Remove cap
- Insert at 90° angle to thigh, between waist and knee

Allergic Reaction and Anaphylactic Shock

- Stinger removal
  - Flat object along skin

Respiratory Emergencies

- Divided into two categories
  - Acute
  - Chronic
    - Both can be life threatening
Respiratory Emergencies—Acute Asthma

- Reversible acute airflow obstruction in lower airway
- Disease involves lower airway, beyond trachea and mainstem bronchi
  - Bronchospasm—narrows lumen of airways
  - Increased mucus
  - Swelling and edema
  - White blood cells accumulate in airway
- Heredity plays role
- Common in children/young adults

Respiratory Emergencies—Acute Asthma

- Two kinds of asthma
  - Extrinsic asthma
    - Caused by outside substances such as pollen
    - More common in children
  - Intrinsic asthma
    - Has no identified specific cause
    - Onset more common in adulthood

Respiratory Emergencies

- Eight groups of common asthma triggers
  - Respiratory infections
  - Allergens
  - Street drugs
  - Irritants
  - Exercise
  - Emotions
  - Chemicals
  - Changes in environmental conditions
Respiratory Emergencies

- Asthma symptoms
  - Shortness of breath
  - Audible abnormal breath sounds
  - Hyperinflated chest
  - Coughing
  - Tachycardia
  - Hypertension
  - Tachypnea
  - Exercise
  - Emotions

Respiratory Emergencies

- Asthma symptoms
  - Chemicals
  - Changes in environmental conditions
  - Mild cyanosis
  - Decreased oxygen saturation
  - Anxiety, agitation, anxiousness
  - Diaphoresis/pallor

Respiratory Emergencies

- Serious asthma attack symptoms
  - Altered level of responsiveness
  - “Silent chest”
  - Marked diaphoresis
  - Cyanosis
  - Patient states “too tired to breathe anymore”
Respiratory Emergencies

- Acute asthma treatment
  - Endotracheal intubation if:
    - Unable to maintain airway
    - Ventilatory assistance needed
    - Respiratory distress severe
    - Cyanosis
    - Significant hypotension

- Calm and reassure patient
- Respiratory distress
  - High concentration of humidified oxygen
  - Nonrebreather mask
  - Nasal cannula

- Position of comfort
- Monitor vital signs
- Treat bronchospasm
- IV lifeline
- Monitor ECG
- Rapid transport
### Respiratory Emergencies

#### Status asthmaticus
- Severe prolonged asthma attack
- Does not respond to standard medications
- Imminent danger of respiratory failure
- Prehospital care same as for acute asthma
- Monitor patient
- Anticipate need for intubation

#### Chronic obstructive pulmonary disease (COPD)
- Progressive and irreversible airway disease
- Chronic bronchitis (excess mucus secretion)
- Emphysema (lung damage with loss of recoil)
- Most COPD patients have combination of both
- Considerable work to breathe
- May develop right-sided heart failure (cor pulmonale)
  - Increased effort to move blood through lungs

#### Chronic bronchitis
- Overgrowth of airway mucous glands
- Excess secretion of mucus
  - Blocks airway
- Chronic productive cough
Respiratory Emergencies

- Emphysema
  - Loss of alveolar structure
  - Air trapped in lungs
  - Marked resistance to air movement within airways
  - Causes
    - Cigarette smoking
    - Industrial inhalants, air pollution, tuberculosis

Respiratory Emergencies—COPD

- Assessment
  - Patients complain of shortness of breath
  - Recent history
    - New cough or change in previous cough and sputum production
    - Stopped medication
    - Home oxygen
    - Self-administered breathing treatments
      - Failed to give relief

Respiratory Emergencies—COPD

- Acute episode
  - Tachypnea
  - Anxiety
  - Speaking in short sentences
  - Use of accessory breathing muscles
  - Cyanosis
Respiratory Emergencies—COPD

