Digestive needs
Physiologic Integrity and Therapeutic Nursing Interventions for the Patients with Digestive Needs
Nsg 4037
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A & P review GI tract
• The nutritional (gastrointestinal) system

Structure of GI Tract
• Four distinct layers
  – Mucosa-innermost layer
  – Submucosa- contains glands, blood vessels, and lymph nodes
  – Muscular layer- smooth muscle-circular or longitudinal
  – Connective tissue serosa layer- uppermost

Structure of GI tract
• Esophagus
  – Upper third has striated (voluntary) muscle
  – Middle third has both types of muscle
  – Lower third has only smooth muscle

Structure of GI tract
• Esophageal sphincters
  – Upper- prevents entry of tracheal air
  – Lower- prevents reflux of gastric contents (aspiration)
**GERD**

**Structure of GI tract**

- Stomach
  - Fundus
  - Body
  - Antrum
- Gastric contents empty from the antrum through the pylorus into the duodenum.

**Structure of GI tract**

- Small intestine
  - Duodenum-25cm
  - Jejunum- 2.5m
  - Ileum- 3.6m

**Structure of GI tract**

- Large intestine
  - 1.5 meter in length
  - Cecum- pouch where s. and l. intestine join
  - Ascending
  - Transverse
  - Descending
  - Sigmoid colon
  - Rectum

**Structure of GI tract**

- GI blood supply
  - Arterial blood enters thru branches of major arteries
  - Venous drainage, is through the hepatic portal vein.
**Structure of GI tract**

- Neural regulation
  - Enteric nervous system-regulates motility and secretion along the entire GI tract
  - Sympathetic- inhibit activity in enteric plexuses
    - Constrict GI system blood vessels,
    - Decrease glandular secretions
    - Decreased GI motility

- Parasympathetic- vagus nerve is primary nerve supply to the GI tract
  - Stimulate motor activity
  - Stimulate secretory activity
  - Stimulate endocrine secretions

**Function of GI tract**

- Motility
- Secretion
- Digestion
- Absorption

- Swallowing- three phases
  - Oral (voluntary) phase
  - Pharyngeal (involuntary) phase
  - Esophageal (involuntary) phase

- Smooth muscle- pacemakers set slow-wave contractions
  - Nerves and hormones alter this rate and therefore, GI motility
  - Peristalsis- organized wave of contraction of the longitudinal muscle layer
**Function of GI tract**

• Stomach
  – Occur after feeding at a rate of three per minute
  – Antrum has strong contractions that fragment food into smaller particles and mix the food with gastric secretions to initiate digestion.

• Gastroduodenal junction
  – Pylorus and terminal end of antrum contract simultaneously
  – The rate of gastric emptying must match the duodenal buffering ability or acid may damage duodenal mucosa

• Small intestine
  – Peristalsis moves chyme normally 10cm per contraction.
  – Chyme takes 2-4 hours to move 6 meters

• Large intestine
  – Takes 1-3 days to complete its passage through the LI
  – Sodium and water absorbed
  – Bacteria consume more nutrients and release some vitamins (K)
Function of GI tract

• Vomiting
  9 things occur during the vomiting process.

Functions of GI tract

• Secretions
  – Aid in absorption by helping digest foods to absorbable components
  Types
  lubricants
  ions
  absorption facilitators
  bile

Functions of GI tract

• Digestion and absorption
  – Carbohydrates- D & A occurs primarily in duodenum and jejunum.
  – Protein- stomach and small intestine for digestion, abs. in the duodenum and jejunum
  – Lipids- duodenum lipids emulsified by bile acids and digested to form micelles with bile acids. The micelles are absorbed at the intestinal brush border.

Functions of GI tract

• Villi are the functional unit for absorption. 90% of absorption occurs in the small intestine through active transport

Functions of GI tract

• Water and electrolytes- 99% of ingested water is absorbed.
  – Greatest in the jejunum and least in the colon.
  • Due to tight epithelial junctions in the colon
**GI assessment**

- Screening of nutritional health
  - Ask about dietary intake
  - 24 hour recall
  - Ask for a 1-3 day food diary

**GI assessment**

- Malnutrition
  - Primary- occurs when adequate nutrition is not delivered to the upper GI tract over an extended period of time.
  - Secondary- occurs when the upper GI tract fails to absorb, metabolize or use nutrients

**GI assessment**

- Chronic pancreatitis
- Short-bowel syndrome
- Pressure ulcers
- Cancer
- AIDS
- Prior gastric surgery

**History**

- Biographical data-
  - Age
  - Gender
  - Religious affiliation
  - Marital status

**History**

- Chief complaint
  - Nausea, vomiting
  - Indigestion
  - Abdominal pain
  - Diarrhea
  - Weight changes, appetite

**History**

- Symptom analysis
  - When does N or V occur? How long does it last? Relation to food intake
  - Indigestion- “burping” or burning, relation to food intake, type of foods
  - Abdominal pain- rapid or gradual in onset, intensity, radiate?, duration, worsen or improve with movement,
History

- Abdominal pain
  - Bowel obstruction- intermittent, colicky pain
  - Bowel sounds may progress from high pitch to absent
  - Peritoneal inflammation- steady, aching pain directly over area of inflammation. Pain increases with motion
  - Vascular catastrophe (AAA or infarction)- may be preceded by 2-3 days of mild-mod. pain followed by severe abdominal pain and manifestations of shock. Back and flank pain are common with aortic aneurysms.

