

LINCOLN MEMORIAL UNIVERSITY
Caylor School of Nursing
Nursing 124/125
Spring 2010

LESSON PLAN: Alterations of Gastrointestinal Function

DATES & TIMES: See Class Syllabus

OBJECTIVES: Upon completion of the unit, the student will demonstrate mastery of the following objectives in the clinical/campus laboratory, in individual and group conferences and on written materials, the ability to:

1. Describe the role of the gastrointestinal organs in digestion and elimination.
2. Describe the nursing responsibilities for common diagnostic examinations of the gastrointestinal tract.
3. Differentiate characteristics of normal and abnormal stool.
4. Differentiate between colostomy and ileostomy, and implement care for each.
5. Utilize the RAM nursing process to identify altered patterns of elimination and develop a care plan.
6. Identify the physiologic action, use, side effects and nursing implications of drugs used in pharmacological management of commonly occurring elimination needs.
7. Using the four adaptive modes of Roy's Adaptation Model (RAM), recognize human adaptive responses to behavior and stimuli that affect GI function.
8. Describe the parameters appropriate for determining the status of gastrointestinal functioning.
9. Describe the clinical problems and nursing, medical, and surgical management of adults with cancer of the lip, tongue and mouth.
10. Identify the physical and psychosocial discharge planning needs of adults with compromised oral functioning.
11. Describe the various disorders of the esophagus: their clinical manifestations, management and rehabilitation.
12. Describe the surgical procedures, postoperative nursing care, postoperative complications, and discharge planning needs of adults undergoing gastric surgery.
13. Describe the care of adults with appendicitis and those with peritonitis.
14. Identify the stimuli of emotional stress and its relationship to the adult with ulcerative colitis.
15. Describe the pathophysiology, signs and symptoms, treatment, and use of the RAM nursing process to provide care for adults with ulcerative colitis and Crohn's disease.
16. Describe the various types of intestinal obstruction and their management.
17. Identify the stimuli and clinical manifestations common to irritable bowel syndrome.
18. Utilize the RAM nursing process to provide care for adults undergoing rectal surgery.
19. Describe the various types of hernias, including complications that may occur.
20. Discuss the etiology, clinical manifestations and nursing care of an adult after experiencing an upper GI bleed.
21. Identify the stimuli and clinical manifestations that are common to peptic ulcer disease.
22. Discuss the complications of gastric and duodenal ulcers and utilize the RAM nursing process to provide care for adults experiencing these complications.

23. Describe common diagnostic methods/laboratory tests and the nursing implications for evaluation of ineffective responses to gastrointestinal disorders.
24. Identify properly the medications on the drug list by generic name, classification, mechanism of action, clinically significant side effects, normal dosage, and nursing implications and be able to correctly calculate IV, IM, and PO dosages.

TOPICAL OUTLINE:

Part I (Unit Exam)

- I. Gastrointestinal Elimination
 - A. Review of Gastrointestinal Anatomy and Physiology
 - B. Nursing Assessment of Gastrointestinal Function
 - a. History and clinical manifestations
 - b. Physical assessment
 - c. Medications
 - C. Common Diagnostic Exams
 1. Role of the nurse
 2. Radiography
 - a. Upper GI/Barium Swallow
 - b. Barium Enema
 3. Endoscopy
 - a. EGD (Esophagogastroduodenoscopy)
 - b. Sigmoidoscopy
 - c. Colonoscopy
 4. Ultrasound
 5. CT/MRI/PET
 6. Stool Collection
 - a. Normal characteristics
 - b. Occult Blood
 - c. Bacteria and Parasites
 7. Gastric Analysis
 8. Cholecystogram & Cholangiogram
 9. ERCP (Endoscopic retrograde cholangiopancreatography)
 - D. Utilizing the RAM nursing process of patients with common upper gastrointestinal disorders, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation/expected outcomes.
 1. Oral Cancer
 2. Neck Dissection
 3. Temporomandibular Disorders
 4. Disorders of the Esophagus
 - a. Dysphagia
 - b. Achalasia
 - c. Hiatal Hernia
 - d. Chemical Burns
 - e. Gastroesophageal Reflux Disease (GERD)
 - f. Cancer
 - E. Utilizing the RAM nursing process of patients with gastric and duodenal disorders, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation.
 1. Gastritis (Acute & Chronic)
 2. Peptic Ulcer Disease