- Acute episode
  - Barrel-shaped chest
  - Audible abnormal breath sounds
  - "Silent chest" is serious sign

Respiratory Emergencies—COPD

- Emergency care
  - Transport in semisitting position
  - Oxygen
  - Loosen clothing
  - Encourage patient to cough
  - IV lifeline
  - Administer nebulized bronchodilator
  - Do not withhold oxygen

Respiratory Emergencies

- Hyperventilation
  - Respiratory rate greater than required for normal body function
Respiratory Emergencies—Hyperventilation Causes

- Asthma attack
- COPD
- Myocardial infarction
- Pulmonary embolism
- Spontaneous pneumothorax
- Congestive heart failure
- Increased metabolism
- Central nervous system
- Accumulation of metabolic acids
- Drugs
- Psychogenic factors

Respiratory Emergencies—Hyperventilation Signs and Symptoms

- Chest pain
- Dizziness/faintness
- Numbness/tingling
- Tightness/lump in throat
- Spasm of finger/toes
- Altered mental status
- Abnormal lung sounds
- Tachycardia

Respiratory Emergencies—Hyperventilation Treatment

- Assume underlying medical cause
- Oxygen
- Isolated anxiety hyperventilation suspected
  - Ask patient to control breathing
  - Do not use paper bag
- Chest pain
  - Cardiac monitor
  - IV lifeline
- Transport
Respiratory Emergencies

- Pulmonary embolism
  - Blockage of pulmonary artery by foreign matter
  - Risk factors
    - Sedentary life-style, obesity
    - Thrombophlebitis
    - Oral contraceptives
    - Fracture of long bone
    - Pregnancy
    - Surgery

Respiratory Emergencies—Pulmonary Embolism

- Pathophysiology
  - Blood clot travels to heart/lungs
  - Emboli occlude major branches of pulmonary arteries
  - May force heart to pump against very high pressures

Respiratory Emergencies—Pulmonary Embolism

- Assessment
  - Sudden unexplained onset of chest pain
  - Respiratory distress
  - Wheezing or coughing up of blood
  - Anxiety
  - Shock
  - Hypotension
Respiratory Emergencies—Pulmonary Embolism

- Treatment
  - Maintain airway
  - IV lifeline
  - Cardiac monitor
  - Transport in position of comfort

Respiratory Emergencies

- Spontaneous pneumothorax
  - Sudden accumulation of air in pleural space
  - Rupture of congenital defect on surface of lung
  - COPD

Respiratory Emergencies—Spontaneous Pneumothorax
Respiratory Emergencies—Spontaneous Pneumothorax

Assessment
- Sudden onset of sharp chest pain
  - Localized to affected lung
- Shortness of breath
- Decreased breath sounds
- Increased respiratory rate
- Possible coughing
- Anxiety/agitation

Respiratory Emergencies—Spontaneous Pneumothorax

Tension pneumothorax
- Dangerous complication
- Increasing respiratory distress
- Weak pulse
- Cyanosis
- Hypotension

Respiratory Emergencies—Spontaneous Pneumothorax

Tension pneumothorax
- Decreased breath sounds on same side as injury
- Distended neck veins
- Tracheal deviation away from side of injury
- Subcutaneous emphysema
Respiratory Emergencies—Spontaneous Pneumothorax

- Treatment
  - Maintain airway
    - High-concentration oxygen
    - Assist breathing
  - IV lifeline
  - Cardiac monitor
  - Transport
  - Tension pneumothorax
    - Needle decompression

Respiratory Emergencies—Toxic Inhalations

- Categories of toxic gases
  - Inert gases
  - Irritant gases
  - Systemic toxins
- Effects of gas inhalation
  - Water solubility
  - Depth/rate of breathing
  - Smell
  - Concentration
  - Length of exposure