- Diarrhea- how many stools? How much? Stools liquid or solid? What color? pain with defecation?
- Appetite and weight change- describe appetite, and change, change in taste, smell, activity level, mood states? Weight gain, loss intentional.

Past health history

- Major illnesses and hospitalizations
- Medications
- Allergies

Family health history

- Genetics and family environment play a role in the development of some GI disorders
  - Ulcerative colitis
  - Crohn’s disease
  - Alcoholism
  - Liver disease
  - Cancer
  - Peptic ulcer disease
  - Irritable bowel disease

Psychosocial history

- Occupation
- Diet

Review of systems

- Assess condition of mouth
- Dental habits
- Dentures
- Swallowing
Physical examination

- Height and weight
- Body mass index
- Frame size
- Circumferential measurements

Physical examination

- Mouth
  - Inspection and palpation
  - Symmetry, color, hydration, lesions, nodules.
  - Teeth for malocclusion or missing teeth
  - Check for loose teeth, masses, swelling, tenderness

Physical examination

- Abdomen
  - Ask client to void first
  - Supine position
  - Small pillow under knees

Physical examination

- Inspection
  - Skin, contour, hair distribution
  - Notice scars, striae, petechia, rashes
  - At eye level, look for peristalsis movements or pulsations

Physical examination

- Auscultation
  - Beginning in RLQ
  - Clockwise to each quadrant
  - Frequency and character
  - Vascular sounds

Palpation

- Non-tender areas first
- Light palpation
- Masses and areas of tenderness
- Guarding, rigidity
- Deep palpation
**Diagnostic tests**
- Laboratory tests
- Radiography
- Ultrasonography
- Endoscopy
- Exfoliative cytologic analysis
- Gastric analysis

**Management of clients with malnutrition**
- Protein-energy malnutrition
  - Need is not supplied through dietary intake
- Syndromes
  - Kwashiorkor-chronic protein deficiency
  - Marasmus- prolonged caloric deficiency

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**Malnutrition**
- Primary protein-energy malnutrition (PEM)
  - Poor food intake
    - Developing nations, following war or natural disasters,
    - 800 million people worldwide are undernourished
    - Infants, pregnant/lactating females, and older adults are at the greatest risk

- Secondary PEM- causes
  - Decreased food intake
  - Decreased nutrient absorption
  - Increased nutrient losses
  - Increased nutrient requirements

- Etiology and risk factors
  - Socioeconomic
  - Physiologic changes
  - Medical therapies
Malnutrition

• Pathophysiology
  – Total supply of nutrients is less than the body’s requirement
  – Unintentional weight loss of 5% in 1 month or 10% in 6 months

• Clinical manifestations
  – Hair loss or dull, dry hair
  – Dry, bruised skin
  – Brittle nails
  – Periodontal disease, bleeding gums
  – Anemia
  – Cheilosis

Cheilosis

• Abnormal lab values
  – Decreased Hg, BUN, creatinine, albumin, and prealbumin
  – Related to protein deficiency
  – Prealbumin is most sensitive indicator of protein deficiency because of its short half life of 2 days.

Malnutrition

• Medical management
  – Identify the high risk patients
  – Determine energy needs using basal energy expenditure formula
  – The protein needs of a hospitalized patient may be nearly twice those of normal needs

• Determine route of feeding
  – Supplements to boost calories
  – Enteral feedings used when unable to take oral fluids
  – Parenteral feeding when GI tract is non functional
Malnutrition

• Nursing management
  – Continued monitoring of clients nutritional status
  – ND- Feeding self-care deficit related to impaired motor function, impaired cognitive function, sensory-perceptual alterations, or decreased appetite

Malnutrition

• Interventions
  – Improve nutritional intake
    • Dietician consult, improve menu items
  – Increase appetite
    • Pleasant environment, adequate pain control,
    • Regular exercise, oral care,
    • Increased social interaction
  – Minimize sensory-perceptual deficits
  – Minimize the impact of neuromuscular deficits
  – Minimize the impact of cognitive impairments
  – Minimize fatigue

Malnutrition

• Impaired swallowing
  – Team approach- physicians, PT, OT, Speech, nurses

Malnutrition

• Assess swallowing
  – Assess LOC
  – Assess gag reflex
  – Have the client produce an audible cough
  – Have the client produce a voluntary swallow

Malnutrition

• Swallowing techniques
  – Calm quiet environment
  – Assist in placing food bolus in unaffected side of mouth and toward pharynx
  – Tilt chin down to decrease risk of aspiration
  – Massage throat on affected side
  – Watch the thyroid cartilage for swallowing
  – Inspect the mouth before more food
  – Allow sufficient time between mouthfuls

Malnutrition

• Enteral nutrition
  – Tube feeding
    • Contraindicated in complete intestinal obstruction, severe ileus, severe diarrhea, malabsorption syndrome
    • If the gut works, use it
Malnutrition

- Enteral access
  - NG- into the stomach
  - Gastrostomy
  - Jejunal tube (J-tube)-jejunum

Malnutrition

- Short term- NG tubes
- Small bore enteral feeding tubes are made of silicone or polyurethane (softer)
- Long-term- G-tubes, J-tubes are placed surgically, endoscopically.
- PEG tubes- most common long term

