Medicine and surgery for nurses 2

(تمريض باطنة جراحة) 2

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بكالوريوس الطب والجراحة - باكستان

عضو النقابة الايرلندية للأطباء

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UNIT 1 : Assessment and Management of Patients with Gastrointestinal Disorders

Objectives:

At the end of this unit ,the student will be able to:

1. Define the related medical terms

2. Discuss the causes, signs & symptoms, diagnosis, nursing interventions of patient with esophageal disorders.

3. Discuss the medical and surgical management of gastric and duodenal peptic ulcers.

4. Draw up a nursing care plan for patient suffering from duodenal ulcer.

5.Compare between gastric and duodenal ulcer.

6. list the causes, signs & symptoms, diagnostic investigations, management of appendicitis.

7. List the common types of abdominal hernias.

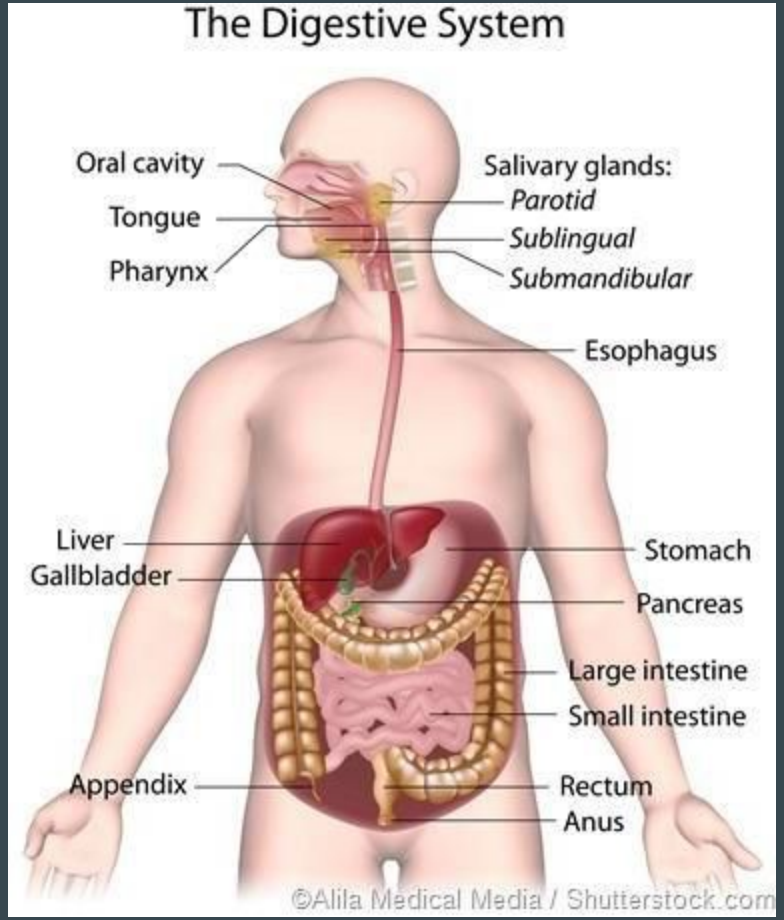
8. Describe the causes, signs & symptoms, and surgical and medical management of intestinal obstruction.

9. Educate patients and families about stoma care.

10. Provide pre and post op. care for patients anorecal disorders.

Introduction:

The GI system comprises the alimentary canal and its accessory organs, beginning at the mouth; extending through the pharynx, esophagus, stomach, small intestine, colon, rectum, and anal canal; and ending at the anus.
The GI system is responsible for the following essential bodily functions: ingestion and propulsion of food, mechanical and chemical digestion of food, absorption of nutrients into the bloodstream, and the storage and elimination of waste products from the body through feces (


The Digestive System
Oral cavity
Tongue
Pharynx
Salivary glands:
Parotid
Sublingual
Submandibular
Esophagus
Liver
Gallbladder
Stomach
Pancreas
Large intestine
Small intestine
Appendix
Rectum
Anus
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1- Nursing Assessment of GIT Disorders:

a- Subjective data:

A comprehensive health history should be obtained to identify subjective data related to major manifestations of GI problems.
Common manifestations include:
It manifested by a change in the bowel habit, which include:

a. Pain: collect information about (character, duration, pattern, frequency, onset, & time of pain). Form of pain may be cramping, sense of fullness, distension or burning.

