Assessment And Management Of Patients With Lower GI Tract Disorders

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Anatomy and Function of Lower GI Tract

- **GI Tract** = 23-26 feet long: extends from mouth through esophagus, stomach, and intestines to the anus
- **Small Intestine Function:**
  - Longest segment of GI tract, 7000 cm surface area for absorption of nutrients into bloodstream through intestinal walls
  - 3 anatomic parts: duodenum, jejunum, ileum
  - Digestive enzymes and bile in the duodenum come from pancreas, liver, gallbladder and glands within the intestines
  - Intestinal glands secrete mucus, hormones, electrolytes and enzymes
2 types of contractions: Small Intestine

- Segmentation contractions: mixing waves of contents, churning motion
- Intestinal peristalsis: propels the contents of the small intestine towards colon

Colonic Function: (Ascending, Transverse, Descending, Sigmoid, and Rectum)

- Within 4 hrs of eating residual waste material passes through ileocecal valve into colon
- Each peristaltic wave of small Intestine opens the valve briefly to allow some contents to pass into colon
- Bacteria make up a major part of the contents of large intestine, assist in breakdown of waste material
- 2 types of secretions: bicarbonate (neutralize) and mucus (protects colonic mucosa)
Colonic Function, Cont.

- Slow, weak peristaltic activity moves colonic contents along tract, allowing efficient reabsorption of H2O and electrolytes
- Fecal material is approx. 75% fluid, 25% solid, brown in color from breakdown of bile, odor comes from bacteria byproduct
- During defecation external anal sphincter voluntarily relaxes to allow fecal material to be expelled
Health Hx. And Clinical Manifestations

- Tobacco and alcohol
- Medications
- Surgeries
- Unexplained Wt. Gain or Loss
- Pain (location, duration, frequency etc.)
- Indigestion
- Intestinal Gas
- Nausea and Vomiting
- Changes in Bowel Habits and Stool
Physical Assessment & Diagnostic Evaluation

- **Assessment:** mouth, abdomen, rectum
  - Mouth: teeth, gums, tongue
    - Ulcers, nodules, swelling
  - Abdomen: look, listen, then feel
    - Bowel sounds, rebound tenderness
  - Anal and perineal area
    - Rash, fistula openings, external hemorrhoids

- **Diagnostic Evaluation**
  - Blood work: CBC, liver panel
  - Stool test: occult blood, parasites, etc.
    - Hematest: most common for occult blood; meds such as aspirin, ibuprofen, foods such as broccoli and rare meats can cause false-positive results; Vitamin C can cause false-negative
Lower GI tract studies:
- Barium Enema: detect polyps, tumors, lesions of colon
- Radiopaque substance instilled rectally
- Gastrografin (water-soluble iodine contrast) used in inflammatory disease or perforated colon

Nursing Interventions: May vary according to MD orders
- Bowel cleansing 1-2 days before, clear liquid diet day before, NPO after midnight, enema until clear morning of

Computed Tomography: cross-sectional images

Nursing Interventions: NPO for 6-8 hrs prior, assess for allergies to contrast dye
Diagnostic Evaluation

- **Magnetic Resonance Imaging**: Noninvasive, uses magnetic fields and radio waves:
  - Useful in evaluating soft tissues, vessels, neoplasm
  - Contraindicated for pts with pacemakers, metal implants

- **Nursing Interventions**: NPO for 6-8 hrs prior, remove all jewelry, procedure takes 30-90 minutes, close fitting scanner may cause feelings of claustrophobia

- **Anoscopy, Proctoscopy, Sigmoidoscopy**: Viewing of lower colon through rigid or flexible scope

- **Nursing Interventions**: Minimal bowel cleansing, monitor vital signs during and after procedure
Diagnostic Evaluation

- **Colonoscopy**: Direct visual inspection of colon to cecum
  - Flexible fiberoptic colonoscope, can obtain biopsies and remove polyps
  - Usually takes one hour, pt on left side, legs drawn toward chest

