Chapter 28

The Child with a Gastrointestinal Condition

Objectives

- Define each key term listed.
- Discuss three common gastrointestinal anomalies in infants.
- Discuss the postoperative nursing care of an infant with pyloric stenosis.
- Discuss the dietary management of celiac disease.
- Understand the symptoms, treatment, and nursing care of a child with Hirschsprung’s disease.

Objectives (cont.)

- Understand the treatment and nursing care of a child with intussusception.
- Interpret the nursing management of an infant with gastroesophageal reflux.
- Differentiate among three types of dehydration.
- Explain why infants and young children become dehydrated more easily than adults.
- Understand how nutritional deficiencies influence growth and development.

Objectives (cont.)

- Review the prevention of the spread of thrush in infants and children.
- Trace the route of the pinworm cycle and describe how reinfection takes place.
- Prepare a teaching plan for the prevention of poisoning in children.
- List two measures to reduce acetaminophen poisoning in children.
- Indicate the primary source of lead poisoning.
Overview of the Gastrointestinal (GI) Tract

- Transports and metabolizes nutrients necessary for the life of the cell
- Extends from mouth to anus
- Nutrients are broken down into absorbable products by enzymes from various digestive organs

GI System Differences Between Children and Adults

Laboratory and Diagnostic Studies

- Clinical laboratory
  - CBC with differential: anemia, infections, chronic illness
  - Erythrocyte sedimentation rate (ESR) is indicative of inflammation
  - Comprehensive chemistry panel will reveal electrolyte and chemical imbalances
  - Liver function test (LFT)
  - Stool cultures

- X-ray studies
  - GI series, barium enema, flat plates of the abdomen

- Endoscopy allows direct visualization and biopsy of the GI tract
- Upper—esophagus, stomach, duodenum, bile and pancreatic ducts
- Can remove foreign objects and cauterize bleeding vessels
- Lower colon—sigmoidoscopy
- Entire colon—colonoscopy

Symptoms of GI Disorders

- Systemic signs
  - Failure to thrive (FTT)—failure to develop according to established growth parameters
  - Pruritus (itching) in the absence of allergy may indicate liver dysfunction
• Local signs
  — Pain
  — Vomiting
  — Diarrhea
  — Constipation
  — Rectal bleeding
  — Hematemesis

• Nursing Interventions
  • Focuses on providing adequate nutrition and preventing infection
    — Can result from malnutrition or depressed immune function
  • Developmental delays should be investigated
  • Skin problems may be related to pruritus, irritation from frequent bowel movements, or other disorders
  • Pain and discomfort need to be addressed

• Congenital Disorders
  • Esophageal Atresia (Tracheoesophageal Fistula [TEF])
  • TEF is caused by a failure of the tissues of the GI tract to separate properly in prenatal life
  • Four types
    — Upper and lower esophagus (from the stomach) end in a blind pouch
    — Upper esophagus ends in a blind pouch; lower esophagus (from stomach) connects to the trachea
    — Upper esophagus is attached to trachea; lower esophagus (from stomach) also attached to trachea
Upper esophagus connects to trachea; lower esophagus (from stomach) ends in a blind pouch

- Three Most Common Forms of TEF
- Manifestations of TEF
  - Earliest sign is when mother develops polyhydramnios
    - If it ends in blind pouch, fetus cannot swallow amniotic fluid and it will accumulate
    - At birth, the infant will vomit and choke when the first feeding is introduced
    - Drooling may also be present at birth and is related to atresia
  - If upper esophagus enters trachea, the first feeding will enter the trachea and result in coughing, choking, cyanosis, and apnea
  - If lower end of esophagus enters trachea, air will enter stomach each time infant breathes, causing abdominal distention
- Nursing Care of TEF
  - Prevent pneumonia, choking, and apnea in the newborn
    - Assessment of the newborn during the first feeding for signs/symptoms of TEF is essential
    - Feeding usually is with clear water or colostrum to minimize seriousness of aspiration
- Surgical repair is essential for survival
- Imperforate Anus
  - Lower GI and anus arise from two different types of tissue during fetal development
  - Once the two meet, perforation occurs allowing for a passageway
  - When perforation does not take place, the lower end of the GI tract and anus end in a blind pouch
  - Four types ranging from stenosis to complete separation or failure of the anus to form
- Imperforate Anus (cont.)
• **Manifestations**
  
