Bullet Point Nursing

Medical - Surgical / Adult Health Nursing – Gastrointestinal system

Disclaimer: These notes are designed to provide the key points of each topic. These notes should be used with the associated lectures that expand upon each of the points. Every effort is made to ensure this content is up to date and accurate at the time of writing. No liability is assumed for the content or its relation to current standards and practices.

Anatomy and physiology gastroenterology review:

Oral cavity (Mouth)

- Starts the digestive process, responsible for mechanical and chemical digestion.

Esophagus

- The esophagus is a muscular tube that carries food and liquids using peristalsis.
- Common problems include gastroesophageal reflux disease (GERD), esophagitis, Barrett's esophagus, esophageal strictures, and esophageal cancer.
- Presenting signs/symptoms include dysphagia, heartburn, chest pain, regurgitation, and hematemesis.
- Upper endoscopy (EGD) is the gold standard for visualizing the esophagus.

Stomach

- The stomach stores, mixes, and digests food using gastric acid and enzymes.
- Common problems include gastritis, PUD, gastroenteritis, and gastroparesis.
- Presenting signs/symptoms include epigastric pain, nausea, vomiting, bloating, hematemesis, melena, early satiety, and unintentional weight loss.
- Labs for stomach issues include H. pylori testing and fecal occult blood test.

Small Intestine

- The small intestine is responsible for the majority of nutrient absorption and digestion.
    - Divided into three sections: duodenum, jejunum, and ileum.
- Common problems include Celiac disease, Crohn's disease, SBO, and ischemic bowel.
- Presenting signs/symptoms include abdominal pain, bloating, diarrhea, and constipation.
- Imaging can be abdominal x-ray or abdominal CT.

Large Intestine

- The large intestine is responsible for water and electrolyte absorption, as well as forming and storing feces.
    - The cecum is the first part of the large intestine
- Common problems include colorectal cancer, diverticulitis, IBS, UC, and constipation.
- Presenting signs/symptoms include abdominal pain or cramping, bloating, changes in bowel habits (constipation, diarrhea, or alternating), rectal bleeding, steatorrhea
- Common diagnostics include colonoscopy, CT scan, and abdominal X-ray.

Anus

- The anus is the terminal part of the digestive system, responsible for controlling the expulsion of stool through the anal sphincters.
- Common problems include hemorrhoids, anal fissures, abscesses, prolapse, and cancer.
- Presenting signs/symptoms include pain, rectal bleeding, itching, and discharge.

Liver:

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- The liver is responsible for detoxifying harmful substances, producing bile for fat digestion, metabolizing nutrients, synthesizing proteins (e.g., albumin, clotting factors), and storing blood, vitamins and minerals (e.g., glycogen, iron, vitamins A, D, E, K).
- Common problems include hepatitis (viral or autoimmune), cirrhosis, fatty liver disease (alcoholic and nonalcoholic), liver failure, and hepatocellular carcinoma.
- Presenting signs/symptoms include jaundice, ascites, fatigue, abdominal pain, easy bruising, and confusion (hepatic encephalopathy).
- Liver labs include liver enzymes (ALT, AST, ALP), bilirubin levels, albumin, PT/INR, and ammonia levels. Viral hepatitis panels or autoimmune markers may also be evaluated.

Pancreas:

- The pancreas has both endocrine (producing insulin, glucagon, and somatostatin to regulate blood sugar) and exocrine (secreting digestive enzymes like amylase, lipase, and trypsin to break down carbohydrates, fats, and proteins) functions.
- Common problems include pancreatitis (acute or chronic), pancreatic cancer, diabetes, and pancreatic insufficiency.
- Presenting signs/symptoms include upper abdominal pain, nausea, vomiting, weight loss, and blood sugar dysregulation.
- Pancreas labs include serum amylase and lipase and glucose levels.

Gallbladder:

- The gallbladder stores and concentrates bile, which is released into the small intestine to aid in the digestion and absorption of dietary fats.
- Common problems include cholelithiasis, cholecystitis, biliary colic, choledocholithiasis (stones in the bile duct), and gallbladder cancer.
- Presenting signs/symptoms include right upper quadrant abdominal pain (often radiating to the shoulder), nausea, vomiting, fever, jaundice, and fatty food intolerance.
- Gallbladder lab work often includes liver function tests, and lipase/amylase.