- **Nursing Interventions**: May vary according to MD orders
  - Bowel cleansing: clear liquids day before, Informed consent, NPO night before, IV midazolam (Versed) for sedation.
  - During procedure monitor vital signs, O2 saturation, color and temp of skin, level of consciousness, vagal response
Gerontologic Considerations

- Oral Cavity
  - Tooth loss or decay
  - Atrophy of taste buds

- Esophagus
  - Weakened gag reflex

- Stomach
  - Decrease gastric secretions
  - Decrease motility

- Small Intestine
  - Atrophy of muscle and mucosal surfaces

- Large Intestine
  - Decrease mucus production
  - Decrease tone of anal sphincter
Abnormalities of Fecal Elimination

- **Constipation**: irregular, hard stool: may be caused by certain meds, hemorrhoids, obstructions, neuromuscular diseases
  - Complications: Hypertension, fecal impaction, hemorrhoids, megacolon
  - Nursing Management: increase fiber, fluids, laxatives as ordered

- **Diarrhea**: Increase in frequency, amount and altered consistency (looseness): Irritable Bowel Syndrome (IBS), Inflammatory Bowel Disease (IBD), and lactose intolerance are frequently underlying disease processes
  - Acute or Chronic
  - Complications: dehydration, cardiac dysrhythmias (low potassium)
  - Always be aware of Potassium levels
  - Nursing Management: Stool specimen, bed rest, low bulk diet in acute phase, advance to bland diet, no caffeine, carbonated drinks, antidiarrheal meds as ordered, diphenoxylate (Lomotil), loperamide (Imodium)
Irritable Bowel Syndrome (IBS)

- Common GI problem, cause unknown, certain factors associated with syndrome: heredity, depression, anxiety, high fat diet, smoking, alcohol
- Results from functional disorder of intestinal motility
- **Clinical manifestations**: constipation, diarrhea, or both, pain, bloating
- **Assessment and diagnostic findings**: diagnosis made when tests rule out structural or other colon disease
- **Medical management**: Treatment aimed at relieving pain, constipation and diarrhea, reducing anxiety and stress, healthy high fiber diet, bulk forming laxatives, antidiarrheal meds, antidepressants, calcium channel blockers
- **Nursing Management**: patient education, reinforce good diet, not smoking and no alcohol
Acute Inflammatory Intestinal Disorders

- Any part of the lower GI tract is susceptible to acute inflammation from bacterial, viral, fungal infections. EXAMPLES: Appendicitis and Diverticulitis, both can lead to Peritonitis, inflammatory process within the abdomen.

- **Appendicitis**: most common reason for abdominal surgery, appendix becomes inflamed from obstruction, may become pus filled
  - **Clinical manifestations**: Right lower quadrant pain, low grade temp, N/V, rebound tenderness, rupture causes diffuse pain and condition worsens
  - **Assessment and Diagnostic**: CBC, CT of abdomen, Ultrasound
Appendicitis

- **Complications**: Perforation leading to peritonitis or abscess
- **Medical Management**: Surgery as soon as possible, IV fluids and antibiotics, analgesics, Appendectomy may be performed with low abdominal incision or by laparoscopy
- **Nursing Management**: Goals include, relieving pain, preventing fluid and electrolyte imbalance, dehydration, and infection
- Surgery may be outpatient, if complications of peritonitis are suspected pt may remain in hospital for several days
Acute Inflammatory Intestinal Disorders

- Any part of lower GI tract is susceptible to acute inflammation from bacterial, viral, fungal infections. EXAMPLES: Appendicitis and Diverticulitis, both can lead to Peritonitis, inflammatory process within the abdomen.

- **Diverticulitis**: Diverticulum is saclike pouching of lining of bowel extending through defect in muscle. Diverticulitis occurs when diverticulum become infected with retained food and bacteria, may lead to perforation or abscess, most common in sigmoid colon.