  — Failure to pass meconium in the first 24 hours must be reported
  
  — Infant should not be discharged home until a meconium stool has passed

• **Treatment**
  
  — Once established, infant is NPO and prepared for surgery
  
  — Initial surgical procedure may be a colostomy
  
  — Subsequent surgeries will reestablish patency of anal canal

• **Pyloric Stenosis**

  • Obstruction of the lower end of the stomach caused by overgrowth of the circular muscles of the pylorus or spasms of the sphincter

  • Commonly classified as a congenital anomaly

  • Symptoms usually do not appear until the infant is 2 or 3 weeks old

    — Most common surgical condition of GI tract in infancy

  • Incidence is higher in boys

• **Manifestations of Pyloric Stenosis**

  • Projectile vomiting is outstanding symptom from force or pressure being exerted on the pylorus

    — Vomitus contains mucus and ingested milk

    — Infant is constantly hungry and will eat again immediately after vomiting

  • Dehydration and olive-shaped mass may be felt in upper right quadrant of abdomen

• **Treatment of Pyloric Stenosis**

  • Surgery is called pyloromyotomy
• **Preoperative nursing care**
  — Intravenous fluids to treat or prevent dehydration
  — Thickened feedings may be given by a teaspoon or through a nipple with a large hole
  — Burped before and during feedings to remove any gas accumulated in the stomach
  — Place on right side (preferably Fowler’s position) after feeding to facilitate stomach drainage into the intestines
  — If infant vomits, nurse is instructed to refeed the infant

• **Postoperative nursing care**
  — Monitor intravenous fluids, provide feedings as prescribed by surgeon, document intake and output, monitor surgical site

• **Celiac Disease**
• Also known as *gluten enteropathy* and *sprue*
• Leading malabsorption problem in children
  — Thought to be caused by inherited disposition with environmental triggers
• Symptoms not evident until 6 months to 2 years of age when foods containing gluten are introduced
  — Wheat, barley, oats, and rye

• **Celiac Disease** *(cont.)*
• Repeated exposure to gluten damage the villi of intestines resulting in malabsorption
• Characteristic profile is abdominal distention with atrophy of the buttocks

• **Celiac Disease** *(cont.)*
• Infant presents with failure to thrive
• Infant is irritable
• Stools are large, bulky, and frothy
• Diagnosis confirmed by serum immunoglobulin A (IgA) and small bowel biopsy
Treatment

- Lifelong diet restricted in wheat, barley, oats, and rye
- Detailed parent teaching is essential
  - A professional nutritionist or dietitian can aid in identifying foods that are gluten-free

Hirschsprung’s Disease
(Aganglionic Megacolon)

- Absence of ganglionic innervation to the muscle of a segment of bowel
  - Usually in lower portion of sigmoid colon
- Lack of normal peristalsis, results in constipation
- Stools are ribbonlike due to feces passing through the narrow segment of colon
  - Portion of bowel nearest obstruction dilates, causing abdominal distention
  - Seen more often in boys and in children with Down syndrome
- May be acute or chronic

Hirschsprung’s Disease
(Aganglionic Megacolon) (cont.)

- Newborns: failure to pass meconium stools within 24 to 48 hours may be a symptom
- Infants: constipation, ribbonlike stools, abdominal distention, anorexia, vomiting, and failure to thrive
- Young children: usually seen in clinic after parents have tried over-the-counter laxatives to treat the constipation

Hirschsprung’s Disease
(Aganglionic Megacolon) (cont.)

- If untreated, other signs of intestinal obstruction and shock may be seen
- Enterocolitis (inflammation of the small bowel and colon) is a serious condition
  - Fever, explosive stools, and depletion of strength
• Diagnostics
  — Barium enema
  — Rectal biopsy
  — Anorectal manometry
    • Measures pressure in anal sphincter

• Hirschsprung’s Disease
  (Aganglionic Megacolon) (cont.)