Respiratory Emergencies—Toxic Inhalations

- Field evaluation and care
  - Protect self
  - Remove victim from area
  - High-concentration oxygen
  - Intubate if necessary
  - IV lifeline
  - Nebulized bronchodilators
  - Prompt transport
Respiratory Emergencies—Toxic Inhalations

- Carbon monoxide (CO)
  - Colorless/odorless
  - Flavorless/nonirritating
  - Product of incomplete combustion
  - Binds strongly with hemoglobin in red blood cells
  - Perfusion may be severely impaired

Carbon monoxide poisoning

- Signs and symptoms
  - Malaise/weakness/headache
  - Confusion/dizziness
  - Nausea/shortness of breath
  - Drowsiness/unresponsiveness
  - Chest pain
  - Abnormal lung sounds
  - Seizures
  - Blisters on skin

- Treatment
  - Immediately remove patient to fresh air
  - Secure airway/ventilate as necessary
  - High-concentration oxygen/intubate if necessary
  - IV line
  - Care for life-threatening injuries
  - Rapid transport
  - Hyperbaric chamber if necessary
Neurologic Emergencies—Stroke

- Occlusive strokes
  - Blockage in vessel
- Hemorrhagic strokes
  - Bleeding into brain tissue

Neurologic Emergencies—Stroke

- Risk factors
  - Age
  - Gender
  - Race
  - Hypertension
  - Cigarette smoking
  - Birth control pills
  - Alcohol consumption
  - Increased blood cholesterol levels

Neurologic Emergencies—Stroke: Patient Assessment

- Paralysis
- Facial droop
- Impaired language/speech
- Decreased sensation
- Seizures
- Dizziness
- Loss of responsiveness
- Stiff neck/headache
- Altered level of responsiveness
- Airway problems/hypoventilation
- Cardiac arrhythmias
- Nausea/vomiting
- Pupillary abnormalities
Neurologic Emergencies—Stroke

- Emergency care
  - Establish and maintain airway
  - High-concentration oxygen
  - Endotracheal intubation
  - Nothing by mouth
  - Reassure patient
  - IV lifeline
  - Cardiac monitor
  - Measure blood sugar

- Transient ischemic attack
  - Stroke-like neurologic deficit
  - Completely resolves within minutes/hours
  - Patient care for stroke and TIA is identical

Neurologic Emergencies—Stroke

- Coma
  - State of unresponsiveness
  - Characterized by absence of:
    - Spontaneous eye movements
    - Response to painful stimuli
    - Vocalization
Neurologic Emergencies—Coma

- Causes of intracranial coma
  - Intracranial bleeding
  - Stroke
  - Tumor
  - Infection—meningitis/encephalitis
  - Seizure

- Causes outside of nervous system
  - Blood chemistry abnormalities
  - Hypertensive crisis
  - Kidney/liver failure
  - Endocrine gland abnormalities
  - Drugs
  - Psychiatric problems

- Patient assessment
  - When was patient last well?
  - How did symptoms progress?
  - Did symptoms precede onset?
  - Are pill bottles/syringes/strange odors present?
Neurologic Emergencies—
Coma

- Patient assessment
  - If not responsive to stimuli, look for:
    - Abnormal breathing
    - Evidence of trauma
    - Abnormal pupil response
    - Evidence of drug abuse
    - Abnormal blood pressure

Neurologic Emergencies—
Coma: Emergency Care

- Establish airway/assist breathing
- Endotracheal intubation if necessary
- High-concentration oxygen
- Immobilize
- Monitor vital signs
- Transport patient either supine or in coma position
- Start IV lifeline
- Obtain blood sugar
- Naloxone IV
- Monitor cardiac rhythm

Neurologic Emergencies

- Types of seizures
  - Generalized major motor seizures
  - Focal motor seizures
  - Behavioral seizures
  - Status epilepticus
Neurologic Emergencies—Seizures