Gastroenterology assessment and diagnostics:

- Physical Examination:
  - Inspect, auscultate, percuss, and palpate the abdomen.
    - Listen until the sounds are heard.
    - Determining absent bowel sounds requires five minutes of auscultation.
    - Can be normal, hypoactive, hyperactive, or absent.
- Esophagogastroduodenoscopy (EGD/Upper GI endoscopy):
  - Used to diagnose GERD, peptic ulcers, esophagitis, and upper GI bleeding.
    - NPO prior to procedure
- Colonoscopy:
  - Gold standard for detecting colorectal polyps, cancer, inflammatory bowel disease (IBD), and diverticulosis.
    - NPO, clear liquid diet, and colon cleansing.
- Abdominal X-ray (KUB):
  - Useful for detecting bowel obstructions, perforations, or foreign bodies.
- CT scan of abdomen and pelvis:

    - Detailed imaging for appendicitis, diverticulitis, pancreatitis, masses, and more.
- Ultrasound:
    - Often first-line imaging for gallstones, biliary obstruction, and ascites.
- Liver Function Tests (LFTs):
    - Includes ALT, AST, bilirubin, alkaline phosphatase, ammonia, and albumin.
- Amylase and Lipase:
    - Enzymes specific to the pancreas, used to diagnose acute or chronic pancreatitis.
- Fecal Occult Blood Test (FOBT):
    - Screens for microscopic blood in stool, can indicate colorectal cancer or GI bleed.
- Stool cultures used to assess for infection.
- Helicobacter pylori Testing:
    - Identifies H. pylori infection through breath tests, stool antigen tests, blood test.

Nursing notes:

Nasogastric (NG) & Orogastric (OG) Tubes

- Indications: Gastric decompression, enteral feeding, medication administration, lavage.
- Placement Verification: Confirm via X-ray (gold standard), pH testing, or auscultation.
- Tube Care & Patency: Flush w/ sterile water, check placement and residuals each feeding.
- Aspiration Risk: Elevate HOB 30-45° during feedings and for at least 30-60 minutes after.
- Contraindications: Facial fractures, esophageal varices, recent gastric/esophageal surgery.

Gastrostomy (G-Tube) & Jejunostomy (J-Tube)

- Indications: Long-term enteral nutrition.
- Placement:
    - G-Tube (gastric) – Inserted directly into the stomach.
    - J-Tube (jejunal) – Inserted into the jejunum, bypassing the stomach.
- Feeding Considerations:
    - G-Tube – Can tolerate bolus or continuous feeds.
    - J-Tube – Requires continuous feeds due to the small intestine's limited capacity.
- Tube Care & Patency:
    - Flush with sterile water before and after feedings/meds to prevent clogging.
- Aspiration Risk:
    - Higher with G-Tubes, so keep HOB elevated (30-45°) during and after feeds.
    - J-Tubes have lower aspiration risk since they bypass the stomach.
- Complications:
    - Infection, tube dislodgment, clogging, and site issues.

Colostomy

- Purpose: Surgical creation of a stoma in the colon to divert stool.
- Stoma Care: Assess for pink/red, moist appearance; avoid irritation and leakage by ensuring a proper-fitting ostomy appliance.
- Patient Education: Teach proper pouch emptying (when 1/3 to 1/2 full) and changing (every 3-5 days). Address body image concerns and encourage support.

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Pathophysiology and Nursing Practice:

