Liver, biliary, and pancreatic needs

Therapeutic nursing interventions
NSG 4037: Adult Nursing III
2006

Disorders of the exocrine pancreas

Acute pancreatitis
Inflammation of the pancreas
Autodigestion of pancreas
Fat necrosis
Hemorrhage
Pancreatitis

Disorders of the exocrine pancreas

Risk factors
Alcohol abuse—major cause
Cholelithiasis
Abdominal trauma

Etiology
Exact cause unknown
Proteins may plug the small pancreatic ductules.
Hyperlipidemia
Hypercalcemia
Pancreatic trauma
Pancreatic ischemia
Drugs (antibiotics, anticonvulsants, thiazides, sulfonamides, valproic acid, diuretics)
Disorders of the exocrine pancreas

Pathophysiology
When protease and lipase are activated before secreted into the intestine then pancreatic tissue damage occurs. Once inflammation begins, a vicious circle of further tissue damage continues.

Clinical manifestations
- Mild, nonspecific abdominal pain
- Local peritonitis
- Pain in mid-epigastrum radiating to back as well as the chest, flanks, and lower abdomen
- Nausea & vomiting due to pain

Typical features of client
- Distressed, anxious
- Abdominal distention
- Turners sign- bluish discoloration of left flank
- Cullen’s sign- bluish discoloration of the periumbilical area
Disorders of exocrine pancreas

Severe circulatory complications
- Hypotension,
- pallor,
- cool, clammy skin,
- hypovolemia

Disorders of the exocrine pancreas

Other findings
- Cerebral abnormalities, belligerence, confusion, psychosis, and coma
- Transient hyperglycemia and diabetes may develop
- High serum amylase and lipase
- Chest films show left atelectasis, pleural effusion
- Abdominal films show air in duodenal loop, distention of the colon, gallstones

Disorders of the exocrine pancreas

Medical management
- Reduce pain
- Maintain volume status, electrolyte balance, and nutrition
- Maintain pancreatic rest
- Treat complications
- Other measures
Disorders of the exocrine pancreas

Nursing management
- Assess and manage pain
- Use non pharmacologic measures for pain relief
- Keep NPO and provide oral hygiene
- Monitor vital signs for hemodynamic changes
- Monitor urine output
- Monitor respirations and breath sounds
- Monitor anxiety

Disorders of the exocrine pancreas

Surgical management
- Indicated in uncertainty of diagnosis
- Treatment of secondary pancreatic infections, necrosis or abscess
- Correction of associated biliary tract disease
- Progressive deterioration despite optimal supportive care

Disorders of the exocrine pancreas

Postoperative nursing management
- Understand the procedure that was performed
- Know location and purpose of all drains
- Continually assess tubes and drains
- If T tube becomes nonfunctional alert the MD ASAP.
Disorders of the exocrine pancreas

Discharge planning
- Verbalize disease process and how to prevent recurrence
- Discuss medication regimen
- Diet modification
- Manifestations of recurrence

Disorders of the exocrine pancreas

Chronic pancreatitis
- Progressive fibrosis and degeneration of pancreas
- Destruction occurs by repeated attacks of pancreatitis
- Damage is irreversible involving both endocrine and exocrine functions

Disorders of the exocrine pancreas

Clinical manifestations
- Pain may be continuous, intermittent
- Vomiting
- Constipation
- Fever
- Jaundice
- Abdominal distention
- Foul, fatty stools
- Diabetes
Disorders of the exocrine pancreas

Pancreatic pseudocysts
Localized collections of pancreatic secretions in a cystic structure usually adjacent to the pancreas
Clinical picture is abdominal pain, early satiety, N & V.

Disorders of the exocrine pancreas
Pancreatic cancer
Fourth common cause of death from cancer
90% die within first year
Linked to diabetes mellitus, alcohol use, smoking, high fat diet, obesity
Disorders of the exocrine pancreas

Pancreatic cancer
- Medical treatment: radiation therapy
- Chemotherapy
- Surgical management: Whipple’s procedure

Pancreatic trauma
- Rare
- High morbidity, mortality
- Injuries to surrounding tissues likely

Cystic fibrosis
- Hereditary, chronic disease
- Autosomal recessive
- Childhood disease but many people are surviving into adulthood
- Malabsorption of lipids due to decrease lipase formation
Biliary tract disorders
Cholelithiasis (gallstones)
Cholecystitis - inflammation of gall bladder
Infections
Tumors
Congenital malformations

