



Lecture 7 : Medical Surgical Nursing

Acute pancreatitis:

Definition of acute pancreatitis:

Acute pancreatitis is sudden inflammation of the pancreas that may be mild or life threatening but usually subsides. Gallstones and alcohol abuse are the main causes of acute pancreatitis. Severe abdominal pain is the most common symptom.

Causes of acute pancreatitis:

Most common

- Biliary Pancreatitis due to gallstones 40% of cases
- Alcohol in 30% of cases
- Idiopathic in 15-25% of cases(unknown causes)
- Metabolic disorders: hereditary, hypercalcemia, elevated triglycerides, malnutrition.
- Abdominal trauma
- Penetrating ulcers
- Carcinoma of the head of pancreas, and other cancer.
- Drugs: diuretics (e.g., thiazides, furosemide), gliptins (e.g., vildagliptin, sitagliptin, saxagliptin, linagliptin) , tetracycline, estrogens, steroids.
- Infections: mumps, viral hepatitis, cytomegalovirus, Mycoplasma pneumoniae, Ascaris.
- Structural abnormalities: bile duct, pancreas divisum.
- Sever hypertriglyceridemia



- Autoimmune pancreatitis
- Radiotherapy

Less common

- Cystic fibrosis
- Codeine phosphate reaction
- Fat necrosis
- Heart valve surgery
- Scorpion venom
- Pregnancy
- Hyperparathyroidism

Pathophysiology of acute pancreatitis:

The two types of acute pancreatitis are mild and severe. In mild pancreatitis, there is inflammation and edema of the pancreas. In severe pancreatitis, there is necrosis of the pancreas, and nearby organs may become injured. As part of the initial injury there is an extensive inflammatory response due to pancreatic cells synthesizing and secreting inflammatory mediators. A main characteristic of acute pancreatitis is a manifestation of the inflammatory response, The inflammatory response leads to the secondary manifestations of pancreatitis: hypovolemia from capillary permeability, acute respiratory distress syndrome, spread intravascular coagulations, renal failure, cardiovascular failure, and gastrointestinal hemorrhage.

Types of acute pancreatitis

- Mild :most common, no organ dysfunction/complications, resolves normally within a week
- Moderate – initially some evidence of organ failure which improves

within 48 hours

- Severe: continuous organ dysfunction for greater than 48 hours, together with local or systemic complications

Clinical features of acute pancreatitis:

- Severe epigastric pain (upper abdominal pain) radiating to the back in 50% of cases
- Nausea
- Vomiting
- Loss of appetite
- Fever
- Chills
- Hemodynamic instability, including shock
- Tachycardia (rapid heartbeat)
- Respiratory distress
- Peritonitis
- Hiccup ح

Diagnosis of acute pancreatitis

- **Blood investigations** : Full blood count, renal function tests, liver function, serum calcium, , Arterial blood gas, Trypsin-Selective Test. Routine blood tests, as per investigation of any acute abdomen, are required. Specifically for acute pancreatitis, it is important to consider:
 - **Serum amylase** :diagnostic of acute pancreatitis , amylase can also be raised in pathologies such as bowel perforation, ectopic pregnancy, or diabetic ketoacidosis.
 - **Serum lipase** :A raised serum lipase is more accurate for acute pancreatitis (as it remains elevated longer than amylase) . If the lipase level is about 2.5 to 3 times that of amylase, it is an indication of pancreatitis due to alcohol.

- **liver function test:**
 - **CT** :is an important common initial assessment tool for acute pancreatitis.
 - **Ultrasound:**
On abdominal ultrasonography, the finding swelling of pancreas is regarded as diagnostic of acute pancreatitis.

Management:

There is no curative management for acute pancreatitis, so supportive measures are the main treatment. Treat any underlying cause as necessary.

Supportive treatment includes:

- **Intravenous fluid, and oxygen therapy as required**
- **Nasogastric tube** if the patient is sever vomiting
 - If the patient is able to eat, oral intake can be encouraged .
- **Catheterization** to accurately monitor urine output and start a **fluid balance chart** .
- **Opioid analgesia***
- A **broad-spectrum antibiotic**, such as imipenem, should be considered for prophylaxis against infection in cases of confirmed pancreatic necrosis.
- **Treating the underlying cause** , once the patient has been stabilized. For those caused by gallstones, early laparoscopic cholecystectomy is advised.



Complications

- **Disseminated(spread) Intravascular Coagulation (DIC)**
- **Acute Respiratory Distress Syndrome (ARDS)**
- **Hypocalcaemia**

Fat necrosis from released lipases, results in the release of free fatty acids, which react with serum calcium to form deposits in fatty tissue.

- **Hyperglycaemia**
 - Secondary to destruction of islets of Langerhans and subsequent disturbances to insulin metabolism.