- **Non-pharmacalogical nursing interventions**
  - Constipation / diarrhea – Fiber, fluids, activity
- **Gastroesophageal Reflux Disease (GERD)**
  - Patho: GERD occurs most commonly due to dysfunction of the lower esophageal sphincter (LES), leading to movement of stomach contents into the esophagus.
  - Presentation: Heartburn, epigastric pain, dry cough, and hoarseness.
  - Diagnosed based on presentation.
  - Management: Avoid trigger foods / meds, avoid eating before bed, and small meals. Elevating the HOB helps to reduce symptoms.
    - Peppermint, chocolate, coffee, caffeine, fried foods, carbonation, and alcohol
  - Obesity is a risk factor and losing weight is a management recommendation.
  - Can lead to Barrett's esophagus and cancer
- **Peptic Ulcer Disease (PUD)**
  - Patho: Erosion of the gastric or duodenal mucosa by harmful gastric substances.
    - Can be gastric, duodenal, or esophageal.
    - Most commonly caused by NSAIDS, H Pylori, and stress.
  - Presentation: Epigastric pain that may improve with eating (duodenal ulcers) or worsen (gastric ulcers). Nausea, melena (duodenal) or hematemesis (gastric)
  - Diagnosed by history (NSAIDS use), EGD, H. Pylori testing
  - Management: Antibiotics if H. Pylori, PPI (or H2RA), discontinue NSAIDS, recommend small meals, smoking cessation, monitor for bleeding.
- **Gastritis**
  - Patho: Gastritis is the inflammation of gastric (stomach) mucosa.
    - Acute (NSAIDS, ETOH, foods) or Chronic (most commonly H. Pylori)
  - Presentation: Abdominal pain, anorexia, n/v, and heartburn.
  - Diagnosed based on presentation and can be imaged via EGD
  - Management: Address triggers, monitor for GI bleed, ABX for H. Pylori.
- **Hiatal Hernia**
  - Patho: Part of the stomach protrudes through the diaphragm into the thoracic cavity
  - Presentation: Heartburn, vomiting, and regurgitation.
  - Diagnosed based on CT scan.
  - Management: Small meals, avoid lying flat after meals. Surgical referral
- **Cholecystitis**
  - Patho: Inflammation of the gall bladder.
    - Can be acute (usually cholelithiasis) or chronic (bile emptying issues).
  - Presentation: RUQ pain (worse after high fat meal), n/v, indigestion, Murphy's sign,
    - May have biliary obstruction which can have jaundice, foamy urine, steatorrhea
  - Diagnosed based on ultrasound.
  - Management: Small low-fat meals, avoid flatulence triggers, antibiotics if infection
    - Surgical referral for cholecystectomy.

    - Cholelithiasis are gallstones. They are often asymptomatic but can cause biliary colic (postprandial RUQ pain) and they are diagnosed via ultrasound.
- **Liver Cirrhosis**
    - Patho: Chronic, progressive liver disease that results in destroyed hepatocytes.
        - Most often due to Hep C, AUD, NAFLD, NASH
    - Presentation: Asymptomatic, complications include portal HTN, ascites, coagulopathy, hepatic encephalopathy, and esophageal varices.
    - Diagnosed based on labs (AST, ALT, Bilirubin), history, imaging, and biopsy.
    - Management: Address underlying condition and manage complications.
    - Can lead to hepatorenal syndrome, hepatic encephalopathy, and cancer.
        - Hepatic encephalopathy is related to elevated ammonia levels and is treated with lactulose
- **Esophageal varices**
    - Patho: Dilated veins in the esophagus due to portal hypertension.
    - Presentation: Asymptomatic, rupture presents with life threatening bleeding with hematemesis, melena, and hypovolemic shock.
    - Diagnosed based on EGD.
    - Management: Hemodynamic stabilization for active bleeding. Endoscopic variceal ligation (EVL) for correction.
- **Hepatitis**
    - Patho: Inflammation of the liver, caused by infection, or hepatotoxins.
        - Hepatitis A: Fecal – oral transmission. Curable
        - Hepatitis B: Bloodborne, sexual, perinatal transmission. Treatable
        - Hepatitis C: Bloodborne transmission. Curable
        - Hepatitis D: Bloodborne transmission, only present with HBV. Treatable
        - Hepatitis E: Fecal – oral transmission (Waterborne). Treatable
    - Presentation: Fatigue, malaise, n/v, anorexia, jaundice, RUQ pain, fever. May present with liver complications.
    - Diagnoses:
        - Hepatitis A (HAV): Anti-HAV IgM (acute), Anti-HAV IgG (past or immunity).
        - Hepatitis B (HBV): HBsAg (+) (active), Anti-HBc IgM (+) (acute), Anti-HBc IgG (+) (chronic/past), HBsAb (+) (immunity).
        - Hepatitis C (HCV): Anti-HCV Ab (+) (exposure), HCV RNA (+) (active).
        - Hepatitis D (HDV): Anti-HDV Ab (+), HDV RNA (+) (active, & HBV infection).
        - Hepatitis E (HEV): Anti-HEV IgM (+), HEV RNA (+) (acute infection).
    - Management: Supportive care, antivirals (long-term for HBV), avoid alcohol, and transmission prevention.
- **NAFLD (MASLD) / NASH (MASH)**
    - Patho:
        - NAFLD: Fat buildup (steatosis) without significant alcohol consumption.
            - Generally diagnosed with preexisting metabolic disorder
        - NASH: A progressive form of NAFLD where steatosis is accompanied by inflammation and hepatocellular injury, potentially leading to cirrhosis.
    - Presentation: Asymptomatic.