- **Clinical Manifestations**: Chronic constipation, intervals of diarrhea, left lower quadrant pain, anorexia, fatigue

- **Assessment and Diagnostic**: CT scan procedure of choice, CBC
Diverticula

- Diverticula seen on colonoscopy
Diverticula

- Diverticula seen on barium enema
Diverticulitis

- **Complications:** peritonitis, abscess formation, bleeding

- **Medical Management:** Usually treated outpatient with diet and medicine therapy, antispasmodics (Pro-Banthine), antibiotics, bulk laxative, clear liquids until inflammation resolved then high fiber, low fat

- Acute case may require hospitalization, especially for elderly and immunocompromised

- Surgery may be necessary with abscess formation or perforation

- **Nursing Process:** (p. 1038-1039, Smeltzer) encourage high fiber diet, exercise, bulk laxatives
Peritonitis

- Inflammation of the peritoneum, the serous membrane lining the abdominal cavity and covering the organs. Usually result of bacterial infection, external trauma or surgery.

- **Clinical Manifestations**: Affected area of abdomen becomes tender, distended, rigid. Rebound tenderness, paralytic ileus, N/V, increase in temp, pulse and white blood cells

- **Assessment and Diagnostic**: CBC, Abdominal CT scan or X-ray, peritoneal aspiration and culture of fluid

- **Complications**: Generalized sepsis (major cause of death), inflammation may cause bowel obstruction

- **Medical Management**: Fluid & electrolyte replacement, analgesics, antiemetics, NG suction, massive antibiotics, surgery to remove infected material

- **Nursing Management**: Ongoing assessment of vital signs, pain, GI function, intake and output
Inflammatory Bowel Disease (IBD)

- Refers to 2 chronic inflammatory GI disorders: **regional enteritis** (Crohn’s disease) and **ulcerative colitis**. Both have similarities but are ultimately different.
- Cause of IBD is unknown. More women than men.
- Believed to be triggered by environmental agents such as food additives, tobacco, and radiation, also allergies and immune disorders
Inflammatory Bowel Disease (IBD)

- **Regional Enteritis (Crohn’s disease):** Occurs anywhere along the GI tract most common in distal ileum and colon
- Chronic inflammation that extends through all layers of bowel wall
- Periods of remission and exacerbation, ulcers form on inflamed mucosa, separated by normal tissue,
- Advanced cases the bowel wall thickens and becomes fibrotic, intestines narrow, diseased bowel loops and adhere to other loops
Inflammatory Bowel Disease (IBD)

- **Regional Enteritis (Crohn’s disease):**
  - **Clinical Manifestations:** lower right quadrant pain, diarrhea unrelieved with defecation, colon spasm, result in decrease PO intake, malnutrition, wt loss, steatorrhea, abscesses and fistulas are common; other systems involved, skin lesions, arthritis, conjunctivitis

- **Assessment and Diagnostic:** Stool sample, barium swallow or enema, CT scan, CBC, albumin

- **Complications:** Intestinal obstruction, fluid & electrolyte imbalance, malnutrition, fistula and abscess formation, increase risk colon cancer
Inflammatory Bowel Disease (IBD)

- **Ulcerative Colitis**: recurrent ulcerative and inflammatory disease of the mucosal and submucosal layers of colon and rectum
- Multiple ulcers occurring one after the other, diffuse inflammation, usually begins in rectum and spreads proximally to entire colon; abscesses form and eventually the bowel narrows and shortens
Inflammatory Bowel Disease (IBD)

- **Ulcerative Colitis:**
  - **Clinical Manifestations:** Exacerbation and remission, diarrhea and left lower quadrant pain, rectal bleeding, anorexia, wt loss, dehydration, 10-20 liquid stools/day; other systems involved, arthritis, liver disease, uveitis, skin lesions
  