b. Anorexia: lack of appetite for food.

c. Nausea: means unpleasant sensation that indicates the following vomiting.

d. Vomiting: "known as emesis" means involuntary expulsion of the gastric content through the esophagus due to violent abdominal muscle contraction, this accompanied by closure of glottis and relaxation of the stomach and the cardiac sphincter.

e. Hematemesis: means vomiting of blood , fresh bleeding will be bright red, while retained blood will be altered to brown (coffee – ground).

f. Melena : passing dark bloody stool.

h. Indigestion: It mean pain with or immediately after meal. Caused by fatty food, coarse vegetables, & highly seasoned food.

g. Dysphagia: pain or difficulty on swallowing.

i. Polyphagia: excessive eating.

j. Regurgitation: voluntary or involuntary return of partly digested food from the stomach to the mouth without force.

Intestinal Gas: This can be presented in two forms:

1. Belching : means expulsion of gas from the stomach.

2. Flatulence (flatus): means expulsion of gas from the rectum.

m. Diarrhea: Increase in both the number of daily bowel habit and the volume of stool.

n. Constipation: Means retention or delay of expulsion of rectal contents so more water absorption will make stool more hard and dry.

Objective data include:

1. Physical examination
2- Diagnostic Tests:

1. Physical examination

includes:

- Inspection for contour, & symmetry.

- Auscultations for peristaltic wave.

- Palpation for masses & tenderness

- Percussion for distention, tampany, & dullness.

Auscultation should be performed before percussion and palpation, which

may stimulate bowel sounds. Deep palpation in noted areas of tenderness or pain should be performed last.

The diagnostic tests commonly used in disorders of the GIT system include the following:

a-Radiographic & imaging studies
B- Laboratory tests

a-Radiographic & imaging studies:

There are tests that use X-ray. There are several types of them, these are:

1- Barium swallows (meal), also called upper GIT series:

Purpose: Diagnosis of ulcers, varices, inflammation, polyps, and mal- absorption.

2- Barium Enema:

This test helps to diagnose abnormalities in the lower part of GIT such as: (polyps, ulcers, tumors, strictures, and other lesions of the colon).

Post-test nursing intervention:

Monitor stool for barium.

Give laxative or enema.

Complications: Include (fecal impaction, and intestinal obstruction).

NURSING ALERT

If barium enema and upper GI series are both ordered, the upper GI series is done last so barium traveling down the digestive tract does not interfere with the results of the barium enema.

3- CT scan (computed Topography):

Requires no special preparations, and it used to detect abnormalities in the GI system.

4- Ultrasound (Sonography)

Usually used to detect small bowel masses, fluid filled cysts, gallstones, dilated bile duct, ascites, and vascular abnormalities. The patient is kept NPO several hours before this test.

5. Endoscopy:

Refers to the examination of the organs through a hallow instrument passed through the body openings, it allows for direct visualization of the organs to be examined. There are several types of them.

A-Gasrtoscopy: allows visualization of the mucosa of the esophagus, stomach, and duodenum, usually done with esophagoscopy to exclude tumors, neoplastic, inflammatory abnormalities, motility, obtain sample for analysis, biopsy for histopathology, and therapeutic such as removal of gallstones.

B-Sigmoidoscopy: allows visualization of the colon sigmoid, the rectum, and the anus to exclude cancer, polyp, inflammation, bleeding, stricture, and to take biopsy.

Post the procedure nursing care:

Monitor for rectal bleeding, and signs of rectal perforation.

C-Proctoscopy: visualization of the rectum and anus. Usually enema is giving before the procedure.

D-Anoscopy: visualization of the anus. Usually enema is giving before the procedure.

E. Biopsy: biopsies may be obtained during endoscope, biopsied tissues are examined microscopically

Note

Perforation of the GI tract is a complication of endoscopy. Assess for abdominal or chest pain, dyspnea, fever, tachycardia, lightheadedness, and distended abdomen. Report immediately.

2. Laboratory tests:

1- Stool Analysis for:

a) Color: black (melena), bright and dark red (lower GIT bleeding), streaking of blood (rectal and anal bleeding).

b) Consistency and appearance: presence of bacteria, parasites, mucus, or undigested food.

