Poisoning and Overdose Emergencies
OBJECTIVES

23.1 Define key terms introduced in this chapter. Slides 12, 16, 23, 31, 46, 55, 59–63

23.2 Describe ways in which poisons can enter the body. Slide 15

23.3 Identify potential dangers to EMS providers and others at scenes where poisoning, alcohol abuse, or substance abuse is involved. Slides 32, 35, 52, 72

continued
23.4 Collect key elements in the history of a patient who has been poisoned. Slides 17–20, 34

23.5 Describe the use of activated charcoal in the management of ingested poisons. Slides 23–27

23.6 Explain the management of patients who have ingested a poison. Slides 22–23
OBJECTIVES

23.7 Develop a plan for managing patients who have inhaled poisons. Slides 35, 40, 43

23.8 Develop a plan for managing patients who have absorbed poisons through the skin. Slide 47

23.9 Describe the health risks associated with alcohol abuse. Slides 50–52

continued
OBJECTIVES

23.10 Recognize the signs and symptoms of alcohol abuse and withdrawal. Slides 54–56

23.11 Recognize signs, symptoms, and health risks associated with abuse of substances, including stimulants, depressants, narcotics, volatile chemicals, and hallucinogens. Slides 59–69

continued
23.12 Given a variety of scenarios, develop a treatment plan for patients with emergencies related to alcohol and substance abuse. 57, 70–72
MULTIMEDIA

• Slide 73  Cocaine Video
CORE CONCEPTS

- How to know if a patient has been poisoned
- Assessment and care for ingested poisons
- Assessment and care for inhaled poisons
- Assessment and care for absorbed poisons

continued
CORE CONCEPTS

- Assessment of injected poisons
- Assessment and care for alcohol abuse
- Assessment and care for substance abuse
Topics

- Poisoning
- Alcohol and Substance Abuse
Poisoning
Poison

• A poison is any substance that can harm the body
• The harm it can cause can result in a medical emergency
• “All things are poison and nothing is without poison, only the dose permits something not to be poisonous.”
  *Paracelsus*
Common Poisons

- Medications
- Petroleum products
- Cosmetics
- Pesticides
- Plants
- Food
Effects of a Poison

• Harm to body based on nature of poison, concentration, route of entry, patient’s age and health
• Damage to skin and tissues from contact
• Suffocation
• Localized or systemic damage to body systems
Classification of Poisons (By Routes of Entry)

- Ingested
- Inhaled
- Absorbed
- Injected
Ingested Poison

• Child: may accidentally eat or drink a toxic substance
• Adult: often an accidental or deliberate medication overdose
Assessment: Ingested Poisons

• What substance was involved?
  – Look for container; check labels
  – Transport with patient to hospital

• When did exposure occur?
  – Quick-acting poison requires faster treatment
  – ER personnel need to know for appropriate testing and treatment

continued
Assessment: Ingested Poisons

• How much was ingested?
  – Estimate missing pills by looking at prescription label

• Over how long a time?
  – Treatments may vary
    • Was medication taken for very first time?
    • Was medication being taken chronically?
Assessment: Ingested Poisons

• What interventions have been taken?
  – Treatments indicated on label,
  – Other home remedies (syrup of ipecac)

• What is patient’s weight?
  – Rate of onset of toxic effects is related to weight
Assessment: Ingested Poisons

• What effects has patient experienced?
  – Nausea, vomiting, altered mental status, abdominal pain, diarrhea, chemical burns around mouth, unusual breath odors
Food Poisoning

- Can be caused by improperly handled or prepared food
- Symptoms: nausea, vomiting, abdominal cramps, diarrhea, fever
- May occur within hours of ingestion, or a day or two later
Treatment: Food Poisoning

- Activated Charcoal
- Antidotes
Activated Charcoal

• Works through adsorption, allowing substances to attach to its surface
• *Not an antidote*: prevents or reduces amount of poison absorbed by body
Treatment: Activated Charcoal

continued
Treatment: Activated Charcoal

continued
Treatment: Activated Charcoal

continued
Treatment: Activated Charcoal
Think About It

• Think about your own home. Is it safe for a small child?
• Are there potential poisons within three feet of the floor, or behind unlocked doors?
• Are there household cleaners that look like juices and drinks familiar to children?

continued
Think About It

• Can flavored children’s medications be mistaken for candy?
• What sense does a small child typically use to identify things?
Public Education

- Many EMS agencies are involved in educating the public to the dangers of child poisoning
- Child-proofing homes
- Mr. Yuk
Inhaled Poisons

• Common types
  – Carbon monoxide
  – Ammonia
  – Chlorine
  – Agricultural chemicals and pesticides
  – Carbon dioxide
Scene Safety