    - Diagnosed based on ALT/AST and ultrasound.
    - Management: TLC, manage co-morbidities, and monitor for progression (cirrhosis)
- **Pancreatitis**
    - Patho: Acute or chronic inflammation of the pancreas.
        - Can be caused by alcohol, trauma, infection, and more.
    - Presentation: Severe, persistent epigastric pain with radiation to the back and worse when lying down, Grey Turner's sign (flank ecchymosis), Cullen's sign (periumbilical ecchymosis), nausea, vomiting, anorexia.
    - Diagnosed based on presentation, elevated amylase and lipase, CT scan.
    - Management: NPO, IV fluids, pain management, H2RA, monitor calcium levels, and educate on alcohol avoidance.
- **Irritable Bowel Syndrome**
    - Patho: Functional GI disorder leading to constipation, diarrhea, and cramping pain.
    - Presentation: Constipation or diarrhea, or both, cramping abdominal pain.
    - Diagnosed based on presentation and / or Rome IV Criteria:
        - Recurrent abdominal pain (≥1 day/week for 3 months) plus ≥2 of: Pain related to defecation. Change in stool frequency. Change in stool form (diarrhea/constipation).
    - Management: Supportive treatment, avoid triggers, increase fiber, fluids & activity.
- **Ulcerative Colitis (IBD)**
    - Patho: Chronic inflammatory disease of the colon that starts distal and extends proximal.
    - Presentation: Anorexia, malaise, cramping, LLQ pain, bloody diarrhea, altered nutrition, and fever.
    - Diagnosed based on colonoscopy
    - Management: Sulfasalazine, steroids, Humira, Stelara, Entyvio, and symptomatic treatment. Surgery in severe cases.
    - More common in Caucasians and Ashkenazi Jews.
    - Ensure adequate nutrition due to risk of deficiencies. Provide nutritional counseling. Goes through remission and exacerbations
- **Crohn's Disease (IBD)**
    - Patho: Chronic inflammatory disease that can affect any part of the GI tract (from mouth to anus), most commonly the terminal ileum.
    - Presentation: Fever, colicky pain after meals, mildly bloody or mucous diarrhea, anorexia, and altered nutrition.
        - Skip lesions, and complications such as fistulas, strictures, and abscesses.
    - Diagnosed based on location.
    - Management: Same as UC
    - More common in Caucasians and Ashkenazi Jews.
    - Ensure adequate nutrition due to risk of deficiencies. Provide nutritional counseling.
    - Goes through remission and exacerbations
- **Appendicitis**
    - Patho: Inflammation of the appendix, may progress to rupture.