2- Gastric content analysis:

Helps in identifying the stomach ability to secrete HCL, the presence of blood or cancer cells

3- Blood Chemistry and other laboratory tests:

It includes, hematology (CBC), chemistry (serum electrolytes) , liver enzymes (SGOT, SGPT, serum amylase, and bilirubin, alkaline phosphates).

4- Others:

-Hydrogen Breath testing: help to diagnose small intestinal bacterial overgrowth (Helicobacter pylori) .

-Helicobacter pylori testing. is used to detect a Helicobacter pylori (H. pylori) infection in the stomach and duodenum. H. pylori can cause peptic ulcers. But most people with H. pylori in their digestive systems do not develop ulcers.

Chapter Two : Nursing Assessment and Management of Esophagus Disorders

a. Esophagitis:

Definition: Is an acute or chronic inflammation of the esophagus.

Signs & Symptoms: vary according to etiology. Symptoms may include: dysphagia , heartburn (pyrosis), spontaneous reflux (regurgitation) of sour or bitter gastric content in the mouth. sensation of something in the throat, mild epigastric pain, dyspepsia, and nausea and\ or vomiting. and chest pain.

Causes of esophagitis:

1- Infection: Candida, herpes, HIV, cytomegalovirus. 2- Chemical burn (alkali or acid) or radiation therapy.

3- Medication induced- may doxycycline, ascorbic acid, quinidine, and potassium chloride.

4- Gastro- Esophago Reflux Disease (GERD),and vomiting acid. 5- Swallowing foreign body.

6- Drinking alcohol & smoking.

Management:

1- Head of bed raised 6-8 inches (15-20 cm). 2- Do not lie down for 3-4 hours after eating.

3- Bland diet- avoid garlic, onion, peppermint, fatty foods, chocolate, coffee, citrus juice, and tomato products.

4- Avoid over eating- causes lower esophageal sphincter (LES) relaxation.

5- No tight – fitting clothes. 6- Weight control.

7- Reduce alcohol intake, & smoking cessation.

Pharmacological Treatment:

1- Antacids-reduce gastric acidity.

2- Histamine 2 (H2) receptors antagonist, such as cimetidine (Tagamet), famotidine (Pepsid),and nizatidine (Axid) to decrease gastric acid secretions.

3- Omeprazole (proton pump inhibitor) to destroy Helicobacter pylori

b- Hiatal Hernia:

Definition : Is a protrusion of a portion of the stomach through the hiatus (opening) of the diaphragm and into the thoracic cavity .

Clinical manifestations:

1- Sense of fullness in the lower chest.

2- Bleeding due to ulceration of the mucosa in addition to heartburn. 3- Dysphagia, and regurgitation.

Pathophysiology & etiology:

Actually we can classify hiatus hernia in to 2 types:

a. Sliding hernia : stomach & gastroesophageal junction slide up into the chest (most common).

b. Paraesophageal hernia (rolling hernia): Part of greater curvature of the stomach rolls through the diaphragmatic defect. (Figure 1-1). Caused by weakness due to aging or other conditions such as esophageal carcinoma or trauma, or following certain surgical procedures


Diaphragm
Esophagus
Stomach
Normal Esophagus and Stomach
Sliding Hiatus Hernia
Paraesophageal Hiatus Hernia

Clinical manifestations:

1- May asymptomatic.

2- Heartburn(with or without regurgitation of gastric contents in the mouth).

3- Dysphagia, chest pain and sense of fullness

Diagnostic evaluation:

1-Barium meal of the esophagus outlines hernia. 2-Esophagoscopy to visualize the defect

Management:

1-Elevation head of bed (6 – 8 inches) to reduce nighttime reflux. 2-Antacid therapy to neutralize gastric acid.

3-H2 receptors antagonist if patient has esophagitis. 4-Surgical repair of hernia if symptoms are severe

Complications:

1-Aspiration of reflux contents. 2-Ulceration,hemorrhage.

3- Gastritis.

4- Incarceration of the portion of the stomach in the chest

Nursing Interventions & Patient Education:

Instruct patient on the prevention of the reflux of the gastric contents into esophagus by:

1- Eating a frequent small meals (usually 6 meals).

2- Avoiding stimulation of gastric secretions by Omitting caffeine & alcohol.

3- Refraining from smoking.