• Treatment
  — Surgery to remove impaired part of colon and an anastomosis of intestine is performed
  — In newborns, a colostomy may be needed until 12 to 18 months of age, when more extensive repair may be performed

• Nursing Care
  — Dependent upon age of child
  — In newborns, detection is high-priority
  — As child grows, careful attention to a history of constipation and diarrhea is important
  — Signs of undernutrition, abdominal distention, and poor feedings are suspect

• Hirschsprung’s Disease
  (Aganglionic Megacolon) (cont.)

• Enemas
  — Due to increased size of mucous membranes’ surface area, an increased absorption of the fluid can be anticipated
    • Therefore, normal saline solution should be used to prevent water intoxication and death
  — Parents should check with the pediatrician to see how much saline should be administered with each enema
• Intussusception
  • A slipping of one part of the intestine into another part just below it
    — Often seen at the ileocecal valve
    — The mesentery, a double fan-shaped fold of peritoneum that covers most of intestine and is filled with blood vessels and nerves, is also pulled along
  • Edema occurs
  • At first, intestinal obstruction occurs, but then strangulation of the bowel occurs as peristalsis occurs
  • Affected portion may burst, leading to peritonitis
• Intussusception (cont.)
  • Generally occurs in boys between 3 months and 6 years
    — Frequency decreases after age 36 months
  • Can have spontaneous reduction
  • Onset is usually sudden
    — May have a fever as high as 106°F (41.1°C)
    — As it progresses, child may show signs of shock, sweating, weak pulse, shallow, grunting respirations; abdomen is rigid
  • In infants, severe pain in abdomen, loud cries, straining efforts, and kicking and drawing of legs toward abdomen
  • Child vomits green or greenish-yellow fluid (bilious)
  • Bowel movements diminish, little flatus is passed
  • Blood and mucus with no feces are common about 12 hours after onset of obstruction, called currant jelly stools
• Treatment of Intussusception
  • This condition is an emergency
  • Diagnosis is determined by history and physical findings
  • May feel a sausage-shaped mass in right upper abdomen
  • Barium enema is treatment of choice, with surgery if reduction does not occur
• Meckel’s Diverticulum

• Usually occurs near ileocecal valve and may be connected to umbilicus by a cord
  — A fistula may also form
  — This sac is subject to inflammation

• Most common congenital malformation of the GI tract
  — Seen more often in boys

• Meckel’s Diverticulum (cont.)

• Symptoms can occur at any age, but typically appear by 2 years of age
  — Painless bleeding from rectum
  — Bright-red or dark-red blood is more usual than tarry stools
  — Abdominal pain may or may not be present

• Diagnostics
  — Barium enema or radionuclide scintigraphy are used in diagnosing
  — X-ray films are not helpful

• Treatment
  — Surgical removal of the diverticulum

• Nursing care is same for any patient having undergone abdominal surgery

• Hernias

• Inguinal
  — Protrusion of part of the abdominal contents through the inguinal canal in the groin

• Umbilical
  — Protrusion of a portion of the intestine through the umbilical ring
  — Appears as a soft swelling covered by skin, which protrudes when infant cries or strains

• Hernias (cont.)
• May be present at birth (congenital) or acquired
• Is reducible if it can be put back into place by gentle pressure
• If it cannot be put back, it is irreducible or incarcerated
• Strangulated hernia is when intestine becomes caught in the passage and the blood supply is diminished
• Child may vomit and have severe abdominal pain
• Emergent surgery is indicated in this type of situation
• In most cases, same-day surgery is performed

• Disorders of Motility

• Gastroenteritis
• Involves inflammation of the stomach and intestines
• Colitis involves an inflammation of the colon
• Enterocolitis involves an inflammation of the colon and small intestines

• Most common noninfectious causes of diarrhea
  — Food intolerance
  — Overfeeding
  — Improper formula preparation
  — Ingestion of high amounts of sorbitol