• Approach scene with caution
• Protective clothing and self-contained breathing apparatus may be required
• If not trained or equipped, call for additional resources
Signs and Symptoms: Inhaled Poisons

- Difficulty breathing
- Chest pain
- Coughing
- Hoarseness
- Headache, confusion, altered mental status
- Seizures
Assessment: Inhaled Poisons

- What substance is involved (exact name)?
- When did exposure occur?
- Over how long did exposure occur?
- What interventions has anyone taken?
- Remove patient?
- Ventilate area?
- What effects is patient experiencing?
Treatment: Inhaled Poisons

- Move patient from unsafe environment using trained and equipped personnel
- Open airway; provide high flow oxygen
- History, physical exam, vital signs
- Transport with all containers, bottles, and labels
- Ongoing assessment en route
Carbon Monoxide (CO) Poisoning

- Colorless, odorless, tasteless gas created by combustion
- Can be caused by improper venting of fireplaces, portable heaters, generators
- Common cause of death during winter and power outages
Signs and Symptoms: CO Poisoning

- Headache (band around head)
- Dizziness/nausea
- Breathing difficulty
- Cyanosis
- May be multiple patients with similar symptoms in confined area together
CO Monitor

• Some fire/EMS systems have monitoring devices that allow crews to determine CO exposure levels in the field
CO Detectors

- Public education programs should encourage people to have both smoke and CO detectors in their homes to reduce the risk of injury and death.
Treatment: CO Poisoning

- High flow oxygen is appropriate treatment, but CO bonds to red blood cells much more strongly than oxygen does.
- Can take several hours or days to “wash” CO from bloodstream.
Smoke Inhalation

• Smoke from burning materials can contain poisonous and toxic substances, including CO, ammonia, chlorine, cyanide
• Substances can irritate skin and eyes, damage lungs, and progress to respiratory or cardiac arrest
Signs and Symptoms: Smoke Inhalation

- Difficulty breathing
- Coughing
- “Smoky” or chemical smell on breath
- Black (carbon) residue in mouth, nose or sputum
- Singed nasal or facial hair
Treatment: Smoke Inhalation

- Move patient to safe area
- Maintain airway; provide high flow oxygen
- Monitor patient closely—airway burns may lead to swelling of airway
“Detergent Suicides”

- Method of suicide started in Japan and becoming more common in the U.S.
- Mix two easily-obtained chemicals to release hydrogen sulfide gas
- Commonly released inside enclosed space such as a car
“Detergent Suicides”:
Scene Safety

• Exposure to fumes may injure EMS personnel
• Warning note may be left on vehicle, but this is not assured
• May need to treat first as a hazmat scene
Absorbed Poisons

- Can be absorbed through skin
- May or may not cause damage to skin
- Patient may require decontamination prior to treatment
Treatment: Absorbed Poisons

- Assess for immediate life threats
- History, physical exam, vital signs
- Brush off powder, then irrigate
- Irrigate skin and eyes for at least 20 minutes and during transport
- Transport with all containers
- Ongoing assessment en route
Poison Control Centers

- Excellent resource
- Information on poisons, signs and symptoms, and treatments
- Follow local protocol for contact procedures
Alcohol and Substance Abuse
Alcohol and Substance Abuse

- See many patients whose conditions are caused either directly or indirectly by alcohol or substance abuse
- Abuse of alcohol and other drugs crosses all geographic and economic boundaries
Alcohol Abuse

• Potent drug affects central nervous system
• Can be addictive
• Emergencies may result from recent consumption or years of abuse
• Treat patients as any others
• Abuse can lead to or worsen other medical conditions

continued
Alcohol Abuse

- Alcohol often consumed with other drugs, which can result in a serious medical emergency
- Impaired patients can be uncooperative or combative
- Contact law enforcement if safety concern
Assessment: Alcohol Abuse

- Many medical conditions mimic alcohol intoxication
- Intoxicated patients may also have medical problems
- All patients receive full assessment regardless of suspicion of intoxication
Signs and Symptoms: Alcohol Abuse

• Alcohol odor on breath
• Unsteady on feet
• Slurred, rambling speech
• Flushed, complaining of being warm
• Nausea/vomiting
• Poor coordination
• Blurred vision
• Confusion/altered mental status
Alcohol Withdrawal

• Abrupt cessation of drinking may cause some alcoholics to suffer from delirium tremens (DTs)
• Can be serious, resulting in tremors, hallucinations, and seizures
Signs and Symptoms: Alcohol Withdrawal