- Causes
  - Infections
  - Fever
  - Trauma
  - Stroke
  - Tumor

Neurologic Emergencies—Coma

- Causes not involving CNS
  - Failure to take prescribed antiseizure medications
  - Metabolic abnormalities
  - Drug/alcohol withdrawal
  - Overdose of drugs
  - Hypertensive crisis
  - Liver/kidney failure

Assessment

- FACTS
  - F = Focus
  - A = Activity
  - C = Color
  - T = Time
  - S = Secondary information
    - Was there aura?
    - Did incontinence occur?
    - Did patient bite tongue?
    - History of seizures?
    - Antiseizure medications?
Neurologic Emergencies—Coma: Emergency Care

- Maintain airway
- Do not insert airway between teeth of seizing patient
- Assist ventilation
- Be prepared to suction
- High-concentration oxygen
- Do not restrain; prevent injury
- IV lifeline
- Cardiac monitor
- Alert for violent postictal behavior
- Keep bystanders away
- Check oxygen saturation
- Transport patient in coma position

Neurologic Emergencies

- Headaches
  - Brain tumors
  - Intracranial bleeding
  - Hypertensive crisis
  - Meningitis
  - Poisoning

Neurologic Emergencies—Headache

- Patient assessment
  - Visual disturbances
  - Nausea/vomiting
  - Vertigo
  - Stiffness of neck
  - Neurologic deficit
  - Elevated blood pressure
  - Unequal/pinpoint pupils
  - Eye pain with bright light
Neurologic Emergencies—Headache

- Emergency care
  - Monitor airway/breathing/circulation
  - Prepare for vomiting
  - Reduce bright lights
  - Place ice pack to head over area of pain
  - Oxygen

Gastrointestinal Emergencies

Gastrointestinal Emergencies—Acute Abdominal Pain

- Causes
  - Immediately life threatening
    - Acute myocardial infarction
    - Ruptured abdominal aortic aneurysm
    - Ruptured ectopic pregnancy
    - Ruptured viscus
Gastrointestinal Emergencies—Acute Abdominal Pain

• Causes
  ➢ Not usually life threatening
    • Peptic ulcer disease
    • Gastritis
    • Pneumonia
    • Pancreatitis
    • Kidney stones
    • Pelvic inflammatory disease
    • Appendicitis
    • Cholecystitis
    • Pyelonephritis
    • Diverticulitis
    • Bowel obstruction

Gastrointestinal Emergencies—Acute Abdominal Pain

• Assessment
  ➢ Localized/diffuse pain
  ➢ Nausea/vomiting/diarrhea
  ➢ Decreased appetite
  ➢ Chills/fever
  ➢ Painful urination
  ➢ Blood in urine/stool/vomitus
  ➢ Vaginal bleeding/discharge
  ➢ Cough
  ➢ Chest pains/shortness of breath

Gastrointestinal Emergencies—Acute Abdominal Pain

• Evaluate
  ➢ General appearance
  ➢ Abdominal tenderness to palpation
  ➢ Signs of shock
  ➢ Fever
  ➢ Pulsating mass in abdomen
  ➢ Guarding
Gastrointestinal Emergencies—
Acute Abdominal Pain

- Emergency care
  - Maintain airway/oxygen/assist breathing
  - If leaking/ruptured abdominal aortic aneurysm suspected, transport immediately
  - Position of comfort
  - Care for shock
  - Be prepared for vomiting
  - IV lifeline
  - Consider AMI

Gastrointestinal Emergencies

- Gastrointestinal bleeding
  - Hemorrhage anywhere in gastrointestinal (GI) tract
  - Can rapidly result in life-threatening hypovolemic shock
  - Evaluate
    - Airway
    - Breathing
    - Circulation

Gastrointestinal Emergencies—
GI Bleeding

- Causes
  - Common causes of upper GI bleeding
    - Peptic ulcer disease
    - Gastritis
    - Esophageal varices
    - Esophagitis
  - Common causes of lower GI bleeding
    - Diverticulosis
    - Tumors, hemorrhoids, polyps
Gastrointestinal Emergencies—GI Bleeding