- a. Duodenum
- b. Gastric
- 3. Morbid Obesity
- 4. Gastric Cancer
- F. Utilizing the RAM nursing process of patients with common GI inflammatory disorders, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation.
 - 1. Acute Inflammatory Intestinal Disorders
 - a. Appendicitis
 - b. Diverticular Disease
 - c. Peritonitis
 - 2. Chronic Inflammatory Bowel Disease
 - a. Crohn's Disease
 - b. Ulcerative Colitis
 - c. Management of Chronic Inflammatory Bowel Disease
 - i. Nutritional
 - ii. Pharmacologic
 - iii. Surgical
 - 1. Colectomy
 - 2. Ileostomy

Part Two (Final Exam)

- G. Utilizing the RAM nursing process of patients with common GI obstructive disorders, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation.
 - 1. Small Bowel Obstruction
 - 2. Large Bowel Obstruction
 - 3. Colorectal Cancer
 - a. Surgical Management
 - i. Resections
 - ii. Temporary or Permanent colostomy
- H. Utilizing the RAM nursing process of patients with common GI structural defects, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation.
 - 1. Irritable Bowel Syndrome
 - 2. Polyps of the Colon & Rectum
 - 3. Diseases of the Anorectum
 - a. Anorectal Abscess
 - b. Anal Fistula
 - c. Anal Fissure
 - d. Hemorrhoids
 - e. Pilonidal Cyst
- I. Utilizing the RAM nursing process of patients with common biliary disorders, which includes risk factors, assessment, analysis/nursing diagnosis, & evaluation.
 - 1. Anatomy & Physiology Review
 - 2. Functions of the Gallbladder
 - 3. Cholecystitis
 - 4. Cholelithiasis

REQUIRED READINGS:

Kee, J. L., Hayes, E. R., & McCuiston, L. E. (2009). *Pharmacology: A nursing process approach* (6th ed.). St. Louis, MO: Mosby. Chapters 46 & 47.

Silvestri, L. A. (2008). *Saunders's comprehensive review for NCLEX-RN* (4th ed.). Philadelphia: W. B. Saunders Company. Chapters 55 & 56.

Smeltzer, S. C., Bare, B. G., Hinkle, J. L., & Cheever, K. H. (2008). *Brunner & Suddarth's textbook of medical-surgical nursing* (11th ed.). Philadelphia: Lippincott Williams & Wilkins. Chapters 34, 35, 36, 37, 38 & 40.

Wissman, J. (2000-2007). *Adult medical-surgical nursing RN edition 7.1. Current mastery series review module*. Assessment Technologies Institute. Unit 7 (Ch. 61, 62, 64, 66, 67, 68, 69, 70, 71, 72, & 73).

CLINICAL OBJECTIVES:

1. Provide preparation, teaching, and follow-up care for adults undergoing common diagnostic tests for gastrointestinal disorders.
2. Assess assigned adults in the clinical setting for risk factors and predisposing factors for gastrointestinal disorders.
3. Assess assigned adults for ineffective responses to bowel elimination.
4. Utilizing the Roy Adaptation Model nursing process, develop a teaching plan for adults with gastrointestinal, and biliary disorders.
5. Assess assigned patients for predisposing factors of gastric or biliary disorders.
6. Develop a teaching plan for assigned patients with gastrointestinal or biliary disorders.
7. Teach dietary management of assigned patients with gastrointestinal or biliary disorders.
8. Correctly calculate intake and output.
9. Administer an enema.
10. Provide colostomy/ileostomy care.
11. Complete assigned case studies for post conference.

CLINICAL SKILLS:

1. Insert a nasogastric tube.
2. Monitor a patient with continuous and intermittent gastric suction.
3. Perform a colostomy irrigation.
4. Change an ileostomy/colostomy appliance.
5. Administer fluids via a gastrostomy tube.
6. Perform hemocult test on stools.
7. Administer medications.
8. Perform a chemstrip test.
9. Administer TPN.
10. Change a CVL dressing.

