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
### Laboratory and Diagnostic Examinations cont’d

**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

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### Laboratory and Diagnostic Examinations cont’d

**Intravenous cholangiography**

**Operative cholangiography**

**T-tube cholangiography**

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

**Ultrasonography (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

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### Laboratory and Diagnostic Examinations cont’d

**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 telangiectasia
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

Hepatitis cont’d

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

Laparoscopic Cholecystectomy cont’d

**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

Laparoscopic Cholecystectomy cont’d

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

**Postsurgical 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