  - Presentation: periumbilical pain that localizes to the right lower quadrant (McBurney's point), nausea, vomiting, anorexia, fever, and rebound tenderness.
  - Diagnosed based on ultrasound or abdominal CT.
  - Management: NPO, fluids, pain control, antibiotics, and a surgical appendectomy.
  - Caution with patient reporting sudden relief. Could indicate rupture.
  - Physical Exam Signs:
    - McBurney's point tenderness: Classic RLQ pain.
    - Rovsing's sign: RLQ pain when pressing on the LLQ (referred pain).
    - Psoas sign: Pain with hip extension (suggests retrocecal appendix).
    - Obturator sign: Pain with internal rotation of the flexed hip (suggests pelvic appendix)
- **Diverticulosis / Diverticulitis**
  - Patho: Diverticulosis are small, bulging pouches (diverticula) in the colon wall.
    - Inflammation or infection of these pouches is called diverticulitis.
  - Presentation: Fever, n/v/d/c, and LLQ abdominal pain.
  - Diverticulosis is diagnosed by colonoscopy or CT scan.
  - Management: High fiber diet when not inflamed, otherwise low fiber diet. Symptomatic treatment and antibiotics for infection as needed.
- **Hemorrhoids**
  - Patho: Swollen or inflamed veins in the anal canal due to increased pressure.
    - Can be internal, external, or prolapsed.
  - Presentation: Bright red rectal bleeding, rectal pain, rectal itching or discomfort.
  - Diagnosed based on history and physical exam.
  - Management: Based on cause. Prevent straining during bowel movement through fiber, fluids, activity, and stool softeners. OTC applications for symptom relief.
    - May need surgical intervention for band ligation or removal.
- **Celiac Disease**
  - Patho: Autoimmune disorder where the body's immune system attacks the small intestine when gluten, a protein found in wheat, rye, and barley, is consumed.
  - Presentation: Chronic diarrhea, steatorrhea, abdominal p, discomfort, weight loss.
  - Diagnosed by IgA tissue transglutaminase (tTG) antibodies blood test.
  - Management: Gluten free diet supported by education and nutritional counseling.
- **C. difficile Infection**
  - Patho: Infection caused after disruption of normal gut flora, typically due to ABX.
  - Presentation: Watery diarrhea (≥3 loose stools in 24 hours), abdominal pain, nausea, fever.
  - Diagnosed based on stool testing.
  - Management: Antibiotics (vancomycin), avoid loperamide, use contact precautions.
- **SBO / LBO**
  - Patho: Blockage of the small or large intestine.
  - Presentation: Abdominal pain, distention, lack of bowel movements or flatus. High pitched or absent bowel sounds may be present. Caution for a rigid abdomen.
  - Diagnosed based on abdominal x-ray.
  - Management: NPO. NG tube for SBO, decompaction for LBO. Surgical correction.

        - Be alert for signs of perforation such as sudden onset sever pain with fever.
    - An ileus is a temporary loss of normal peristalsis, such as post surgery.
- **Ectopic pregnancy**
    - Patho: Egg implants outside the uterine cavity, most commonly in the fallopian tube.
    - Presentation: Unilateral pelvic pain and vaginal bleeding.
    - Diagnosed by ultrasound
    - Management: Pharmacologic abortion (methotrexate) or surgical intervention.
- **Gastroenteritis**
    - Patho: Inflammation of the stomach and intestines due to infection (viral, bacterial, or parasitic)
    - Presentation: Acute onset of nausea, vomiting, watery diarrhea, abdominal cramps, fever, and potential dehydration.
    - Diagnosed based on clinical presentation.
    - Management: Symptomatic treatment
- **Lactose intolerance**
    - A digestive disorder caused by lactase enzyme deficiency, leading to an inability to properly digest lactose, producing gas, bloating, diarrhea, and abdominal pain. Diagnosis is typically made with a lactose tolerance test and management involves reducing or eliminating lactose-containing foods.
- **Gastropareses**
    - A condition where the stomach takes too long to empty its content into the small intestine leading to nausea with vomiting, abdominal pain and early satiety.
- **Peritonitis**
    - Inflammation of the peritoneal cavity caused by infection, perforation, trauma, or peritoneal dialysis complications. This presents with severe abdominal pain, rebound tenderness, guarding, board-like rigidity, fever, and tachycardia. Management includes NPO status, IV fluids, broad-spectrum IV antibiotics, pain control, NG tube (if needed), and emergency surgery for perforation or necrosis
- **Mallory-Weiss Tear:** Esophageal mucosal tear from forceful vomiting
- **Dumping Syndrome:** Rapid gastric emptying post-gastric surgery
- **Volvulus:** Twisting of the bowel, causes ischemia, pain, vomiting, and distention.
- **Aspiration Risk/Dysphagia:** Patients with difficulty swallowing (dysphagia) are at increased risk for aspiration pneumonia, especially in stroke, neurodegenerative diseases (e.g., Parkinson's, ALS), and post-intubation; management includes swallow evaluations, NPO/thickened liquids, upright positioning (90° during meals), and speech therapy referrals.

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