GASTROINTESTINAL DRUGS

Antacids, Absorbents, and Antiflatulents

aluminum and magnesium hydroxide (Maalox)
aluminum and magnesium hydroxide,
with simethicone (Mylanta)
calcium carbonate (Rolaids, Tums)
magaldrate (Riopan)
Milk of Magnesia
sodium bicarbonate (Alka-Seltzer)
aluminum hydroxide (Amphojel, AltraGel)

Antiemetics

benzquinamide hydrochloride (Emete-Con)
dimenhydrinate (Dramamine)
meclizine hydrochloride (Antivert)
prochlorperazine (Compazine)
tiethylperazine (Torecan)
trimethobenzamide hydrochloride (Tigan)
metoclopramide hydrochloride (Reglan)
promethazine hydrochloride (Phenergan)
scopolamine hydrochloride (Scopolamine)
ondansetron hydrochloride (Zofran)
granisetron (Kytril)

Antidiarrheals

cholestyramine resin (Questran)
diphenoxylate/atropine (Lomotil)
kaolin and pectin (Kaopectate)
paregoric
loperamide (Imodium)
atropine sulfate (Atropine)

Hyperosmolar

glycerin
lactulose
fleets enema
Milk of Magnesia
magnesium citrate
polyethylene glycol electrolyte solution
(GoLYTELY)

Antimicrobials

sulfasalazine (Azulfidine)
mesalamine (Rowasa, Asacol, Pentasa)
olsalazine (Dipentum)

Anti-fungal agents

clotrimazole (Mycelex)
ketoconazole (Nizoral)
nystatin (Mycostatin)
fluconazole (Diflucan)

GI Anticholinergics

atropine sulfate (Atropine)
belladonna tincture

diphenhydramine hydrochloride (Bentyl)
glycopynolate (Robinul)
methantheline (Banthine)
hyoscyamine (Levsin)

H2 Receptor Antagonist

cimetidine (Tagamet)
ranitidine (Zantac)
fomotodine (Pepcid)
nizatidine (Axid)

Enzyme Inhibitor

sucralfate (Carafate)

Antiflatulent

simethicone (Mylicon)

Proton Pump Inhibitor

omeprazole (Prilosec)
lansoprazole (Prevacid)
pantoprazole sodium (Protonix)
esomeprazole (Nexium)
rabeprazole (Aciphex)

Miscellaneous

vasopressin (Pitressin)
neomycin sulfate (Neomycin)
misoprostol (Cytotec)

Corticosteroids

cortisone
methylprednisolone (Solu-Medrol)
prednisone

Immunosuppressives

Azathioprine (Imuran)
Cyclosporine (Sandimmune)
6-mercaptopurine (6MP)

Bulk Forming Laxatives

osyllium (Metamucil)

Emollients – Stool Softener

docosate calcium (Surfak, Colace, Pericolace)

Lubricant

Mineral oil

Stimulants

bisacodyl (Ducolax)
cascara sagrada
Castor oil
senna (Senokot)

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GI Drug Study Guide

1. Match the medication in column **A** with the GI related condition it is used to treat in column **B**.

<u>A</u>		<u>B</u>	
_____a.	Asacol	1.	Nausea
_____b.	Imodium	2.	Diarrhea
_____c.	Phenergan	3.	Constipation
_____d.	Questran	4.	Intestinal gas
_____e.	Reglan	5.	Stomatitis
_____f.	Protonix	6.	Peptic Ulcer Disease
_____g.	Diflucan	7.	Crohn's Disease
_____h.	Ducolax	8.	Ulcerative Colitis
_____i.	Prednisone		
_____j.	Compazine		
_____k.	Mycostatin		
_____l.	Zofran		
_____m.	Senokot		
_____n.	Mineral oil		
_____o.	Nizoral		
_____p.	Pepcid		
_____q.	Colace		
_____r.	Mylicon		

2. There are many medications used to treat peptic ulcer disease. Below are listed the most commonly used medications. For each one, state its mechanism of action and usual dosing schedule, and nursing interventions.