Biliary tract disorders
Cholelithiasis
Increasing age
Women more than men
Diabetes mellitus
Obesity
Crohn's disease
Cirrhosis

Biliary tract disorders
Gallstones are crystalline structures formed by hardening and adhering of bile constituents.
Biliary tract disorders

Gallstone formation involves several factors
- Bile must become supersaturated with cholesterol or calcium
- Solute must precipitate from solution as solid crystals
- Crystals must come together and fuse to form stones

Biliary tract disorders

Clinical manifestations
- Similar to other disorders
- Most specific and characteristic is pain or biliary colic.
- Starts in the upper midline area
- Radiate to the back and right shoulder blade.

Biliary tract disorders

Clinical manifestations
- Restless, trying to get comfortable
- May persist few hours or days
- If common bile duct blocked, jaundice and pancreatitis will occur
- Assessment is very important as biliary colic and coronary artery disease symptoms are remarkably similar
Biliary tract disorders

Confirming diagnosis
Abdominal ultrasound is test of choice
ERCP can also detect stones in the common bile duct as well as tumors, strictures.

Biliary tract disorders

Medical management
Reduce pain
Monitor fluid and electrolytes
Endoscopy
Gallstone dissolution
Extracorporeal shock wave lithotripsy
Monitor for complications

Biliary tract disorders

Nursing management
Assess and manage pain
Comfort measures
Insert NG tube if ordered
Administer IV fluids
Assess lab values
Observe for injury post procedure
Biliary tract disorders

Self-care
The client will need to learn about diet changes, drugs, ways to prevent recurrence

Biliary tract disorders

Surgical management
Lap cholecystectomy
- Contraindications: stones present in common bile duct
- Complications: damage to biliary tract, hemorrhage. Lap chole. carries a two fold increase in risk of complications compared to open.

Biliary tract disorders

Cholecystectomy
- Open procedure: removal of gallbladder through abdominal incision
- T-tube placed in common duct after removing stones. Drains bile while duct is healing
- Monitor respiratory status closely
Biliary tract disorders

Acute cholecystitis
Acute inflammation of gallbladder wall
90% due to stone in gallbladder and obstruction of cystic duct
5% of cases no stones found
Due to obesity and sedentary lifestyle

Biliary tract disorders
Acute cholecystitis
Similar to chronic but pain lasts longer
N & V
Low grade fever
Mild jaundice in some cases
RUQ tenderness and leukocytosis
Murphy’s sign

Biliary tract disorders
Nursing management
Assessment is critical because several other disease processes produce the same manifestations.
These patients will receive antibiotics.
Biliary tract disorders

Choledocholithiasis
Stones in the common duct
Can occur in the absence of a gallbladder

Cholangitis
Inflammation of bile duct
Lab tests- wbc elevated
Bilirubin and alk. phosphatase-elevated
Amylase- check to determine pancreatitis

Biliary tract disorders

Sclerosing cholangitis
Inflammatory disease of bile ducts that cause fibrosis and thickening of walls and strictures
Important complications of AIDS.

Biliary tract disorders

Carcinoma of gallbladder
5% of all cancers but most common of biliary tract
70% of patients have gallstones
Unrelenting RUQ pain, weight loss, jaundice and palpable mass (RUQ)
Prognosis poor
Hepatic disorders

The liver
Central role in many essential physiologic processes
Lipid synthesis, detoxifies endogenous and exogenous substances

Hepatic disorders

Jaundice
Yellow pigmentation of the sclerae, skin and deeper tissues caused by the excessive accumulation of bile pigments in the blood.
Common manifestation in many liver and biliary disorders

Hepatic disorders

Unconjugated hyperbilirubinemia
Result from overproduction of bilirubin as a result of hemolysis
Conjugated hyperbilirubinemia- impaired secretion of bilirubin from the liver resulting from hepatocellular disease, drugs, sepsis, hereditary disorders or extrahepatic biliary obstruction.
Hepatic disorders
Clinical manifestations
Yellow sclerae, yellowish orange skin, clay-colored feces, tea-colored urine, pruritis, fatigue, and anorexia.
Medical management
Determine cause, reduce pruritus and maintain skin integrity

Hepatic disorders
Nursing management
Observe for jaundice, assess taste, and assess pruritus
Administer antihistamines, cholestyramines (Questran), frequent application of lotion
Soft bed linen, keep room cool