- **Assessment and Diagnostic:** Assess hydration, nutritional status, signs of bleeding, stool specimen, CBC, Sigmoidoscopy, Colonoscopy, CT scan or MRI, Ultrasound

- **Complications:** Toxic megacolon, perforation, bleeding, vomiting, fatigue
Inflammatory Bowel Disease (IBD)

- **Medical Management of Chronic IBD**: Reduction of inflammation, provide rest for diseased bowel, preventing complications
  - **Nutritional Therapy**: Oral fluids, low residue, high protein and calorie diet with vitamin and iron supplements, dehydration and electrolyte imbalances require IV fluid therapy
  - **Pharmacologic Therapy**: Sedatives and antidiarrheal meds, Aminosalicylates such as sulfasalazine (Azulfidine), mesalamine (Pentasa) are used for long term maintenance to reduce inflammation; Corticosteroids (prednisone) also help reduce inflammation
Inflammatory Bowel Disease (IBD)

- **Surgical Management**: May require total colectomy (removal of entire colon) and placement of ileostomy; the surgical creation of an opening into the ileum or small intestine (usually by means of an ileal stoma on the abdominal wall) (p.1044) Ileostomy allows for drainage of fecal material from the ileum to the outside of the body

- **Nursing Management**: goals; prevention of fluid volume deficit, maintenance of optimal nutrition and wt, avoidance of fatigue, promoting effective coping ( p. 1044-1047)
Small Bowel Obstruction

- Intestinal contents, fluid, gas accumulate above the intestinal obstruction: Adhesions, Intussusception, Volvulus, Hernia, Tumor are all causes of obstruction.

- Clinical Manifestations: Cramping pain, pass blood and mucus but no stool, vomiting (intestinal contents), dehydration, abdominal distention

- Medical Management: Decompression of bowel through Nasogastric (NG) tube, if obstruction is complete then surgical intervention is warranted

- Nursing Management: maintain function of NG tube, assess for fluid and electrolyte imbalance
Large Bowel Obstruction

- Obstruction of larger bowel is similar to small bowel obstruction, however the symptoms develop and progress relatively slowly.
- Constipation may be only symptom for days, eventually abdominal distention and vomiting of fecal contents.
- Colonoscopy may be performed to untwist and decompress bowel.
- Usual treatment is bowel resection to remove the obstruction, colostomy may be necessary (p. 1061-1065).
Polyps of Colon and Rectum

- Polyp is a mass of tissue that protrudes into lumen of bowel
- Can occur anywhere in colon or rectum
- Neoplastic (carcinomas) or non-neoplastic (benign)
- Most common sign rectal bleeding
- Diagnosis based on digital rectal exam, colonoscopy, barium enema
- Polyps should be removed either through colonoscopy or laparoscopy
Diseases of the Anorectum

- **Anorectal abscess**: obstruction of anal gland, infection, deep abscesses may result in low abdominal pain and fever
  - Treatment include incision and drainage, sitz baths and analgesics

- **Anal fistula**: Tiny, tubular tract that extends into the anal cavity from an opening located beside the anus, usually result from an infection
  - Surgery recommended for removal of fistula, wound is packed with gauze

- **Anal fissure**: longitudinal tear or ulceration in the lining of the anal canal, caused by large firm stool, or childbirth or trauma
  - Most heal with management by stool softener, sitz baths and increase fluid intake
Diseases of the Anorectum

- Hemorrhoids: dilated portions of veins in the anal canal, very common. Shearing of the mucosa during defecation results in sliding of the structures in the wall of the anal canal, including hemorrhoidal and vascular tissue. Increased pressure in the hemorrhoidal tissue due to pregnancy may initiate or aggravate hemorrhoids
  - Two types: internal and external
  - Cause itching and pain, most common cause of bright red bleeding with defecation
  - High fiber diet, increase fluids, bulk laxatives, sitz baths, may require rubber band ligation or more extensive surgery
  - Nursing process (p. 1068-1069)