a. Tagamet
MOA:

Dosing schedule:
Nursing Interventions:

b. Prilosec:
MOA:

Dosing schedule:
Nursing Interventions:

c. Pepcid
MOA:

Dosing schedule:
Nursing Interventions:

d. Carafate
MOA:

Dosing schedule:
Nursing Interventions:

e. Protonix
MOA:

Dosing schedule:
Nursing Interventions:

f. Prevacid
MOA:

Dosing schedule:
Nursing Interventions:

g. Biaxin/Protonix/Pepto-Bismol Combination
MOA:

Dosing schedule:
Nursing Interventions:

3. Match the medication in column **A** with its common use in column **B**.

<u>A</u>		<u>B</u>
Medication		Common Use
_____ a.	Neomycin	1. an antispasmodic
_____ b.	Levsin	2. a contrast medium used for diagnostic testing
_____ c.	Lactulose	3. to maintain remission of Crohn's disease
_____ d.	Cytotec	4. to decrease the bacteria count in the bowel
_____ e.	Azulfidine	5. to decrease the ammonia level in the bloodstream
_____ f.	Golytely	6. to decrease portal hypertension
_____ g.	Pitressin	7. to stimulate prostaglandin synthesis
_____ h.	Bentyl	8. to treat a flare-up of Ulcerative Colitis
_____ i.	Solu-Medrol	9. to cleanse the bowel of stool
_____ j.	Telepaque	
_____ k.	Cyclosporin	

Common GI/Bowel Diagnostic Exams

Role of the Nurse: Education & provide support for patient and family

Radiography

Exam	Purpose	Prep	Procedure	Post Care
Barium Swallow	Id esophageal lesions, hiatal hernia, or reflux	Informed consent NPO after MN	Patient swallows flavored barium solution & the radiologist observes the progress of the barium through the esophagus while taking x-ray pictures	Administer a laxative to prevent fecal impaction Observe stools for barium which will lighten stools until it has passed
Upper GI Series	Visualization of the structure & mobility of the stomach & small intestines to detect tumors, ulceration, inflammation, spasms, or abnormal physiology	Informed consent NPO after MN No smoking 8 hrs before the test	Patient swallows barium & radiologist observes the progress of the barium through the esophagus to the small intestine	Administer a laxative to prevent fecal impaction Observe stools for barium which will lighten stools until it has passed
Barium enema	Visualization of the colon to detect colonic polyps, tumors, chronic inflammatory bowel disorders	Informed consent Clear liquids the day before NPO after MN Laxative the night before Enemas until clear the am of the test	Barium is instilled via rectal tube with an inflatable balloon to retain the barium in the colon. Patient is placed in several positions while the radiologist observes through the monitor. Air may be instilled to outline lesions or polyps.	Provide rest & comfort measures Encourage fluids to prevent dehydration Administer laxative or enema Assess stools for barium

**Common GI/Bowel Diagnostic Exams
Radiography**

Exam	Purpose	Prep	Procedure	Post Care
US	To produce a two-dimensional image of the abdominal organs. Useful in studying the liver, pancreas, spleen, gallbladder, & retroperitoneal tissue	NPO	A coating of lubricating jelly is applied to the skin and the scanner is rested on the abdomen	None
CT	To detect densities of tissues, allows cross sections of the body to be viewed on a monitor. Useful for liver, spleen, kidney, pancreas, & pelvic organs	Informed consent NPO Patent IV if contrast will be used Assess for allergies to iodine/seafood if contrast to be used	Placed under the scanner & pictures are taken If contrast is used, instruct patient he/she will feel a warm sensation as the contrast is injected	None
MRI	Tissues & organs can be projected onto a screen as an image	Teach relaxation techniques Administer mild anti-anxiety agent Noisy & must remain still during procedure Remove jewelry Assess for metal in body	Placed in a tube like machine that utilizes magnetic waves	None
PET	Permits measurement of blood flow, tissue composition, & brain metabolism	Teach inhalation techniques Patent IV	Positioned on table for scan Introduction of radioisotope IV. Wait 30-45 min & rescan	None