Hepatic disorders
Disturbed body image
Reassure client that the discoloration is usually temporary, encourage personal hygiene
Explain about jaundice, and how long it will last
Hepatic disorders

Hepatitis
Inflammation of liver
Caused by viruses, toxins, or chemicals
Viral hepatitis
Toxic hepatitis
Chronic
Alcoholic

Viral hepatitis
Occurs worldwide
Most common blood borne infection in US and most of world
Most common types-Hepatitis A, B, C,D, and E
Hepatitis F and G not considered serious health threats

Hepatitis A- infectious hepatitis
Caused by infected water, milk, and food
Especially raw shellfish from contaminated waters

Hepatitis B-
Contact with serum of an infected person is the major mode of transmission. Other body fluids can also transmit.
Hepatic disorders

Hepatitis C - drug use 60% of cases
Tattooing or body piercing can allow transmission
Parenterally transmitted like Hep.B
Hepatitis D transmitted through blood
Hepatitis E - rare in US. Short incubation and does not become chronic

Prevention
Strict hand-washing after bowel movements is required
Strict hand-washing after contact with contaminated utensils, bedding, clothing.
Clients with HBV and HCV should not share razors, toothbrushes, cigarettes or other personal items

Hepatic disorders

Hepatitis A - vaccine available
Household contacts of persons with HAV should be given immune globulin.
Inactivated vaccine should be given to persons traveling to endemic areas and also those with risk factors.
Hepatic disorders

Hepatitis B
HBV-for active immunity, 3 IM injections given at 0, 1, and 6 months.

Hepatitis C
Transmission and prevention similar to HBV
Treated with interferon injections

Hepatitis D
Hepatitis D must coexist with HBV, the vaccine for HBV helps to prevent HDV

Hepatitis E, f and G
Hygiene precautions are necessary for prevention of E. No vaccines as yet.

Pathophysiology
Inflammation of the liver with areas of necrosis occur and the damage leads to function impairment

Clinical manifestations
Early-jaundice, lethargy, irritability, myalgia, anorexia, n & v, abd. pain, diarrhea or constipation, fever, flu-like manifestations
Hepatic disorders

Irritability and drowsiness are signs of hepatic encephalopathy when severe. Deterioration of handwriting is an early sign of h.e.

Liver is larger and is tender to palpation. Bleeding tendencies due to reduced absorption of vitamin K.

Prognosis
8-10 weeks liver function tests return to normal.
Hepatic disorders

Medical management
- Reduce fatigue
- Maintain fluid and nutritional balance
- Reduce effects of hepatitis
- Medications to avoid: chlorpromazine, aspirin, acetaminophen, and sedatives.

Hepatic disorders

Nursing management
- Manage fatigue: encourage rest but also encourage some activity to diminish muscle loss due to bedrest
- Modify diet: encourage breakfast, avoid fatty foods, optimum protein, multiple small meals.
- Avoid alcohol
- Provide vitamin supplements
- Relieve N & V
- Relieve anxiety

Hepatic disorders

Complications of hepatitis
- Typically recover completely from the illness in 3-16 weeks.
- Clients with HBV tend to experience more complications, could lead to destruction of liver
- Cirrhoses or chronic active hepatitis could result
Hepatic disorders

Chronic hepatitis
Liver inflammation continues beyond a period of 3-6 months
Chronic hep B follows acute in 5% of cases
Chronic hep C follows in 70% of case

Toxic hepatitis
Most commonly, the causative agent is a toxic metabolite formed by the drug-metabolizing enzymes within the liver
Liver necrosis occurs within 2-3 days after acute exposure to a dose-related hepatotoxin

Alcoholic hepatitis
Acute or chronic
Most frequent cause of cirrhosis
Anorexia, nausea, abdominal pain, hepatomegaly, spleenomegaly, jaundice, ascites, fever, and elevated bilirubin
Liver biopsy reveals fatty hepatic tissue
Hepatic disorders

Cirrhosis
Chronic, progressive disease characterized by widespread fibrosis and nodule formation. Normal flow of blood, bile is altered by fibrosis.

Hepatic disorders

Four major types of cirrhosis
Alcoholic
Postnecrotic- toxin induced
Biliary
Cardiac
A close up view of micronodular cirrhosis in a liver with fatty changes