• Priority problem in diarrhea is fluid and electrolyte imbalance and failure to thrive

• Gastroenteritis (cont.)
• Treatment is focused on identifying and eradicating cause
• Priority goal of care is restoring fluid and electrolyte balance

• Accurate intake and output, weighing of diapers, observing for dehydration or overhydration, and keeping infant/child warm
• Review with parents proper hand hygiene techniques, safe food handling and storage, principles of cleanliness, and infection prevention

• Clarifying Food Labels

• Children may have food allergies, so teach parents the following

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>What it may contain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder</td>
<td>Egg</td>
</tr>
<tr>
<td>Bulking agent</td>
<td>Soy</td>
</tr>
<tr>
<td>Casein</td>
<td>Cow’s milk</td>
</tr>
<tr>
<td>Coagulant</td>
<td>Egg</td>
</tr>
<tr>
<td>Emulsifier</td>
<td>Egg</td>
</tr>
<tr>
<td>Protein extender</td>
<td>Soy</td>
</tr>
</tbody>
</table>

• Vomiting

• Results from sudden contractions of diaphragm and muscles of the stomach

• Persistent vomiting requires investigation because it results in dehydration and electrolyte imbalance
  — Continuous loss of hydrochloric acid and sodium chloride from the stomach can cause alkalosis
  — Can result in death if left untreated

• Multiple causes of vomiting
  — Improper feeding technique
  — Systemic illness such as increased intracranial pressure or infection
  — Child at risk for aspiration pneumonia

• Vomiting (cont.)

• Nursing care
  — Carefully feed and burp infant
  — Place infant on side after feeding to prevent aspiration if vomiting occurs
  — When an older child vomits, turn head to one side and offer emesis basin
  — IV fluids may be ordered
  — Slowly introduce foods to allow stomach to rest

• Documentation
— Time, amount, color, consistency, force, frequency, and whether vomiting was preceded by nausea or feedings
— Administration of antiemetic agents should also be documented, including time given and if/when vomiting subsided

• Gastroesophageal Reflux
• Lower esophageal sphincter is relaxed or not competent, allowing stomach contents to regurgitate into esophagus
  — Associated with neuromuscular delay, such as Down syndrome or cerebral palsy
• Often seen in preterm infants
• Symptoms often decrease once child is able to stand upright and eats more solid foods
• Symptoms
  — Vomiting
  — Weight loss
  — Failure to thrive
  — Infant is fussy and hungry
  — Respiratory problems can occur when vomiting stimulates closure of epiglottis and infant presents with apnea

• Gastroesophageal Reflux (cont.)
• History includes
  — When vomiting started
  — Type of formula
  — Type of vomiting
  — Feeding techniques
  — Infant’s eating in general
• Tests include
  — Barium swallow
  — Esophageal sphincter pressure
  — pH monitoring—most diagnostic
• Nursing care
— Careful burping
— Prevent overfeeding
— Proper positioning
— Feedings are thickened with cereal

• After being fed, infant is placed in an upright position or propped
  — Sitting upright in an infant seat is not recommended as it increases intra-abdominal pressure

• Administer medications to relax pyloric sphincter before meals

• Diarrhea

• Diarrhea in infant is a sudden increase in stools from the infant’s normal pattern, with a fluid consistency and a color that is green or contains mucus or blood
  — Acute sudden diarrhea most often caused by inflammation, infection, or a response to medications, food, or poisoning
  — Chronic diarrhea lasts more than 2 weeks and may indicate malabsorption problem, long-term inflammatory disease, or allergic responses
  — Infectious diarrhea caused by viral, bacterial, or parasitic infection, usually involves gastroenteritis

• Symptoms of Diarrhea

• Stools watery and explosive; may be yellowish-green

• Listlessness, refusal to eat, weight loss, temperature may be elevated, possible vomiting

• Dehydration evidenced by sunken eyes and fontanel; dry skin, tongue, and mucous membranes; less frequent urination

• In severe cases, excessive loss of bicarbonate from GI tract results in acidosis