Common GI/Bowel Diagnostic Exams

Endoscopy

Exam	Purpose	Prep	Procedure	Post Care
EGD	Identify upper GI bleeding, to differentiate malignancies from benign tumors, to differentiate gastric ulcers from duodenal ulcers. Can visualize strictures, varices, hiatal hernias & can remove polyps or tissue for biopsy	Informed consent NPO 6-12 hrs before test Remove dentures Analgesic or mild sedative given Spray or gargle with local anesthetic to depress gag reflex	Flexible fiberoptic gastroscope is inserted through the mouth & the esophageal, gastric, & duodenal wall is viewed	NPO until return of gag reflex Assess for s/s perforation (pain, nasal discomfort, temperature, persistent difficulty swallowing, vomiting blood, or black, tarry stools) Teach that throat soreness or hoarseness is not uncommon
Sigmoidoscopy	Visualize ulceration, tumors, polyps Perform biopsy	Informed consent Clear liquids day before NPO after MN Enemas until clear the am of test	Place patient in knee/chest position. Scope is advanced through rectum to visualize mucosal walls. Air may be instilled to increase visualization.	Monitor for rectal bleeding & s/s of intestinal perforation (fever, rectal drainage, abdominal distention, & pain)
Colonoscopy	Direct visualization of the entire colon Perform biopsy	Informed consent Clear liquids day before Laxative night before (Contraindicated for intestinal obstructions & inflammatory bowel disease) NPO after MN Enemas until clear in am	Same as sigmoidoscopy	Bed rest until fully awake Assess for s/s hemorrhage or perforation Explain amnesic effect if patient received midazolam (Versed) Report any bleeding to MD

Common GI/Bowel Diagnostic Exams

Exam	Purpose	Prep	Procedure	Post Care
Gastric analysis	Establish a diagnosis of gastric disease Cytology studies on contents to detect cancer	NPO after MN No smoking, gum chewing, 8 hrs before test No anticholinergic, cholinergic, adrenergic blockers, antacids, steroids, alcohol, or coffee for at least 24 hrs before test	Insertion of Levin tube & aspiration of gastric contents Histamine is usually given to stimulate the flow of gastric acid. Patient may feel flushed, HA, itching, decrease BP, increase PR, or allergic reaction (Have epinephrine ready). Gastric secretions are checked every 15 minutes for 1-2 hrs	Assess for reaction or s/s of bleeding or distress Monitor vitals Provide nare/oral care after tube removal Provide food & fluids as tolerated Assess return of gag reflex if local anesthetic used
Exam	Color	Indication	Consistency	Indication
Stool Examination	Tarry black (melena) Bright or dark red Streaking of blood Occult blood	Upper GI bleed Lower GI bleed Rectal or anal bleed Not visible	Bulky, greasy, foamy, gray (Steatorrhea) Clay colored or light gray Mucus Dry, rock hard masses	Lack of pancreatic juice in instestine Biliary obstruction Chronic ulcerative colitis Scybala

Common Biliary Diagnostic Exams

Exam	Purpose	Prep	Procedure	Post Care
Cholecystography	<p>Visualize gallbladder & bile duct</p> <p>Detect gallstones & assess the ability of the gallbladder to fill, concentrate its contents, contract, & empty</p>	<p>Assess for allergies to iodine/seafood</p> <p>Oral contrast the evening before</p> <p>NPO after MN</p>	X-ray of the abdomen	None
ERCP	Direct visualization of structures that previously could be seen only during laparotomy	<p>Informed consent</p> <p>NPO</p> <p>Moderate sedation</p>	Insertion of endoscope into the GI tract structures including the biliary tree	<p>Monitor vitals</p> <p>Assess for s/s perforation or infection</p> <p>Monitor return of gag reflex</p>
PTC	Distinguish jaundice, investigate GI symptoms for those without a gallbladder, locate stones within the bile duct, & diagnose cancer	<p>NPO</p> <p>Moderate sedation</p>	<p>Insertion of a needle into the liver</p> <p>Injection of dye into the biliary tree</p>	Assess for s/s bleeding, peritonitis, & septicemia