Malnutrition

- Nursing management of enteral nutrition
  - Monitor for aspiration
  - Prevent contamination of formula and delivery systems
  - Assess tube location
  - Administer feedings
  - Prevent aspiration
  - Maintain enteral access

Malnutrition

- Parenteral nutrition
  - Clinical indications
    - Short bowel syndrome
    - Severe prolonged radiation enteritis
    - High output fistulae
    - Motility disorders
      - Ileus, persistent vomiting

Malnutrition

- Parenteral feedings
  - Consist of carbohydrates- 50-70%
  - Fat emulsions- 10-30%
  - Amino acids
  - Fluids, electrolytes, vitamins and trace elements

Malnutrition

- Vascular access
  - Central venous line
  - Must be positioned in a high flow vein
  - Superior or inferior vena cava
Malnutrition

- Interventions
  - Administer Parental Nutrition (PN)
  - Check solution for exp. date, correct ingredients, appearance of solution
  - Must use a pump
  - Monitor blood glucose levels
    - Every 6 hours initially, then q 24 hours.
    - Observe for allergy to PN components
  - Maintain vascular access
  - Prevent infection- most infections occur at exit site or catheter hub!
  - Provide dressing changes

- Evaluate interventions
  - Assess tolerance, fluid status and GI status
  - Monitor VS, lab tests, and function of nutritional access device
  - Therapies are routinely used in home settings.

Eating disorders

- Obesity
  - Characterized by an excess accumulation of fat
  - Causes are complex and pervasive
  - Defined by BMI greater than 30kg/m2

- Environmental
- Genetic tendency
- Socioeconomic factors
- Ethnic disparities

- Clinical manifestations
  - Type 2 diabetes
  - Cardiovascular disease
  - Hypertension
  - Stroke, sleep apnea
  - Cancers-breast, colon and prostate

- Medical management
  - Skin and wound problems are common
  - Diet, exercise, occasionally medication
  - Diet that provides 500-1000 calories less than expenditure is ideal for 1-2 pound per week weight loss.
  - Lifestyle modifications
**Eating disorders-obesity**

- Surgical management
  - Gastric restrictive
  - Restrictive plus malabsorptive

**Eating disorders- anorexia and bulimia nervosa**

- Risk factors
  - Young women
  - Women 10 times greater than men
  - More prevalent in Western cultures
  - Low self-esteem

**Eating disorders- anorexia and bulimia**

- Similar to starvation
  - Body uses fat stores
  - Shifts in fluid and electrolyte balance
  - Can be life threatening
  - Alterations in the metabolism of insulin, thyroid hormones and catecholamines

**Eating disorders- anorexia and bulimia**

- Clinical manifestations
  - Clients may limit themselves to 200-500 calories/day
  - Dry skin, pallor, bradycardia, hypotension
  - Intolerance to cold
  - Constipation
  - Amenorrhea

**Eating disorders- anorexia and bulimia**

- Bulimia
  - Eating and vomiting usually in late afternoon
  - Abuse of laxatives and diuretics
  - Depression symptoms
  - Erosion of tooth enamel

**Eating disorders- anorexia and bulimia**

- Medical management
  - Psychological as well as nutritional components
  - Enteral and parenteral therapy may be needed in serious cases
Management of Clients with Ingestive Disorders

- Problems occur in the oral cavity or esophagus
- Dental disorders

Dental disorders

- Preserve client’s own teeth as long as possible
- Natural teeth are more functional in masticating food than dentures
- Effective mastication helps promote efficient digestion
- Efficient digestion results in healthy GI function and general health

Dental disorders

- Most common cause of tooth loss is dental decay and periodontal disease
- Best treatment is prevention
- Periodontal disease caused by plaque formation and bacterial colonization
- Inflammation destroys the underlying tissues and separates the gingiva from the tooth.
- Periodontitis the inflammation extends from the gum into the alveolar bone and ligament, destroying supporting structures.

Oral disorders

- Stomatitis
  - Mechanical or chemical
  - Primary- aphthous stomatitis (canker sore)
    - Herpes simplex
  - Secondary- opportunistic infection, bone marrow disorders, nutritional disorders, chemotherapy, radiation

Oral disorders

- Aphthous stomatitis
  - Canker sores- recurrent, small ulcerated.
  - Cause unknown but-
    - Maybe emotional stress, trauma, vitamin def.,
    - Food and drug allergies, viral infections
Oral disorders

- Herpes simplex
  - 90% of population infected with primary herpes simplex by age 5
  - Secondary appears in clients receiving immunosuppressive drugs and HIV clients
  - Any infection can reactivate the virus

Oral disorders

- Vincent's angina (trench mouth)
  - Acute bacterial infection of the gingivae caused by the resident flora of the mouth
  - Caused by poor oral hygiene, increased age, DM, lack of sleep, viral infections
  - Not contagious

Oral disorders

- Candidiasis (moniliasis, thrush)
  - Yeast like fungus part of the normal flora
  - Immunosuppressed clients
  - High dose or long term antibiotic therapy

Oral disorders

- Clinical manifestations
  - White patches on the tongue, palate, and buccal mucosa
  - Adhere firmly to tissue
Candidiasis

Oral disorders

• Medical management- candidiasis
  – Topical antifungal agents as well as other topical agents to alleviate infections and provide pain reduction
  – Mendelsohn’s mouthwash- antifungal, antibiotic and analgesic