• Constipation

• Difficult or infrequent defecation with the passage of hard, dry fecal material
  — May be periods of diarrhea or encopresis (constipation with fecal soiling)

• May be a symptom of other disorders
• Diet, culture, and social, psychological, and familial patterns may also influence occurrence

• Daily use of laxatives or enemas should be discouraged

• Constipation (cont.)
• Fewer than 7 bowel movements in a 2-week period
• Ask caregiver to define constipation
• Evaluate dietary and bowel habits
  — Some infants develop constipation due to high iron content in formula
• Note frequency, color, and consistency of stool
• Document any medications child is taking
• Dietary modifications include increasing roughage in diet
  — Foods high in fiber include whole-grain breads and cereals, raw vegetables and fruits, bran, and popcorn for older children
• Stool softener may be prescribed

• Fluid and Electrolyte Imbalance

• Fluid and Electrolyte Imbalance (cont.)
• In children under 2 years of age, surface area is important because more water is lost through the skin than through the kidneys
• Metabolic rate and heat production are also 2 to 3 times greater in infants per kg of body weight
  — Produces more waste products, which must be diluted to be excreted
  — Stimulates respirations, which increase evaporation through the lungs
  — Greater percentage of body water in children under 2 years is contained in extracellular compartment

• Fluid and Electrolyte Imbalance (cont.)

  Fluid turnover is rapid, and dehydration occurs more quickly in infants than in adults
- A sick infant does not adapt as readily to shift in intake and output
- Less able to concentrate urine and require more water than an adult’s kidneys to excrete a given amount of solute
- Fluid and Electrolyte Imbalance (cont.)
  - Electrolyte balance depends on fluid balance and cardiovascular, renal, adrenal, pituitary, parathyroid, and pulmonary regulatory mechanisms
  - Signs of dehydration may not be evident until the fluid loss reaches 4%, and severe dehydration may not be evident until the fluid loss reaches 10%
- Can treat with oral fluids or parenteral fluids
- Dehydration
  - Causes fluid and electrolyte disturbances
  - Evaluation of type and severity, including clinical observation and chemical analysis of the blood
  - Types of dehydration are classified according to level of serum sodium, which depends on the relative losses of water and electrolytes
    - Isotonic
    - Hypotonic
    - Hypertonic
- Dehydration (cont.)
  - *Maintenance fluid therapy* replaces normal water and electrolyte losses
  - Deficit therapy restores preexisting body fluid and electrolyte deficiencies
    - Shock is greatest threat to life in isotonic dehydration
    - Children with hypotonic dehydration are at risk for water intoxication
- Potassium is lost in almost all degrees of dehydration and is replaced only after normal urinary excretion is confirmed
• Overhydration
  • The body receives more fluid than it can excrete
  • Manifests as edema (excess fluid in interstitial spaces)
    — Interstitial fluid is similar to plasma, but contains little protein
    — Any factor causing sodium retention can cause edema
  • Flow of blood out of the interstitial compartments depends on adequate circulation of blood and lymph
  • Low protein levels disturb osmotic cellular pressure
  • Anasarca is severe generalized edema
• Overhydration (cont.)
• Treatment
  — IV therapy is ordered and child is monitored
  — Is dependent upon type of electrolyte imbalance child has
    — If child has a hypertonic type of dehydration, tomato juice should not be offered
    — If child has a hypotonic type of dehydration, plain water should not be offered
• Nursing care
  — Early detection and management of edema are essential
  — Accurate daily weight, vital signs, observing physical appearance, and noting changes in urine output
  — Important for nurse to monitor clinical laboratory results and adjust fluids and foods offered to the child
• Nutritional Deficiencies
• Failure to Thrive
• Failure to gain weight and often lose weight
• Can be caused by
— Physical (organic) pathology (OFTT), such as congenital heart or malabsorption syndrome

— Non-organic (NFTT) is from the lack of parent-infant interaction resulting from environmental factors or neglect

