Chapter 45

Care of the Patient with a Gallbladder, Liver, Biliary Tract, or Exocrine Pancreatic Disorder

Laboratory and Diagnostic Examinations

- Serum bilirubin test
  - Direct bilirubin: 0.1-0.4 mg/dL
  - Indirect bilirubin: 0.2-0.8 mg/dL
  - Total bilirubin: 0.3-1.2 mg/dL
- Serum lipase test: 10-140 units/L
- Ultrasound of the liver
  - Wave forms are used to assess for abnormalities in liver structure
- Nursing interventions: Keep patient NPO prior to test

Laboratory and Diagnostic Examinations cont'd

- Liver enzymes
  - AST
  - ALT
  - LDH
  - Alkaline phosphatase
  - GGT
- Nursing interventions: monitor puncture site for bleeding
Serum protein test
- Total protein: 6.4-8.3 g/dL
- Albumin: 3.5-5 g/dL
- Globulin: 2.3-3.4 g/dL
- Albumin/globulin ratio: 1.3-2.2 g/dL

Nursing interventions: Monitor puncture site for bleeding

Oral cholecystogram (OCG) provides roentgenographic visualization of the gallbladder after the oral ingestion of a radiopaque dye

Nursing interventions: assess allergies to dye and administer oral agent

Intravenous cholangiography

Operative cholangiography

T-tube cholangiography

Nursing interventions: assess allergies to iodine, keep patient NPO prior to exam, protect patient from infection postprocedure

Ultrasoundography (ultrasound, echogram) is an imaging technique that visualizes deep structures of the body by recording the reflections (echoes) of ultrasonic waves directed into the tissues

Nursing interventions: keep patient NPO prior to exam

Gallbladder scanning

Nursing interventions: advise patient radioactivity is minimal, keep patient NPO prior to exam

Needle liver biopsy: a safe, simple, and valuable method of diagnosing pathologic liver conditions

Nursing interventions: verify consent, examine related laboratory values, after the procedure monitor the patient for symptoms of bleeding

Radioisotope liver scanning: used to outline and detect structural changes of the liver

Nursing interventions: keep patient NPO prior to exam
Laboratory and Diagnostic Examinations cont’d

- Serum ammonia level
- Hepatitis virus studies
- Serum amylase studies
- Serum lipase
- Nursing interventions: monitor puncture site for bleeding
- Urine amylase test
- Nursing interventions: record exact time of beginning and end of collection, keep specimen on ice or refrigerated

Laboratory and Diagnostic Examinations cont’d

- Computed tomography of the abdomen
- Nursing interventions: keep patient NPO prior to exam
- Endoscopic retrograde cholangiopancreatography of the pancreatic duct (ERCP)
  - Involves inserting a fiberoptic duodenoscope through the oral pharynx, through the esophagus and the stomach, and into the duodenum and injecting dye
- Nursing interventions: keep patient NPO prior to exam, check PT/INR level, instruct patient that exam takes 1-2 hours; after exam, keep patient NPO until gag reflex returns, assess for pancreatitis, monitor vital signs

Cirrhosis

- A degenerative disease of the liver in which the lobes are covered with fibrous tissue, and the lobules are infiltrated with fat
- Early stage is characterized by
  - Firmness over the liver
  - Generalized weakness
  - Malaise
  - Vague flulike symptoms
- Later stages are characterized by
  - Upset stomach
  - Ascites
  - Jaundice
  - Malaise
  - Spider telangiectasis
Cirrhosis cont’d

- Diagnostic tests
  - ALT
  - AST
  - LDH
  - GGT
  - Protein levels
  - Prothrombin time
  - ERCP

Cirrhosis cont’d

- Medical management
  - Eliminate alcohol use
  - Diet modification
  - Antiemetics
  - Benadryl
  - Dramamine

Cirrhosis cont’d

- Nursing interventions
  - Monitor VS closely
  - Monitor for GI bleed
  - Monitor fluid status
  - Direct patient to resources to deal with alcoholism
  - Provide patient education
  - Monitor laboratory values
  - Place patient on bleeding precautions as appropriate
Complications of Cirrhosis

- Fluid retention
  - Diuretics are commonly used to decrease fluid retention
  - Albumin may be given to increase osmotic pull into vascular space
  - LeVeen peritoneal shunt
  - Paracentesis may be performed
- Esophageal varices: veins in the esophagus become enlarged and engorged
  - Susceptible to ulceration and hemorrhage
  - Prophylactic treatment includes beta blockers
  - Varices can rupture as a result of anything that increases abdominal venous pressure, such as coughing, sneezing, vomiting, or the Valsalva maneuver
  - Rupture of a varix is an emergency and should be treated as such

Complications of Cirrhosis cont’d

- Hepatic encephalopathy: a type of brain damage caused by liver disease and consequent ammonia intoxication
- Signs and symptoms progress from inappropriate behavior, disorientation, asterixis, and twitching of the extremities to stupor and coma
- Treatment consists of supportive care to prevent further damage to the liver

Carcinoma of the Liver

- Diagnosis is difficult, in early stages may mimic cirrhosis
- Treatment is usually palliative and prognosis is commonly bleak
- Chemotherapy and surgery may be used
- Nursing interventions focus on maintaining as high a quality of life as possible
Hepatitis

- Exists as type A, B, C, D, E, G
- Symptoms vary greatly and many patients are asymptomatic
- Prevention is the best treatment
- Serum tests similar to those for cirrhosis may be completed
- Serum test for hepatitis markers
- Medical treatment focuses on decreasing viral load

Hepatitis cont’d

Nursing Interventions

- Protect patients from injury, as they may have a decreased LOC
- Place on bleeding precautions as indicated
- Provide dietary education
- Monitor I&O
- Administer antiemetics as needed and indicated