4- Avoiding fatty foods: promote reflux and delay emptying.

5- Losing weight if obese
6- Avoid bending from the waist and/or wearing tight fitting clothes.

Cancer of the esophagus:

More common in males than females (2:1).

More common between the ages of (50 – 70) years.

The predisposing factors are alcohol, tobacco, spicy food and poor mouth hygiene

Signs & symptoms:

dysphagia, feeling of mass in the throat, painful swallowing, regurgitation, dyspnea, weight loss, and fouls breathes.

Diagnosis:

1- Barium swallows (meal) to visualize the lumen of the esophagus. 2- Cytological examination for cancer esophagus.

3- Esophagoscopy to see and to take biopsy

Treatment:

1- For lower esophagus tumor (surgery) is the line of treatment..

2- For upper esophagus tumor (irradiation) is the line of treatment. 3- Chemotherapy.

4- Immunotherapy.

Prognosis: is very bad and the mortality is very high.

Chapter Three : Management of Patients with Gastric and Duodenal Disorders Gastritis

Definition: Is an inflammation of the stomach, especially of its mucous membrane . It can occur suddenly (acute) or gradually (chronic).

Causes of Gastritis:

Gastritis can be caused by irritation or erosion of the gastric mucosa due to excessive alcohol use, chronic vomiting, stress, or the use of certain medications such as aspirin or other anti-inflammatory drugs.

It may also be caused by any of the following:

1. Helicobacter pylori (H. pylori): A bacteria that lives in the mucous lining of the stomach. Without treatment the infection can lead to ulcers, and in some people, stomach cancer.
2. Pernicious anemia: A form of anemia that occurs when the stomach lacks a naturally occurring substance needed to properly absorb and digest vitamin B12.
3. Bile reflux: A backflow of bile into the stomach from the bile tract (that connects to the liver and gallbladder).
4. Infections caused by bacteria and viruses.

If gastritis is left untreated, it can lead to a severe loss in blood and may increase the risk of developing stomach cancer.

Clinical Manifestations:

Symptoms of gastritis vary among individuals, and in many people there are no symptoms.

However, the most common symptoms include: nausea or recurrent upset stomach ,abdominal bloating , abdominal pain, vomiting, indigestion, burning or gnawing feeling in the stomach between meals or at night, hiccups, loss of appetite, vomiting blood or coffee ground-like material, black, tarry stools

Diagnosis:

Gastroscopy: The doctor will check for inflammation and may perform a biopsy, a procedure in which a tiny sample of tissue is removed and then sent to a laboratory for analysis.

Blood tests: include RBC to determine whether you have anemia.
Fecal occult blood test (stool test). This test checks for the presence of blood in the stool, a possible sign of gastritis.

Treatment for Gastritis:

treatment for gastritis usually involves:

Non pharmacological management:

Maintain fluids and electrolytes balance.

Monitor vital signs frequently and record.

Monitor intake and output and record.

Stop smoking and alcohol intake.

Avoid stressful situations.

Eliminate the use of aspirin & NSAID.

Avoiding hot and spicy foods.

Eliminating irritating foods from diet such as lactose from dairy or gluten from wheat.

Pharmacological management:

Taking antacids to reduce stomach acid, which causes further irritation to inflamed areas.

For gastritis caused by H. pylori infection, the doctor will prescribe a regimen of several antibiotics plus an acid blocking drug (used for heartburn) as the following:

-Omperazole (Prilosec) 20 mg bid (7-14days)

-Clarithromycin (Biaxin) 500 mg po bid.

-Meronidazole (Flagyle) 500 mg bid.

-Tetracycline 500mg po bid.

If the gastritis is caused by pernicious anemia, shots of vitamin B12 will be given.

The prognosis for gastritis: most people with gastritis improve quickly once treatment has begun.

Helicobacter Pylori Infection:

H. pylori is Gram-negative bacteria which plays a major role in gastritis and peptic ulcer disease. It colonizes the mucous layer in the gastric antrum

2. Peptic Ulcer Disease:

Definition: Peptic ulcer is a sore (break) that develop on the inner the lining of the stomach, esophagus , and duodenum as a result of erosion from stomach acids (Figure 1:3).

The most common symptom of a peptic ulcer is stomach pain.