- Emergency care
  - Maintain airway
  - High-concentration oxygen
  - Assist breathing
  - Care for shock
  - IV lifeline
  - Anticipate vomiting

Diabetic Emergency

- Diabetes mellitus
  - Disease of endocrine system involving the hormone insulin
  - Insulin regulates blood sugar level

Diabetic Emergencies—Hypoglycemia/Insulin Shock

- Causes
  - Medications
  - Excessive exercise
  - Endocrine diseases
  - Alcohol consumption
  - Poor diet
  - Hypothermia
  - Liver disease
Diabetic Emergencies—
Hypoglycemia/Insulin Shock

- Patient assessment
  - Shakiness/weakness
  - Diaphoresis
  - Rapid pulse/respiratory rate
  - Altered level of responsiveness
    - Patient may appear intoxicated
  - Slurred speech
  - Neurologic deficit
  - Seizures
  - Severe hypoglycemia
    - Marked alteration in level of responsiveness
    - Always ask “Did you eat today?”

Diabetic Emergencies—
Hypoglycemia/Insulin Shock

- Emergency care
  - Control airway/assist breathing
  - Oxygen
  - Monitor ECG
  - IV lifeline
    - Draw blood prior to giving any fluid or sugar (D50)
  - Administer dextrose per protocol
  - Transport

Diabetic Emergencies—
Hypoglycemia/Insulin Shock

- Various types of oral glucose
Diabetic Emergencies

- Hyperglycemia
  - Elevation of blood sugar level above normal
  - Diabetes most common cause

- Diabetic ketoacidosis (diabetic coma)
  - Metabolic condition
    - Hyperglycemia
    - Dehydration
    - Accumulation of ketones and ketoacids

Diabetic Emergencies—Hyperglycemia and Diabetic Ketoacidosis

- Signs and symptoms
  - Slow onset
  - Weakness
  - Nausea/vomiting, abdominal pain
  - Frequent urination, thirst
  - Kussmaul respirations
  - Alterations in level of responsiveness
  - Fruity/acetone-like odor to breath
  - Rapid/weak pulse

Diabetic Emergencies—Hyperglycemia and Diabetic Ketoacidosis

- Emergency care
  - Maintain airway/assist breathing as necessary
  - High-concentration oxygen, monitor ECG rhythm
  - IV lifeline
  - Watch for shock
  - Give nothing by mouth
  - If unable to check fingerstick blood sugar
    - Assume hypoglycemia present, give sugar
  - Transport
Diabetic Emergencies

- Hyperglycemic hyperosmolar nonketotic coma (HHNK)
  - State in which blood sugar is markedly elevated
  - No acidosis or ketones are present
  - Common presentation
    - > 60 years
    - Poor health
    - Precipitated by infection/extreme cold/dehydration
    - Gradual deterioration in mental status

Diabetic Emergencies—HHNK

- Signs and symptoms
  - Altered mental status
  - Evidence of dehydration
  - Kussmaul respirations
  - Fruity breath odor

- Treatment is same as for diabetic ketoacidosis

Diabetic Emergencies

- General management of a diabetic emergency
  - Manage airway/oxygen/assisted ventilation/endotracheal intubation when necessary
  - Draw blood before giving any medication or IV fluid
  - Determine fingerstick blood sugar reading
  - Monitor vital signs and ECG
  - Administer dextrose per protocol
Poisoning Emergencies

- Four methods of exposure
  - Ingestion
  - Inhalation
  - Absorption
  - Injection

Poisoning Emergencies—Ingested Poisons

- Information needed
  - What was taken?
  - How much was ingested?
  - When did poisoning occur?
  - What, if anything, has been done for patient?