Liver Abscess

- A walled-off area of infection contained within the liver
- Left untreated, can be fatal (fatality rate used to be 100% due to vague symptoms)
- Symptoms include pain, fever, abdominal pain, chills
- The nurse should assess signs and symptoms and monitor the liver’s ability to function normally (assess lab values)
- Diagnosed radiographically
- Usually treated with IV antibiotics, but can be drained surgically
- Nursing interventions: provide continuous monitoring and supportive care
Cholecystitis and Cholelithiasis

- The two most common conditions of the gallbladder are cholecystitis (inflammation of the gallbladder) and cholelithiasis (presence of gallstones in the gallbladder)
- Cholecystitis can be caused by an obstruction, gallstone, or tumor
- May be acute or chronic
- Characterized by indigestion, nausea, and vomiting
- Patient often reports pain in the upper right quadrant that radiates to the right shoulder
- Diagnosis made by ultrasound or HIDA scan
- Medical management usually aimed at surgical correction

Pancreatitis

- Inflammatory condition of the pancreas that may be acute or chronic
- Generally caused by alcohol ingestion or biliary disease
- Pancreatic enzymes build up and begin to digest the pancreas
- The development of pseudocysts or abscesses is a serious complication

Pancreatitis cont’d

Clinical Manifestations and Assessment
- Severe abdominal pain radiating to the back
- Pain is usually located in the left upper quadrant
- Assess
  - Pain
  - Fever
  - Leukocytosis
  - Nausea
  - Vomiting
  - Hypotension
Pancreatitis cont’d

Medical Management
- NPO
- Medications
- Pain control
- Antiemetics
- H2 antagonists
- Total parenteral nutrition (TPN)

Pancreatitis cont’d

Nursing Interventions
- The patient is kept NPO and an NG tube is inserted
- Assess and treat pain
- Treat nausea and vomiting
- Administer anticholinergic medications as prescribed
- Administer H2 antagonist as prescribed
- As diet advances, begin patient on a clear liquid diet
- Patient may be required to be on TPN
- If patient is on TPN, monitor glucose levels closely

Cancer of the Pancreas
- Most common risk factor is cigarette smoking
- Other risk factors include exposure to chemical carcinogens, diabetes mellitus, cirrhosis, and chronic pancreatitis
- Begins with vague symptoms (anorexia, nausea)
- Abdominal pain in midepigastric region may occur
- About half of patients with cancer develop diabetes mellitus
Cancer of the Pancreas cont’d

• May be diagnosed with CT, ultrasound, or needle biopsy
• Treatment is usually surgical and there is a high mortality rate
• Radiation and chemotherapy may also be used

Jaundice

• The discoloration of body tissues caused by abnormally high blood levels of bilirubin
• Assess pain skin color, and color of mucus membranes and sclera of the eye

Hepatitis

• Inflammation of the liver caused by viruses, bacteria, and noninfectious causes of liver inflammation such as alcohol ingestion and drugs
• Hepatitis A, B, and C are the most common viruses that cause hepatitis
• Hepatitis D and E occur in conjunction with B and C respectively
Hepatitis cont’d

Transmission
- Hepatitis A (HAV): Fecal-oral
- Hepatitis B (HBV): Body fluids
- Hepatitis C (HCV): Body fluids
- Hepatitis D (HDV): Body fluids, occurs concurrently with HBV
- Hepatitis E (HEV): Body fluids, occurs concurrently with HCV

Assessment
- Subjective
  - Malaise
  - Aching muscles
  - Fatigue
  - Photophobia
  - Chills
  - Abdominal pain
- Objective
  - Enlarged lymph nodes
  - Weight loss
  - Jaundice
  - Tea-colored urine

Liver Transplantation
- Indications for liver transplantation include
  - Congenital biliary abnormalities
  - Inborn errors of metabolism
  - Hepatic malignancy (confined to the liver)
  - Sclerosing cholangitis
  - Chronic end-stage liver disease
Liver Transplantation cont’d

Medications to Prevent Rejection
- Cyclosporine
- Azathioprine (Imuran)
- Corticosteroids
- Tacrolimus (Prograf)
- Mycophenolate mofetil (Cellcept)
- Basiliximab (Simulect)
- Daclizumab (Zenapax)

Liver Transplantation cont’d

Nursing Interventions
- Assess neurologic status
- Monitor vital signs
- Monitor for hemorrhage
- Monitor lab values
- Pulmonary toileting
- Monitor drainage tubes
- Prevent infection

Surgical Treatment of Cholecystitis and Cholelithiasis
- The treatment of choice for cholecystitis and cholelithiasis is surgery
- Two types of surgical procedures are performed
  - Laparoscopic cholecystectomy
  - Open abdominal cholecystectomy
Laparoscopic Cholecystectomy

- The most common treatment for cholecystitis and cholelithiasis
- Uses a laser or cautery to remove the gallbladder
- Replaces the open surgical procedure 80-85% of the time

Surgical Procedure

- The abdominal cavity is inflated with 3-4 liters of air
- A laparoscope is inserted into the abdomen
- The surgeon removes the gallbladder with the laparoscope

Advantages

- Less invasive
- Less scarring
- Less pain
- A quicker return to normal activity
Laparoscopic Cholecystectomy cont’d

Post-surgical Care
- Assess and treat pain
- Assess vital signs routinely
- Provide patient education

Open Abdominal Cholecystectomy
- The abdomen is opened and the gallbladder is removed
- Recovery time is longer
- Greater risk for infection
- The patient will usually have a drain placed
- Nursing care will follow the same path as laparoscopy; however, drain care will also be performed and recovery will be more extensive