There are three types of peptic ulcers:

Gastric ulcers - ulcers that develop inside the stomach

Esophageal ulcers - ulcers that occurs in the lower part of esophagus.

Duodenal ulcers - ulcers that develops in the upper portion of the small intestines, called the duodenum

Causes of Peptic Ulcers

Different factors can cause the lining of the stomach, the esophagus, and the small intestine to break down. These include:

a-Helicobacter pylori (H. pylori) - a bacteria that can cause a stomach infection and inflammation.

b. Chronic use of non-steroidal anti-inflammatory medications or NSAIDs, including aspirin, ibuprofen, and other anti-inflammatory drugs

c. Cigarettes Smoking

d. Drinking too much alcohol

e. Radiation therapy

f. Stomach cancer

g. Acid secretory abnormalities (esp. in Duodenal Ulcer).

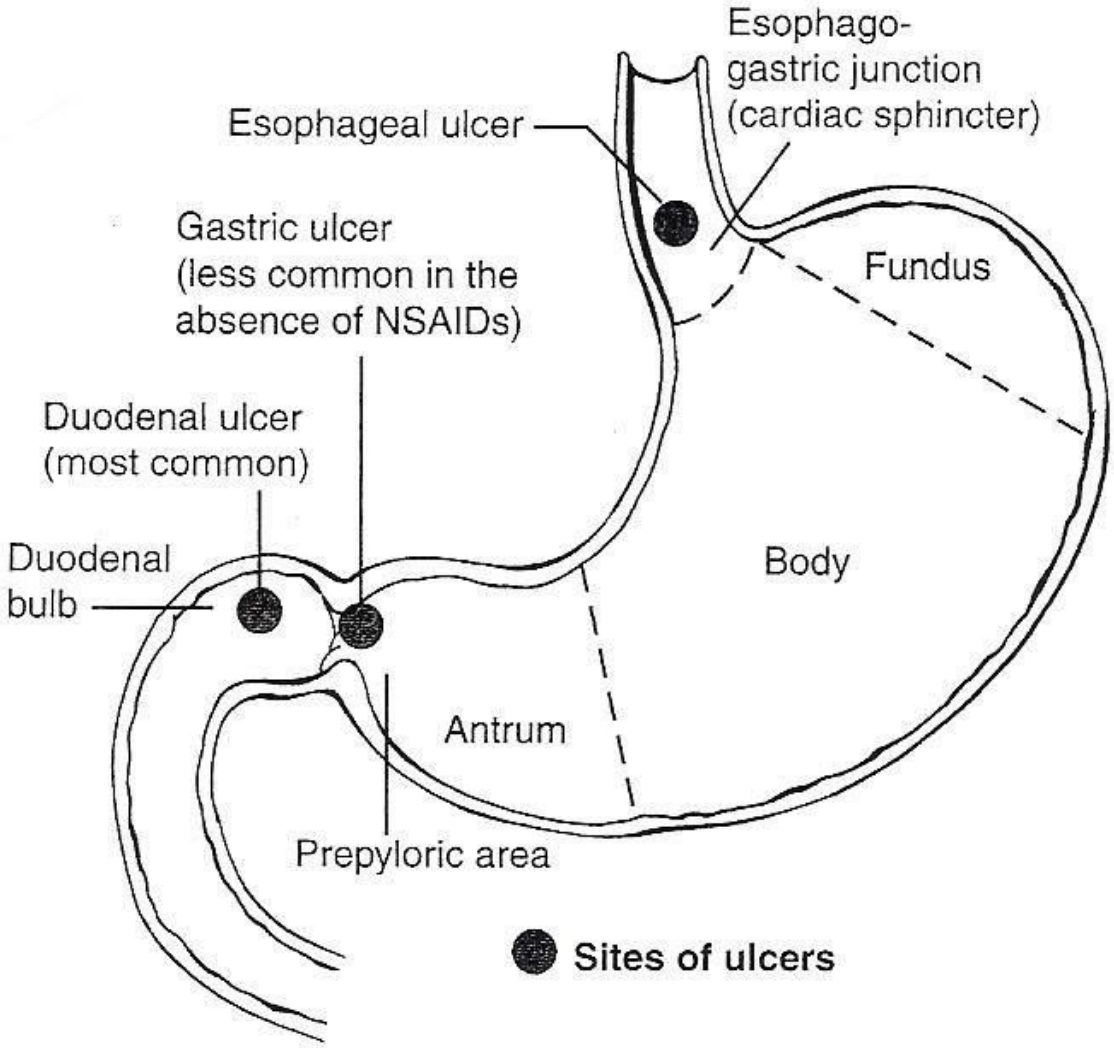
h. Zollinger's-Ellison syndrome (hypersecretory syndrome) lead to massive secretion of HCL due to ectopic gastrin production from non- beta islet cell tumor (gastrinoma).