Poisoning Emergencies—Ingested Poisons

- Signs and symptoms vary
  - Burning/tearing of eyes
  - Respiratory distress/wheezing/chest pain
  - Cyanosis
  - Nausea/vomiting/diarrhea
  - Excessive sweating or salivation
  - Headache/dizziness/seizures
  - Altered level of responsiveness
  - Pain/burning/itching of skin
  - Burns/stains around mouth
Poisoning Emergencies—Ingested Poisons

- Physical findings may help identify poison
  - Pulse
  - Respiratory rate
  - Temperature
  - Blood pressure

Poisoning Emergencies—Ingested Poisons

- Assess/maintain airway
- Monitor vital signs
- Place patient on cardiac monitor
- Left lateral recumbent position
- High-concentration oxygen

Poisoning Emergencies—Ingested Poisons

- If patient unresponsive
  - Endotracheal intubation

- If patient uncooperative/violent/suicidal
  - Restrain according to local guidelines
  - Call for police assistance

- Notify hospital
Poisoning Emergencies—Activated Charcoal

- Types of activated charcoal
- Shake container to suspend medication in fluid

Poisoning Emergencies—Activated Charcoal

- Pour liquid into container
- Have patient drink full dose

Poisoning Emergencies—Inhaled Poisons

- May be odorless and colorless
- Ensure scene safety
- Move patient away from exposure source
- Move patient to area with freely circulating air
- Suspect carbon monoxide poisoning in all victims of fire
- Assist breathing
- High-concentration oxygen
- Keep patient at rest/expedite transport
Poisoning Emergencies—Absorbed Poisons

- Reduce contact of toxic material on patient’s skin
- Brush off any visible chemical
- Flush affected area
- Remove contaminated clothing
- Protect self from exposure

Heat Exposure Emergencies

- Four methods of heat dissipation

Heat Exposure Emergencies

- Heat cramps
  - Most common heat injury syndrome
  - Patient assessment
    - Muscle twitching/painful spasms
    - Nausea/vomiting
    - Weakness
    - Diaphoresis
    - Hypotension/tachycardia
Heat Exposure Emergencies—
Heat Cramps

- Treatment
  - Remove patient to cool environment
  - If patient is completely responsive give sips of cool water
  - IV lifeline
  - Do not give salt pills
  - High-concentration oxygen
  - Transport

Heat Exposure Emergencies

- Heat exhaustion
  - More severe loss of fluid and salt than occurs in heat cramps
  - Signs and symptoms:
    - Lack of skin coloration
    - Profuse sweating
    - Hypotension
    - Headache/weakness/fatigue
    - Thirst
    - Normal or slightly elevated temperature

Heat Exposure Emergencies—
Heat Exhaustion

- Care
  - Remove patient to cool environment
  - High-concentration oxygen
  - Do not give anything by mouth
  - IV lifeline
  - Monitor ECG
  - Transport
Heat Exposure Emergencies

- Heat stroke
  - Extreme medical emergency
  - Develops when body is unable to get rid of heat
  - Signs and symptoms
    - Altered level of responsiveness
    - Increased body temperature
    - Minimal or no sweating
    - Collapse
    - Signs/symptoms of shock
    - Nausea/vomiting
    - Shortness of breath

Heat Exposure Emergencies—Heat Stroke

- Care
  - Place patient in cool environment
  - Remove clothing
  - Cool patient immediately
  - High-concentration oxygen
  - IV fluids
  - Monitor ECG
  - Wrap patient with wet sheets
  - Transport

Cold Exposure Emergencies—Frostbite

- Initially appears waxy/yellowish-white or bluish-white
- In severe frostbite area is hard/cold/insensitive to pain
- With rewarming, extremity becomes flushed with red to purple-burgundy color
Cold Exposure Emergencies—Frostbite

- Swelling appears within hours of thawing
- Black/hard scar will form over frostbitten area