Tumors of the oral cavity

• Benign
  – Fibromas, lipomas, neurofibromas and hemangiomas
  – Cause pressure
  – Excised if cause functional or cosmetic problem

• Premalignant
  • Leukoplakia
    – Yellow-white or gray-white lesion
    – Any region of mouth.
    – Leathery surface
    – Clearly defined borders
    – Men twice as frequently as women

• Malignant tumors
  – Red, velvety appearing patch that commonly indicates early squamous cell carcinoma
  – Most frequently 50-60 years of age
  – Men and women the same
  – Most commonly seen at 40-50 years old
  – Men more than women
  – Associated with long alcohol consumption and tobacco use
Tumors of the oral cavity

• Basal cell carcinoma
  – Second most common cancer of the oral cavity
  – Occurs on the lips
  – Characteristic pearly border
  – Due to excessive exposure to sunlight

Basal Cell Carcinoma

Tumors of oral cavity

• Squamous cell carcinoma
  – Leading type of oral cancer
  – Older than 45 years of age
  – Lower lip and tongue
  – Sore or lesion that does not heal

Squamous cell CA

Tumors of the oral cavity

• Medical management
  – Inhibit tumor growth
    • Survival depends on site and staging
  • Radiation therapy
  • Chemotherapy

Tumors of the oral cavity

• Nursing management
  – Interventions
    • Avoid oral irritants
    • Promote comfort
    • Promote nutrition
    • Relieve mouth dryness

Tumors of the oral cavity

• Promote nutrition
**Tumors of the oral cavity**

- **Surgical management**
  - Local excision of small tumors
  - Extensive surgery for invasive tumors
    - Radical and modified radical neck dissection
    - Requires extensive preparation of the client for surgery

- **Nursing management**
  - Make sure client understands implications of surgery
  - Assess rehabilitative needs
  - Speech therapy, coping with disfigurement, depression

- **Interventions**
  - Maintain airway
    - Semi to high Fowler’s position
  - Provide wound care
  - Monitor for bleeding
  - Administer supplemental nutrition
  - Discuss eating modifications

  - Interventions- impaired verbal communications
    - Promote alternate forms of communication
      - Paper/pencil, magic slate, laptop
      - Nurses’ manner should communicate acceptance, compassion, and caring.
    - Relieve anxiety
      - Check on them frequently
      - Respond promptly
      - Label intercom re: client’s inability to speak

- **Client should heal within 6 weeks to 3 months.**
- **Need tremendous emotional support**
- **Self-feed via tube until healing occurs**
- **Home health referral for respiratory support, suctioning nutritional support and wound and trach care**

**Disorders of the salivary gland**

- **Parotitis- inflammation of the parotid glands**
  - Caused by inactivity of the glands due to certain drugs (diuretics), prolonged NG intubation, and lack of oral intake.
  - Calculi- stones form in salivary glands
  - Tumors- most are benign in salivary glands
Disorders of the esophagus

- Dysphagia
  - Mechanical obstruction
  - Cardiovascular abnormalities
  - Neurologic diseases
  - Other causes

Disorders of the esophagus

- Regurgitation
  - Ejection of small amounts of chyme or gastric juice from the mouth without nausea
  - Immediately after swallowing results from structural or motor abnormalities in the LES

Disorders of the esophagus

- Acute pain (odynophagia) pain with swallowing
  - Can be sharp, stabbing, crushing, knife-like
  - May be constant or only with swallowing (esophageal spasm)
  - Reflux disease
  - Radiation
  - Viral infection

Disorders of the esophagus

- Heartburn or pyrosis
  - Substernal, midline burning tends to radiate, generally in waves, upward to the neck, resulting from abnormalities of the LES
  - Occurs in obesity, postural changes, during pregnancy, or alcohol intake.

Disorders of esophagus

- Achalasia
  - Progressively increasing dysphagia
  - Unknown cause, no risk factors, occurs in 20s and 30s
  - Impaired mobility of the lower 2/3 of esophagus.
  - LES fails to relax normally with swallowing

Disorders of esophagus

- Clinical manifestations
  - Dysphagia
  - Substernal pain
  - Regurgitation of undigested food
  - URI, emotional disturbance, pregnancy, obesity exacerbate problem
Disorders of esophagus

- Medical management
  - Relieve manifestations
    - PEG tube, or surgical procedures
  - Administer medications
    - Relax the sphincter (anticholinergic drugs)
    - Antacids, H2 receptor antagonists, and proton pump inhibitors
  - Modify diet
  - Alternate positions

- Nursing management
  - Consult with client about dietary habits
  - Possibility of PEG tube placement
  - Pain eased thru medications

Disorders of the esophagus

- Surgical management
  - Dilation of LES
  - PEG placement

- GERD
  - Result from backward flow of gastric contents into the esophagus
  - Causes reflux esophagitis
  - Associated with hiatal hernia

Disorders of the esophagus

- GERD
  - Cause
    - An alteration in the innervation of the gastroesophageal sphincter
    - Displacement of the angle of the GE junction
    - Incompetent LES

- Risk factors
  - Obesity
  - Weight gain
  - Pregnancy
  - Chewing tobacco, smoking
  - High fat foods
  - Theophylline
  - Caffeine, chocolate
Disorders of esophagus

- Discomfort usually begins after meals
- Increased intraabdominal pressure
- Lying or supine positions

Disorders of the esophagus

- Hiatal hernia
  - Cardiac sphincter becomes enlarged, allowing a part of the stomach to pass into the thoracic cavity.
    - Sliding (type I)
    - Rolling (type II)