Risk factors may include:

Prolonged high dose corticosteroids, family history, stress, blood group O, lower socioeconomic status, spicy food and intake of alcohol and caffeine.

Common sites of peptic ulcer (figure 1:4):

- Duodenal ulcer is more common , in first part of duodenum.
- Gastric ulcer more common to be in the lesser curvature.
- Esophageal ulcer is present in lower esophagus
- These ulcers develop in area exposed to gastric acid and Pepsin.
- Peptic ulcer is more common in persons who are emotionally tense.
- More in patient "eat Harry" or " eat too much".


Esophago-
gastric junction
(cardiac sphincter)
Esophageal ulcer
Gastric ulcer
(less common in the
absence of NSAIDs)
Fundus
Duodenal ulcer
(most common)
Duodenal
bulb
Body
Antrum
Prepyloric area
Sites of ulcers

Clinical manifestations:

1- Pain is the cardinal symptom, gnawing or burning epigastric pain occurring during the meal or shortly after meal
2- Nocturnal epigastric pain, abdominal pain or burning, may awaken patient at night, around midnight to 3 a.m. Pain is relieved promptly by food or alkali.

3- Epigastric tenderness on examination.

4- Early satiety, anorexia, weight loss, heartburn, belching (may indicate reflux disease).
5- Dizziness, syncope, hematemesis, or melena (may indicate hemorrhage). 6-Anemia.

7-Constipation due to the type of food and because of the medications. 8-Bleeding 20% of patients bleed have no previous symptoms.

COMPARISON BETWEEN GASTRIC AND DUODENAL ULCER

Diagnostic evaluation:

1-Gastroscopy with possible tissue biopsy, and cytology. 2-X – ray (barium study).

3- Serial stool specimens to detect occult blood.

4- Gastric secretory studies (gastric acid secretion test and serum gastric level test) high in Zollingers-Ellison syndrome.

5- Serology to test for H. pylori antibodies.

Note:

Zollinger-Ellison Syndrome (Gastrinoma) this syndrome is characterized by:
1- Multiple peptic ulcers in the second and third parts of the duodenum. 2- Hyper secretion of gastric juice.

3- Gastrinomas (islet cell tumor) in the pancreas. 4 - Most of these tumors are malignant.

Management:

1-Eleminate use of NASIDs or other causative factors. 2-Eliminate cigarette smoking.

1. Pharmacological management:

Aimed at reducing the acid secretion and the gastric peristalsis.

1- Antacid to neutralize the already formed acid. As Maalox(Alumag): is mixture of aluminum hydroxide and magnesium hydroxide the best method early 1-2 tablespoonful every hour starting 1 hour after breakfast till bed time.

2- Anticholinergic drugs: Inhibits the action of acetylcholine which leads to decrease the secretion of gastric acid by decreasing the simulation of gastric parietal cells. An example (Atropine).

3- Proton-pump inhibitors (PPIs): such esomeprazole (Nexium) and Asomeprazole (Prilosec are more potent than H2 blockers in suppressing acid secretion).

4- Histamine antagonists (H2 blockers) are drugs designed to block the action of histamine on gastric cells and reduce the production of acid. Examples of H2 blockers are Cimetidine (Tagamet), Nizatidine (Axid),and Famotidine (Pepcid).
5- Antibiotics as tetracycline, clarithromycin, amoxicillin &flagyle to eradicate bacteria (helicobacter)

6- Antispasmodic to reduce the gastric motility.

7. Diet: There is no conclusive evidence that dietary restrictions and bland diets play a role in ulcer healing. No proven relationship exists between peptic ulcer disease and the intake of coffee and alcohol

2. Surgical management:

This is indicated in 2 conditions:

1. Failure of medical treatment.

2. Development of complications as hemorrhage, pyloric obstruction... etc. There are many types of operations to denervate the stomach and to drain it (Figure 1:5):

1. Gastroduodenostomy: Partial gastrectomy with removal of antrum and pylorus of stomach and is anastomosed with the duodenum.