• Failure to Thrive (cont.)
• Often admitted to hospital
• Presents with weight loss, irritability, disturbances of food intake, vomiting, diarrhea, and general neuromuscular spasticity sometimes accompany the condition
• Children fall below the third percentile in weight and height on standard growth charts
• Development is delayed
• Due to multiple factors, there may be a disturbance in the mother-child relationship
• Prevention of environmental FTT consists chiefly of social measures
• Pregnancy history sometimes reveals circumstances that may contribute to a lack of mother-infant bonding

• Failure to Thrive (cont.)
• Multidisciplinary approach in accordance with circumstances
• In some cases, child is removed from home environment and placed elsewhere
• Assigning the same nursing staff to care for the child may increase nurturing and interaction with the infant and parent

• Failure to Thrive (cont.)
• Nurse is vital in supporting rather than in rejecting the mother
  — Encourages mother to assist with daily care of child
  — Points out developmental patterns and provides anticipatory guidance in this area

• Prognosis is uncertain
  — Emotional starvation, particularly in the early years, can be psychologically traumatic
  — Inadequacies in intelligence, language, and social behavior have been documented in children who fail to thrive
● Kwashiorkor

● Severe deficiency of protein in the diet despite the fact that the number of calories consumed may be nearly adequate

● Belongs to a class of disorders termed protein-energy malnutrition

● Seen most often in third-world countries

● Kwashiorkor (cont.)

● Occurs in children 1 to 4 years of age who have been weaned from the breast
  — Oral intake is deficient in protein
  — Child fails to grow normally
  — Muscles become weak and wasted
  — Edema of abdomen
  — Diarrhea, skin infections, irritability, anorexia, and vomiting may be present
  — Hair thins and is dry and may contain a white streak
  — Child looks apathetic and weak

● Kwashiorkor (cont.)

● Treatment is mainly preventive

● Simple protein powder sprinkled on the culturally prepared meal will alleviate the problem

● Rickets

● Caused by deficient amounts of vitamin D
  — Exposure to sunshine is necessary for proper absorption and metabolism of calcium and phosphorus

● Classic symptoms are bow-legs; knock-knees; beading of the ribs, called rachitic rosary; and, improper formation of teeth
  — Vitamin supplements along with exercise and exposure to outdoor sunlight is primary form of treatment
• Scurvy

• Caused by insufficient fruits and vegetables that contain vitamin C

• Symptoms include joint pain, bleeding gums, loose teeth, lack of energy

• Vitamin C
  — Easily destroyed by heat and exposure to air
  — Not stored in the body and daily intake of the vitamin is necessary

• Vitamin supplements and dietary intake such as citrus fruits and raw leafy vegetables

• Infections

• Appendicitis

• Most common reason for emergency abdominal surgery
  — Small appendage arising from the cecum
  — Lumen may become obstructed with fecal matter or with lymphoid tissue after a viral illness or with parasites
  — Stasis, increased swelling, edema, and growth of organisms

• Initial pain usually in periumbilical and increases within a 4-hour period

• When inflammation spreads to peritoneum, pain localizes in RLQ of abdomen

• Appendix may become gangrenous or rupture

• Can lead to peritonitis and septicemia

• Appendicitis *(cont.)*

• Characteristic symptoms
  — Tenderness in RLQ, known as McBurney's point
  — Guarding
  — Rebound tenderness
- Pain on lifting thigh while in supine position
- Pain in RLQ

- Diagnostics can include
  - Blood tests
  - Abdominal X-ray
  - CT scan
  - Ultrasound

- Treatment
  - Surgical intervention typically required

- Nursing care is the same as with most other abdominal surgery patients

- Thrush (Oral Candidiasis)
  - Usually caused by a fungus, Candida
  - Anorexia may be present
  - Systemic symptoms are generally mild if infection remains in the mouth; can pass into GI tract causing inflammation of the esophagus and stomach
  - Responds well to local application of antifungal suspension, such as nystatin
    - Medication should remain in contact with “patches” as long as possible
  - With proper care, the condition disappears within a few days after onset

- Worms
  - Pinworms (Enterobiasis)
    - Looks like a white thread; lives in lower intestine but lays eggs outside anus
    - Eggs become infective within hours of being deposited
    - Route of entry into the body is through the mouth
    - “Scotch tape” test