Disorders of esophagus

- Medical management
  - NSAIDs, anticholinergic drugs, calcium channel blockers, theophylline should be avoided
  - Lifestyle and diet changes
  - Endoluminal gastroplication

Disorders of the esophagus

- Causes and risk factors
  - Related to muscle weakness in esophageal hiatus, loosens the esophageal support
  - Aging, trauma, surgery
  - Anything that increases intraabdominally pressure such as lifting, coughing, pregnancy, obesity

Hiatal hernias

- Clinical manifestation
  - Heartburn 30-60 minutes after a meal
  - Reflux
  - Fullness after eating, difficulty breathing
  - Worse when lying down
Nissen fundoplication

Disorders of esophagus

• Postoperative care
  – Prevent respiratory complications
  – Prevent Gas-bloat syndrome

Disorders of esophagus

• Diverticula
  – Sac like out pouching in one or more layers of the esophagus
  – Food becomes trapped
  – Rare

Disorders of the esophagus

• Esophageal cancer
  – Squamous cell cancer or adenocarcinoma
  – Causes could be environmental
    • Heavy smoking, nutritional deficiencies, alcohol
  – Chronic irritation from other problems such as achalasia, hiatal hernia, and stricture

Disorders of esophagus

• Clinical manifestations
  – Swallowing problems
  – Usually by then it has invaded the deeper layers of the esophagus

Disorders of the esophagus

• Medical management
  – Inhibit tumor growth
  – Radiation therapy
  – Chemotherapy
  – Photodynamic therapy
  – Maintain nutrition
Disorders of the esophagus

- Nursing management
  - Assess nutritional status, dysphagia
  - Encourage soft food
  - Assess odynophagia, regurgitation, chronic cough, increased secretions and hoarseness

Disorders of the esophagus

- Interventions
  - Monitor nutritional status, weight changes, I & O
  - Teach diet changes
  - Assess skin around feeding tube
  - Provide emotional support
  - Poor prognosis frequently

Disorders of the esophagus

- Vascular disorders
  - Esophageal varices
- Trauma
  - Chemical burns
  - Foreign bodies
  - External forces

Management of clients with digestive disorders

- Clinical manifestation
  - Pain
  - Anorexia
  - Nausea and vomiting
  - Bleeding
  - Diarrhea
  - Belching flatulence
  - Indigestion

Gastrointestinal intubation

- Used for
  - Decompression
  - Lavage
  - Gastric analysis
  - Tube feedings

Gastrointestinal intubation

- Types of tubes
  - Short tubes
    - Levin tubes
    - Salem sump tubes
**Gastrointestinal intubation**

- **Medium tubes**
  - Variety of nasoduodenal tubes
  - Extend from nose to the duodenum and are for short-term feeding.
  - Weighted tip-less likely to cause aspiration

- **Long tubes**
  - Extend into small bowel, sometimes the entire length
  - Not used much
  - Types - Miller-Abbott Tube
  - Cantor tube
  - Harris tube

- **Other tubes**
  - G-tubes or J-tubes are for long term enteral feedings.
  - PEG tubes or PEJ tubes also

- **Insertion of tubes**
  - High Fowler’s position
  - Measure the distance on the tube
  - Lubricate and gently insert
  - Have the client swallow
  - Verify placement

- **Suctioning**
  - Ensure that gastric mucosa is not traumatized
  - Intermittent suction is used

- **Nursing management**
  - Comfort
  - Clean and lubricate nares
  - Tape the tube to prevent irritation of nares
  - Frequent oral hygiene
  - Chew gum or ice chips
  - Request order for anesthetic mouthrinse or lozenges
**Gastritis**

- **Acute gastritis**
  - Inflammation of gastric mucosa
  - Risk factors: seen with nausea and vomiting, bleeding, malaise, anorexia
  - Aspirin and NSAIDs, digitalis, chemo, steroids, acute alcoholism and food poisoning.

**Gastritis**

- Health promotion behaviors
  - Limit use of NSAIDs, alcohol, caffeine
  - Avoid nicotine products, smoking
- Health maintenance behaviors
  - Use of enteric coated aspirin, COX-2 inhibitors, proton pump inhibitors to block gastric acid production

**Gastritis**

- Mucosal lining of the stomach acts as a barrier to protect it from the gastric acid
- When barrier is penetrated, gastritis occurs

**Gastritis**

- Clinical manifestations
  - Epigastric discomfort
  - Abdominal tenderness
  - Reflux
  - Nausea and vomiting
  - Hematemesis

**Gastritis**

- Medical management
  - Removal of cause and treat symptoms
  - Withhold foods and fluid until N & V subside

**Gastritis**

- Chronic gastritis
  - Superficial gastritis
  - Atrophic gastritis
  - Hypertrophic gastritis
**Gastritis**

- **Risk factors**
  - Peptic ulcer disease (PUD)
  - Infection with Helicobacter pylori bacteria
  - Gastric surgery
  - Others similar to acute gastritis
  - Age

- **Mucosal lining becomes thickened and erythematous and then thin and atrophic.**
- **Loss of function of parietal cells**
- **Decreased acid secretion leads to inability to absorb vitamin B12.**
- **Also a risk factor for gastric cancer**