2. Gastrojejunostomy: Partial gastrectomy with removal of antrum and pylorus of stomach and is anastomosed with the jejunum
3. Antrectomy: Gastric resection includes a small cuff of duodenum, the pylorus, and the antrum (lower half of stomach) and the jejunum is anastomosed to the stomach

4. Total gastrectomy called an esophagojejunostomy: Removal of the stomach with attachment of the esophagus to the jejunum or duodenum.

4. Pyloroplasty: A longitudinal incision is made in the pylorus, and it is closed transversely to permit the muscle to relax and to establish an enlarged outlet.

Often, a vagotomy is performed at the same time.

5. Vagotomy: Surgical division of the vagus nerve to eliminate the impulses that stimulate HCL secretion.

Prognosis:

-30 % of cured cases may recur within 2 years.

-With avoidance of tea, coffee, alcohol, salicylate, corticosteroids the incidence of recurrence will be minimized.

Complications:

1. GI hemorrhage
2. Ulcer perforation
3. Gastric outlet obstruction

Nursing assessment

1- Determine location, character, radiation of pain, factors aggravating or relieving pain, duration, when it occurs.

2- Ask about eating pattern, regularity, type of food.

3- Ask about medications(esp. aspirin, NSAIDs, or steroids). 4-History of illness including previous GI bleeding.

5- Obtain psychological history.

6- Perform physical assessment with documentation of positive findings. 7-take vital signs.

Nursing diagnosis:

1-Deficient fluid volume related to hemorrhage.

Nursing interventions:

Avoiding fluid volume deficit.

1- Monitor I & O continuously.

2- Monitor stool for blood and emesis. 3-Monitor CBC, & electrolytes.

4- Administer prescribes IV fluids and replacement of blood as prescribed.

5- Insret NG tube as prescribed and monitor the tube drainage for signs of visible and occult blood.

6- Administer medication through the NG tube to neutralize acidity as prescribed. 7-Obsreve the patient for an increase in pulse and decrease in blood pressure(signs of shock).

7-Obsreve the patient for an increase in pulse and decrease in blood pressure(signs of shock).
8-Prepare the patient for diagnostic procedure or surgery to determine or stop the source of bleeding.

2-Acute pain related to epigastric distress secondary to hyper secretion of acid, mucosal erosion, or perforation.

Nursing interventions:

Achieving pain relief.

1- Administer prescribed medication.

2- Provide small, frequent meals to prevent gastric distention if not NPO. 3-Advice the patient about the irritating effects of certain drugs & foods.

3- Diarrhea related to GI bleeding.

Nursing interventions:

Decreasing diarrhea

1-Monitor patients elimination pattern to determine effects of medications. 2-Monitor v/s , and watch for signs of hypovolemia.

3- Administer antidiarrheal medication as prescribed.

4- Watch for signs and symptoms of impaired skin integrity (erythmia, pain, pruritis) around anus to promote comfort and decrease risk of infection.

4-Imbalanced nutrition: less than body requirements related to the disease process.

Nursing interventions:

Achieving adequate nutrition

1- Eliminate fate foods that cause pain or distress.

2- Provide small, frequent meals that neutralize gastric secretions.

3- Provide high caloric, high protein diet with nutritional supplements as ordered.

4- Administer parenteral nutrition if bleeding is prolonged and patient is malnourished

5- Knowledge deficit related to physical, dietary, pharmacologic treatment of disease.

Nursing interventions:

Educating the patient about the treatment regimen

1- Explain all tests and procedures to increase knowledge and cooperation; decrease anxiety.

2- Teach patient signs & symptoms of bleeding and when to notify the health care provider.

3- Give the patient a chart listing medications, dosages, times ofadministration, and desired effects to promote compliance.

4- Review the health care providers recommendations for diet , activity, medication, and treatment.

Evaluation; Expected outcomes

*Vital signs stable; fluid volume maintained.

*Pain free.

*No more than two to three loose stools per day.

*Eats small, frequent meals each day; reports no loss in weight.

*Describes peptic ulcer disease, its treatment, and complications; complies with treatment regimen

Thank You
For Your Attention