Cold Exposure Emergencies—Frostbite

- Care
  - Rule out other significant injuries or illnesses
  - Protect involved site
  - Do not break blisters/cover with dry sterile dressings
  - Do not allow patient to drink alcohol
  - Do not rewarm frostbite in field
  - Do not rub frostbitten area
  - Transport

Cold Exposure Emergencies

- Core temperature <95°F
- Three primary causes
  - Cold water immersion
  - Cold water exposure
  - "Urban" hypothermia
Cold Exposure Emergencies

● Predisposed
  ➢ Elderly person living alone
  ➢ People intoxicated with alcohol
  ➢ Children <1 y/o
  ➢ Victims of submersion injury
  ➢ Patients suffering head trauma
  ➢ History of trauma/subsequent blood loss with shock
  ➢ Any person lost or immobilized in cold weather, especially if wet

Cold Exposure Emergencies—
Mild Hypothermia (90° F to 95°F)

● Patient assessment
  ➢ Signs and symptoms
    ▶ Shivering and vasoconstriction
    ▶ Victims stop shivering when body temperature is below 90°F
    ▶ Loss of fine motor control
    ▶ Decreased blood pressure/heart rate/respiratory rate
    ▶ Mild alterations in level of responsiveness
    ▶ Lack of coordination

Cold Exposure Emergencies—
Moderate Hypothermia (82° F to 90°F)

● Patient assessment
  ➢ Muscular rigidity/stiff movements
  ➢ Progressive decrease in respiratory/heart rates
  ➢ Glassy stare with marked depression in level of responsiveness
  ➢ BP may be difficult to detect; carotid pulse is usually still present
Cold Exposure Emergencies—Severe Hypothermia (Less than 82°F)

- Patient assessment
  - Deep coma
  - Rigidity
  - Patient appears pulseless and apneic
  - Pupils fixed and dilated

Cold Exposure Emergencies

- Care of the patient with hypothermia
  - Handle gently
  - Perform CPR as necessary
  - High-concentration oxygen
  - IV lifeline, consider fluid bolus, warm fluids
  - Prevent aspiration
  - Care for other life-threatening injuries or conditions

- Dress/protect frostbitten extremities
- Remove wet clothing; maintain in warm draft-free environment
- Follow local protocol for rewarming
- Remove wet clothing prior to covering patient
Summary

- **Anaphylactic shock**
  - Severe life-threatening allergic reaction
  - Antigens react with antibodies
  - Patient develops swelling, itching, shortness of breath, signs of decreased cardiac output
  - Immediate treatment is essential

- **Respiratory distress**
  - Identify that problem exists
  - Stabilize patient
  - Oxygen
  - Transport

Summary

- **Acute asthma**
  - Recurring episode of reversible airflow obstruction in lower airway
  - Signs of severe asthma attack include
    - Altered level of responsiveness
    - Silent chest
    - Marked diaphoresis
    - Cyanosis
  - Care consists of
    - Airway maintenance
    - Humidified oxygen
    - Administration of bronchodilators or epinephrine
    - Transport to hospital

Summary

- **COPD**
  - Progressive/irreversible airway disease
  - Combination of chronic bronchitis and emphysema
  - Acute COPD episodes usually develop over several days
  - Patients with severe long-standing COPD may have chronic cor pulmonale
  - Care includes airway maintenance
Summary

- Hyperventilation
  - Respiratory rate higher than that required for gas exchange
  - Excessive carbon dioxide is blown off
  - May be linked to many serious conditions
  - Oxygen and transport to hospital
  - Do not have patient breathe into paper bag or plug portals on oxygen mask

Summary

- Pulmonary embolism
  - Blockage of pulmonary artery by foreign matter
  - Most common risk factor is prolonged bedrest
  - Massive pulmonary embolism may cause syncope or cardiac arrest
  - Smaller emboli are associated with sharp pleuritic chest pain and shortness of breath