- **Clinical manifestations**
  - Vague
  - Anorexia
  - Feeling of fullness
  - Nausea
  - Intolerance to spicy foods
  - Epigastric pain

- **Complications**
  - Bleeding
  - Pernicious anemia
  - Gastric cancer

- **Nursing management**
  - Reduce pain
    - Teach about foods that worsen, avoid smoking alcohol
    - Gaviscon is best antacid for gastritis
    - H2 receptors and PPI enhance mucosal defenses and reduce pain

- **Nursing management (cont)**
  - Promote self care
    - Instruct to keep appointments with provider
    - Especially if H. pylori present, closely r/t gastric cancer
**Peptic ulcer disease**

- Break in the continuity of mucosa
  - Occurs in 10% of population

**PUD**

- Duodenal ulcers
  - Characterized by high gastric secretions
  - Rapid emptying of the stomach

- Gastric ulcers
  - Heal within few weeks
  - Form within an inch of the pylorus
  - Incompetent pylorus may decrease mucus production allowing gastric juices to injure mucosa
  - Incompetent pylorus may allow bile acids to reflux into the stomach and break the barrier

**PUD**

- Stress and drug induced ulcers
  - Usually occur after an medical crisis
  - Severe trauma or major illness
  - Severe burns
  - Head injury
  - Ingestion of drug
  - Shock
  - Sepsis

**PUD**

- Causes and risk factors
  - 90% attributed to H. pylori
  - PUD results when the aggressive factors of PUD exceed the defensive barrier.
  - Smoking, chewing, alcohol, stress, steroids, ASA, NSAIDs,
  - Zollinger-Ellison, Crohn’s dz, hepatic and biliary disease may play a role also
**PUD**

**Pathophysiology of gastric ulcers**
- Protection factors: tight, nonpermeated junctions between epithelial cells and the alkaline layer of the mucus that coats the surface of the gastric epithelium
- This barrier may be interrupted by the chronic presence of the injurious substances such as ASA, NSAIDs, steroids

**Pathogenesis of duodenal ulcers**
- Activity of the vagus nerve is increased
- Stimulates the pyloric cells to release gastrin, which stimulates the release of HCl acid

**Another factor is emotional stress,**
- Thalamic stimulation of vagal nerves results in increased gastric secretion, blood supply, and gastric motility
- Stress reactions upset the aggressive-defensive balance.

**Zollinger–Ellison syndrome**
- Abnormal secretion of gastrin by rare islet cell tumor in the pancreas
- Hypergastrinemia and diarrhea secondary to fat malabsorption
- Hyperplasia of the gastric mucosa due to the trophic effects of gastrin
- Treatment aimed at suppression of acid secretion

**PUD**

**Pathophysiology of gastric ulcers**
- Protection factors: tight, nonpermeated junctions between epithelial cells and the alkaline layer of the mucus that coats the surface of the gastric epithelium
- This barrier may be interrupted by the chronic presence of the injurious substances such as ASA, NSAIDs, steroids

**Pathogenesis of duodenal ulcers**
- Activity of the vagus nerve is increased
- Stimulates the pyloric cells to release gastrin, which stimulates the release of HCl acid

**Another factor is emotional stress,**
- Thalamic stimulation of vagal nerves results in increased gastric secretion, blood supply, and gastric motility
- Stress reactions upset the aggressive-defensive balance.

**Zollinger–Ellison syndrome**
- Abnormal secretion of gastrin by rare islet cell tumor in the pancreas
- Hypergastrinemia and diarrhea secondary to fat malabsorption
- Hyperplasia of the gastric mucosa due to the trophic effects of gastrin
- Treatment aimed at suppression of acid secretion

**PUD**

**Clinical manifestations**
- Acute pain
  - Aching, burning, cramp-like pain
  - Definite relation to eating
    - Gastric ulcers: food causes pain, vomiting relieves it
    - Duodenal ulcers: pain on empty stomach, relieved by food or antacids.
  - Location: 2-10 cm between the xiphoid and the umbilicus

**Clinical manifestations**
- Nausea and vomiting
  - Vomiting: gastric ulcer, esp. in the pylorum or antrum of stomach
  - Results from gastric stasis or pyloric obstruction
  - Usually vomits undigested food
### PUD

**Clinical manifestations**
- Bleeding may be massive or occult

**Medical management**
- Provide stomach rest
- Neutralize HCl acid
- Eradicate H. pylori
- Dietary management
- Stress reduction

**Prevent and treat complications**
- Hemorrhage: assess bleeding, tarry stools.
- Prevent shock with IV fluids, NPO, NG tube to assess bleeding and also to administer room temperature saline.
- Replace fluids
- Administer vasopressin: arterial admin.
- Inject artery with emboli: via angiography
- Maintain rest

**Maintain high gastric pH**
- Stop bleeding surgically
- Perform multipolar electrocoagulation or heater probe therapy

**Perforation**
- Surgical emergency
- Gastrroduodenal contents escape through the stomach wall into the peritoneal cavity.
- Assess pain: sudden sharp severe pain in the midepigastrium.
- Replace fluids: immediate replacement of fluids, electrolytes, and blood as well as antibiotics
- Correct perforation surgically

**Obstruction**
- Scarring causes pyloric obstruction
- Pain at night
- Vomiting
- Surgery required
**PUD**

- Nursing management
  - Monitor for development of complications
  - Assess for pain and document occurrence and location
  - Promote rest and relaxation
  - Provide teaching
  - Provide support