- Antihelminth medications are given for both types of worm infestations
• Roundworms (Ascariasis)
  — Seen more in U.S. southern states and among immigrants and migratory workers
  — Caused by unsanitary disposal of human feces and poor hygiene
  — Eggs can survive for weeks in soil
  — If child eats soil, eggs develop into larvae in intestine, penetrate intestinal wall and enter liver; from there, the worms circulate to the lungs and heart
  — Chronic cough without fever is characteristic of this form of infestation

• Patient Teaching
  Main nursing responsibility is educating parents and child about the prevention of worm infestation through general hygiene, food handling and preparation, as well as through environmental controls

• Poisoning
  • Goals of treatment
    — Remove the poison
    — Prevent further absorption
    — Call the poison control center
    — Provide supportive care—seek medical help

• Detecting the Poison by Specific Odor of Vomitus

<table>
<thead>
<tr>
<th>Odor of Vomitus</th>
<th>Probable Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet</td>
<td>Chloroform, acetone</td>
</tr>
<tr>
<td>Bitter almond</td>
<td>Cyanide</td>
</tr>
<tr>
<td>Pear</td>
<td>Chloral hydrate</td>
</tr>
<tr>
<td>Garlic</td>
<td>Phosphorus, arsenic</td>
</tr>
<tr>
<td>Shoe polish</td>
<td>Nitrobenzene</td>
</tr>
<tr>
<td>Violet</td>
<td>Turpentine</td>
</tr>
</tbody>
</table>

• Poisoning (cont.)

• General concepts
  — Volume of swallow
Principles of care—education

Poison control centers—nationwide phone number is 1-800-222-1222

Ipecac syrup—no longer recommended

Activated charcoal—given for some substances

Charcoal or any gastric lavage is not effective if administered after 1 hour post-ingestion

• Poisonous Plants

• Selected OTC Drugs that Are Deadly to Toddlers

• Safety Alert

• Many over-the-counter medications are considered harmless by parents but can be deadly to the toddler or small child

• Keep all medications (prescription or otherwise), including herbal supplements, out of reach of small children

• Poisons Commonly Encountered in Pediatrics

• Acids

• Alkalines

• Medications

• Cyanide

• Ethanol

• Petroleum distillates

• Carbon monoxide

• Lead
- Arthropods, insect stings
- Snakes
- Poisonous plants
- Lead Poisoning (Plumbism)
  - Results when a child repeatedly ingests or absorbs substances containing lead
  - Incidence higher in inner-city tenements
  - Children who chew on window sills and stair rails ingest flakes of paint, putty, or crumbled plaster
  - Eating nonfood items is called pica
  - Can have a lasting effect on the CNS, especially the brain
  - Mental retardation occurs in severe cases of lead poisoning
- Lead Poisoning (Plumbism) (cont.)
  - Symptoms occur gradually
    - Lead settles in soft tissues and bones
    - Is excreted in urine
  - Beginning stages, signs may be weakness, weight loss, anorexia, pallor, irritability, vomiting, abdominal pain, and constipation
  - Later stages, signs may be anemia and nervous system involvement
- Lead Poisoning (Plumbism) (cont.)
  - Lead is toxic to the synthesis of heme in the blood, which is necessary for hemoglobin formation and renal tubule functioning
  - Blood lead levels are primary screening test
  - X-ray films of bones may show further lead deposits
• History may reveal pica
• Treatment is aimed at reducing concentration of lead in blood
  — Chelating agents may be taken for several months
• Prognosis depends on extent of poisoning

Foreign Bodies
• 80% of all ingestions occur in children between 6 months and 3 years of age
  — About 80% of items ingested pass through the GI tract without difficulty
  — May take up to 6 days to occur
• Caution parents not to use laxatives and to maintain a normal diet to avoid intestinal spasms

Review Question
• What should the nurse monitor before administering intravenous fluid to a child who is dehydrated?

Review
• Objectives
• Key Terms
• Key Points
• Online Resources
• Review Questions