- Confusion and restlessness
- Unusual behavior, demonstrating “insane” behavior
- Hallucinations, gross tremor of hands, profuse sweating
- Seizures
Patient Care: Alcohol Abuse

- Vomiting common; standard precautions are essential
- Keep suction ready
- Stay alert for airway and respiratory problems
- Monitor vital signs
- Gather history from patient, bystanders
- Stay alert for seizures
Substance Abuse

- Any chemical substance taken for other than therapeutic (medical) reasons
- Includes illicit drugs, prescription medications, industrial chemicals
Uppers

- Stimulants that affect the nervous system
- Cocaine
- Amphetamines
- May be snorted, smoked, or injected
Downers

- Central nervous system depressants
- Barbiturates
- Rohypnol (Roofies)
- GHB
Narcotics

- Used to relieve pain or help with sleep
- Opiates
  - Heroin, codeine, morphine
- Oxycodone
Hallucinogens

• Create intense state of excitement and distorted perception
• LSD, PCP, XTC
Volatile Chemicals

• Produce vapors that are inhaled
• Initial “rush,” then can act as central nervous system depressant
Assessment: Substance Abuse

• May be difficult
  – Patient’s level of consciousness
  – Patient may have taken more than one type of drug
• Patient may be uncooperative or combative
• Be aware of a possibility of contaminated needles and the presence of chemicals
Signs and Symptoms: Downers

- Sluggishness, poor coordination
- Decreased pulse and respirations
Signs and Symptoms: Uppers

- Excitement, restlessness
- Increased pulse and respirations
- Sweating
- Hyperthermia
- No sleep for a long time, possibly days
Signs and Symptoms: Narcotics

- Lethargy (patient very sleepy)
- Pinpoint pupils
- Cool skin
- Respiratory depression
- Coma
Signs and Symptoms: Hallucinogens

- Rapid pulse
- Dilated pupils
- Flushed face
- Seeing or hearing things
Signs and Symptoms: Volatile Chemicals

- Dazed/disoriented
- Swollen membranes in nose or mouth
- Numbness or tingling sensation inside head
- Changes in heart rhythm
- May be residue of chemical on face or in bag
Treatment: Substance Abuse

- Be aware of possible airway problems and respiratory distress
- Provide oxygen and assist respirations as needed
- Treat for shock
- Talk to patient to keep them calm and cooperative

continued
Treatment: Substance Abuse

- Perform physical exam
- Look for evidence of injection sites ("track marks")

continued
Treatment: Substance Abuse

- Transport as soon as possible
- Consult with medical control on further treatment
- Follow local protocol concerning consideration for restraint
Click here to view a video on the subject of cocaine dependency.
Chapter Review
• Perform primary assessment and immediately treat life-threatening problems. Ensure an open airway. Administer high-concentration oxygen if the poison was inhaled or injected.
Chapter Review

- Perform a history and physical exam, including baseline vital signs. Find out if the poison was ingested, inhaled, absorbed, or injected; what substance was involved; how much poison was taken in, when, and over how long a period; what interventions others have already done; and what effects the patient experienced.

continued
Chapter Review

• Consult medical direction. As directed, administer activated charcoal, water, or milk for ingested poisons.

• Remove patient who has inhaled poison from the environment and administer high-concentration oxygen; remove poisons from skin by brushing off or diluting.

continued
Chapter Review

- Transport patient with all containers, bottles, and labels from substance.
- Reassess patient en route.
- Carefully document all information about poisoning, interventions, and patient’s responses.
Remember

• Safety is always the first concern when dealing with a poisoning or substance-abuse patient.

• Poisonings are generally classified by route of exposure. Effects vary greatly, depending upon type of poison and method of entrance into body.
Remember

• EMTs must use thorough assessment, including scene clues, to help identify the nature and severity of poisoning.
• Poison control centers offer a wealth of resources to assist in assessment and treatment of poisoning patient.

continued
Remember

- Alcohol is a common underlying issue with patients. In some patients it may be the most significant problem.
- The effects of substance abuse can vary greatly, based on the type of substance. Determining the type of drug ingested can shed light on effects to come.
Questions to Consider

• What are potential risks to the responder on a poisoning or overdose call?
• What are the routes of entry into the body?
• What are some things EMS can do to prevent poisonings, especially in children?
Critical Thinking

- A farmer calls 911 because one of his farm hands has tried to clean up spilled pesticide powder with his hands. On arrival, you find that the patient insists he has brushed all the powder off, feels fine, and doesn’t need to go to the hospital.
Critical Thinking

• As he talks, he continues to make brushing motions at his jeans on which you can see the marks of a powdery residue. How do you manage the situation?
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