**PUD**

- Surgical management
  - See p.756-758
  - Different options

**PUD**

- Nursing management of surgical patient
  - Postop interventions
    - Maintain NG tube
    - Monitor for complication
    - Promote comfort

**Gastric cancer**

- Risk factors
  - Men more than women
  - Chronic atrophic gastritis
  - Pernicious anemia
  - Smoking
  - Metal crafts workers, miners, bakers, dusty, smoky environments

**Gastric cancer**

- Arises from the mucosal lining
- Prognosis best for polypoid lesions
- Worse for ulcerating cancers
- Poorest for infiltrating forms
Gastric cancer

• Clinical manifestations
  – Seldom detected in early stages
  – Palpable mass, ascites or bone pain may be first manifestation
  – Weight loss, vague indigestion, anorexia,

Nursing management

• Nursing management
  – Control pain
  – Management of nutritional therapy
  – Explanation of disease and all treatment options

A and P review

• Large intestine
  – Cecum
  – Ascending
  – Transverse
  – Descending

Assessment of elimination

• Similar assessment questions as with the upper digestive systems
• Travel history of client is particularly important in assessing for elimination disorders
• E. coli is most common cause of diarrhea

Physical examination

• Abdomen
• Anus
• Rectum

Anus and rectum

• Most nurses do a visual inspection
• Rectal anatomy is important in assessing for digital impaction
Diagnostic tests

- Similar to ingestive diagnostic tests
- Laboratory tests
  - CEA: High CEA levels characteristic of malignancies of breast, colorectal cancer
  - Often called tumor markers when used to monitor effectiveness of treatment

Diagnostic tests

- Fecal analysis
  - Color, consistency, odor,
  - Stool specimen required for diagnosis of infectious diseases, GI bleeding and other GI disorders
  - Fecal occult blood
    - Screening for colorectal cancer

Diagnostic tests

- Stool examination for ova and parasites
- Stool cultures
- Fecal lipids

Diagnostic tests

- Endoscopy
  - Protosigmoidoscopy
    - Lining of the sigmoid colon, the rectum and the anal canal using a proctoscope and a sigmoidoscope.
  - Colonoscopy
    - Visual exam of the entire lining of the colon with a flexible fiberoptic scope. Screen clients at high risk of colon cancer.

Management of clients with intestinal disorders

- Bleeding – blood in stool, color is affected by the digestive processes on the blood and the rapidity with which the chyme passes thru the bowel.
- Pain– acute or chronic, caused by mechanical, inflammatory or ischemic changes.
**Intestinal disorders**

- Nausea and vomiting
  - Distention of the duodenum
  - Changes in the integrity of intestinal wall
  - Changes in the motility
  - Vomitus that contains fecal matter usually indicates a distal obstruction in S.I.

- Distention
  - Caused by excessive gas in the intestines
  - Flatus is another clinical manifestation

- Diarrhea
  - Increase in frequency, volume, and fluid content of stool
  - Common causes - infections, malabsorption syndromes, medications, allergies, and systemic diseases

- Constipation
  - Infrequent or difficult passage of stool
  - Passage of hard stool
  - Abnormalities of fecal content
  - Presence of fats or other abnormal constituents normally absorbed from the stool

**Inflammatory disorders**

- Viral and bacterial infections
  - Gastroenteritis
    - Inflammation of stomach and intestinal tract
    - Diarrhea, abd. pain, and cramping
    - Contaminated food and water
    - C. difficile bacterial dysentery

- Pathophysiology
  - Disruption of intestinal flora by
    - Harmful bacteria and viruses that cause tissue damage and inflammation
    - Depressed by antibiotic therapy, administered either orally or parenterally.
**Inflammatory disorders**

- Parasitic infections
  - Protozoa
    - Replicate in the intestinal tract of the host and excreted in the feces.
    - Water borne disease usually but more food borne recently
    - Giardiasis- spoiled food or fecal contaminated surfaces or contaminated recreational water

- Helminths- parasitic worms
  - Contracted through the skin or from ingesting contaminated food or water
  - Schistosomiasis- parasitic flatworm-

**Inflammatory disorders**

- Nursing management
  - Rest the bowel
  - Decrease diarrhea
  - Restore fluid and electrolytes
  - Assess diarrhea stools
  - Assess bowel sounds
  - Prevent spread of disease

**Inflammatory disorders**

- Appendicitis
  - Caused by fecalith that occludes the lumen of the appendix
  - Kinking of the appendix
  - Swelling of the bowel wall
  - Fibrous conditions of the bowel wall

**Inflammatory disorders**

- Manifestations
  - Acute abdominal pain that comes in waves
  - Guarding
  - Drawing up the legs to relieve tension
  - Vomiting
  - Low grade fever

**Inflammatory disorders**

- Peritonitis
  - Inflammation of the peritoneal membrane
    - Peritoneal membrane is a semipermeable two layered sac filled with 1500 ml of fluid
    - Primary or secondary peritonitis
Inflammatory disorders

• Clinical manifestations
  – Pain may be localized or generalized
  – Pain that causes rigidity of the abdomen
  – Nausea and vomiting
  – Absence of bowel sounds
  – Shallow respirations