Summary

- Pulmonary embolism
  - Symptoms may be similar to
    - Pneumonia
    - Myocardial infarction
    - Spontaneous pneumothorax
  - Give oxygen and transport to hospital
Summary

- Spontaneous pneumothorax
  - Sudden accumulation of air in pleural space
  - Causes lung on affected side to collapse
  - Most common cause is rupture of congenital defect in young men
  - Patients experience
    - Sudden shortness of breath
    - Anxiety
    - Pleuritic chest pain
  - Breath sounds may be decreased over affected area
  - Watch for development of tension pneumothorax
  - Oxygen and transport

Summary

- Stroke
  - Sudden disruption of circulation to brain tissue
  - Results in ischemia and neurologic deficits
  - May be occlusive or hemorrhagic in nature
  - Hemiplegia is most common finding
  - Elevated blood pressure is common
  - Pinpoint pupils with altered level of responsiveness is suggestive of intracranial bleeding
  - Pay attention to patient’s airway

Summary

- Coma
  - State of profound unresponsiveness—can be due to many causes
  - Markedly increased blood pressure suggests intracranial event
  - Be prepared for vomiting/airway problems
Summary
- Seizure
  - Sudden period of exaggerated brain cell activity
  - Results in atypical muscular activity or abnormal behavior
  - Four types of seizures
    - Focal
    - Generalized
    - Behavioral
    - Status epilepticus
  - Many causes within or outside of central nervous system may lead to seizures

Summary
- Seizure
  - Following seizure, patient may be in postictal state up to 30 min
  - Status epilepticus is series of seizures without lucid period between them
  - Maintain airway of seizure patient but never insert objects between patient’s teeth
  - Do not restrain patient; protect from injury

Summary
- Headache may occur for many reasons
  - Consider headache potentially dangerous
- Acute nontraumatic abdominal pain
  - May be caused by life-threatening disease
  - May also be caused from less harmful entities
  - Transport patient in comfortable position
Summary

Gastrointestinal bleeding
- Can originate from lesion of mucosa anywhere along digestive tract
- Patient can bleed enough to develop hypovolemic shock
- Airway control is important in upper GI bleeding with hematemesis
- Care for shock and transport

Summary

Diabetes
- Disease of endocrine system from lack of insulin
- Abnormal insulin levels may result in hypoglycemia or hyperglycemia
- Always ask if patient ate and took insulin (or other diabetic drug)

Summary

Hypoglycemia
- State of low blood sugar
- Symptoms develop rapidly and vary from shakiness to unresponsiveness
- May mimic alcohol intoxication or stroke
- Give responsive patient sugar in form of
  - Sweetened orange juice
  - Glucose solution
  - Candy
  - Corn syrup
Summary

- Hyperglycemia
  - Elevation of blood sugar level

- Diabetic ketoacidosis
  - Abnormal metabolic condition
  - Patient usually severely ill and dehydrated
  - Provide care for shock and transport

Summary

- Poisoning
  - Results from ingestion, inhalation, absorption, or injection of harmful substance
  - Most poisonings occur by oral ingestion
  - Evidence and scene information can be helpful in identifying poison
  - Poisoning may cause many different signs and symptoms
  - Treatment includes maintaining airway/administering syrup of ipecac or activated charcoal
  - EMT-I should ensure personal safety; restrain violent or suicidal patients per protocol

Summary

- Heat exposure emergencies
  - Include:
    * Heat cramps
    * Heat exhaustion
    * Heat stroke
  - Heat stroke is most serious—immediate cooling is critical for recovery
Summary

● Frostbite
  › Formation of ice crystals within tissues
  › Signs and symptoms vary by stage
  › Care for affected area carefully; do not rub skin; do not attempt rewarming in field

● Generalized hypothermia
  › May be:
    • Mild
    • Moderate
    • Severe
  › Severe hypothermia may mimic cardiac arrest
  › Perform CPR as indicated but check pulse for 1 full min before beginning compressions

Questions?