Inflammatory disorders

• Inflammatory bowel disease
  – Crohn’s disease
  – Ulcerative colitis

Crohn’s disease

Inflammatory disorders

• Clinical manifestations
  – Both similar
  – Abdominal pain, diarrhea, fluid imbalances, weight loss
  – Can be very thin, wasted appearance, abdomen is flat or concave with visible peristalsis
  – Tenderness on palpation
  – Rectal bleeding with ulcerative colitis

Inflammatory disease

• Medical interventions are aimed at controlling symptoms such as diarrhea and pain
• TPN is required if client does not respond to medical intervention

Inflammatory disorders

• Surgical management
  – Ulcerative colitis- undergo colectomy with permanent ileostomy
  – Crohn’s disease- surgery due to complications
Inflammatory disorders

- Ostomies
  - Pouch should fit close around stoma
  - Assess skin for irritation each change
  - Reduce odor
  - Discuss medications
  - Emphasize fluid intake
  - Explain dietary recommendations
  - Prevent kidney stones

Neoplastic disorders

- Benign tumors of the bowel
  - Polyps
  - Can become cancerous and can cause obstruction

Loop ileostomy

Neoplastic disorders

- Cancer of the small bowel
  - Surgery is only option for cure
- Colorectal cancer
  - Most common GI cancer
  - Incidence declining with increased screening
  - Most tumors found in distal portion
Neoplastic disorders

- Colorectal cancers
  - Risk factors
    - High fat diets, few fruits and vegetables
    - Hereditary links
    - Increased age
    - History of breast, ovarian, endometrial cancers and ulcerative colitis

Colon cancer

Neoplastic disorders

- Colorectal cancer
  - 95% develop from polyps
  - Spread by direct invasion of surrounding tissue
  - Lymphatic and circulatory channels
  - Seeding of cells into the peritoneal cavity

Neoplastic disorders

- Manifestations
  - Rectal bleeding, change in bowel habits,
  - Abdominal pain, weight loss, anemia and anorexia
  - Tumors in large intestine rarely have early signs
  - 1/3 of tumors in distal colon and rectum can be palpated with digital rectal exam

Neoplastic disorders

- Clear colon
- Colon polyp

Neoplastic disorders

- Prognosis
  - Depends on health of client
  - How early the disease is diagnosed
  - How effective the treatment is
  - Overall 51% survive 10 years
Neoplastic disorders

• Medical management
  – Decrease tumor growth
  – Radiation therapy
  – Chemotherapy

• Colostomies
  – Single barrel-permanent
  – Double barrel- temporary
  – Loop –temporary
  – Abdominal-perineal resection

Neoplastic disorders

• Nursing management
  – Assess for peristalsis
  – Advance diet as tolerated
  – Reduce pain
  – Monitor stoma drainage
  – Prevent thrombophlebitis
  – Emotional support r/t disturbed body image

• Nursing management
  – Colostomies
    • Teach ostomy care, encourage self-care
    • Teach stoma irrigation

Herniations

• Abnormal protrusion of bowel through a weakness of abdominal musculature
• Reducible
• Irreducible
• Incarcerated
• Strangulated

Diverticular disease

• Diverticulum- out pouching or herniation of intestinal mucosa through the muscular coat of the large intestine
• Diverticulosis- presence of non inflamed diverticulum
• Diverticulitis- inflammation of diverticulum
Meckel’s diverticulum

- Out pouching of the bowel, is a vestige of embryonic development found on the cecum near the ileum
- May have gastric mucosa or pancreatic tissue
- May ulcerate and bleed or perforate

Intestinal obstruction

- Partial or complete impairment of the forward flow of intestinal contents
- Mostly in small bowel, especially ileum
- Nausea, vomiting, dehydration, pain
- High mortality if not treated in 24 hours

Intestinal obstruction

- Mechanical factors
  - Hernia
  - Volvulus
  - Intussusception
  - Cancers

Intestinal obstruction

- Neurogenic factors
  - Paralytic ileus
    - Occurs after abdominal surgery
    - Trauma
    - Hypokalemia
    - Vascular insufficiency

Intestinal obstruction

- Vascular factors
  - Occlusion of mesenteric artery
  - Mesenteric infarction
  - Partial occlusion
  - Abdominal angina

Intestinal obstruction

- Manifestations
  - Vomiting
  - Loss of fluid and electrolytes
  - Abdominal pain in waves
  - Distention
  - High pitched bowel sounds- tinkling sound
**Intestinal obstruction**

- Management
  - Decompress the bowel
  - Bowel rest
  - Intestinal tube to relieve pressure
  - Maintain fluid balance
  - Note the amount and color of fluid from tube

**Irritable bowel syndrome**

- Functional disorder of motility
- There is no organic disease or abnormality
- Diets high in fat, lactose, caffeine and alcohol
- High stress

**IBS**

- Health promotion strategies
  - High fiber diet, low-fat, avoid problem food
  - Reduce stress, avoid smoking and alcohol
  - Regular exercise and sleep

**Celiac disease**

- Causes severe malabsorption
- Marked atrophy in the villi in the small intestine
- Induced by ingestion of gluten-containing foods
- Gluten is found in rye, oats, barley and wheat.

**Anorectal area disorders**

- Hemorrhoids- perianal varicose veins
  - Enlarged mass at the anus
  - Bleeding
  - Itching and pain at rectal area

**Anorectal area disorders**

- Anal fissure- ulceration or tear of the lining of the anal canal
- Anal fistula- a sinus tract that develops between the anal canal to the skin outside the anus or from an abscess to either the anal canal or the perianal area.