

Component 1: Ten Exam Questions

Question #1 – A client presents to the ED complaining of severe epigastric pain that radiates to his back along with persistent nausea and vomiting. In reviewing the lab data of a client in the ER, a nurse identifies a lipase level of 260 U/L. Which of the following should the nurse prepare the client for next?

- A. ERCP
- B. Chest x-ray
- C. Ultrasound
- D. MRI

The most correct answer: C. Ultrasound

Rationale: The client's lipase levels are elevated and are over three times the normal level, which is an indicator of pancreatitis (Afghani, 2014). Since two different findings are necessary to diagnose pancreatitis, an ultrasound of the abdomen may be used to help guide whether a gallstone or other obstruction is present in the ducts and is indicated because of the elevated lipase levels to confirm the diagnosis of pancreatitis (Afghani, 2014). An x-ray would not provide any additional information needed to diagnose pancreatitis, and an MRI would not be indicated unless concerns of abnormalities in the pancreas, gallbladder, and associated ducts are noted (Mayo Clinic Staff, 2018). An ERCP would not be indicated at this time as a diagnosis of pancreatitis has not been made. An ERCP can also cause adverse effects due to its relation to endoscopic sphincterotomy and can be a cause of acute pancreatitis, so conservative management should be considered first (Zamescu, Barbu, Zamescu, Costea, & Neagu, 2015).

The level of cognition for this question is application. The question is application as the student must recognize that the lipase level is high and with the cardinal sign of epigastric pain, likely has pancreatitis. Recognizing those factors will point the student in the direction of which test is useful in diagnosing pancreatitis.

Question #2 – While explaining the process of acute pancreatitis to a client, the nurse discusses the early activation of pancreatic enzymes. The nurse associates the early activation of pancreatic enzymes in the pancreas with which of the following processes?

- A. Inflammation
- B. Ischemia
- C. Hyperglycemia
- D. Digestion

The most correct answer: A. Inflammation

Rationale: Pancreatic digestive enzymes are inactive initially when they are made and as they travel to the small intestine where activation occurs to digest food. When these enzymes are activated too soon and while still present within the pancreas, the pancreas is attacked by them, causing inflammation of the pancreas (Afghani, 2014). Ischemia is incorrect as the pancreas is inflamed and tissue has not died in the process. While the pancreas is responsible for the production of insulin, early activation of the pancreatic enzymes does not stop the production of insulin and does not result in hyperglycemia. Digestion is incorrect as digestion is what occurs when the pancreatic enzymes activate normally and not early.

The level of cognition for this question is analysis. This question is asking the student to think and reason out what process results from the early activation of pancreatic enzymes in the pancreas (McDonald, 2018).

Question #3 – Describe when an endoscopic retrograde cholangiopancreatography (ERCP) would be a treatment option and why a conservative approach is used first.

Salient grading criteria: An ERCP is an option when gallstones are present. Adverse effects can result from ERCPs because of its relation to endoscopic sphincterotomy and also can be a cause of acute pancreatitis.

Rationale: Because a third of all cases of acute pancreatitis are related to gallstones, an ERCP is a treatment option. Since ERCPs can cause adverse effects because of its relation to endoscopic sphincterotomy and can also be a cause of acute pancreatitis, conservative management is the first consideration (Zamescu et al., 2015).

The level of cognition for this question is application. The student must take the knowledge they have learned about diagnosing pancreatitis and when an ERCP is an option for pancreatitis. Additionally, the student must think through and apply what they know about ERCPs and causes of pancreatitis to determine why a conservative approach is used first.

Question #4 – Explain the pathophysiology of acute pancreatitis. Identify three manifestations and explain how they relate to the pathophysiology of acute pancreatitis.

Salient grading criteria: Pathophysiology: Pancreas is responsible for helping break down food in the small intestine by secreting digestive juices that neutralize gastric secretion. Presence of acinar cells which produce digestive enzymes, ductal cells secrete a liquid that carries enzymes into the intestine, and endocrine cells, which secrete hormones and insulin. These enzymes are inactive initially. Activated in the small intestine to digest food. Early activation of the enzymes in the pancreas due to bile duct or pancreatic duct obstruction causes the pancreas to be attacked by them. Leads to an inflamed pancreas or acute pancreatitis. Because of the blockage, pancreatic juices become backed up within the pancreas, causing early activation of the enzymes including trypsin, chymotrypsin, lipase, and elastase. Those enzymes cause proteolysis and lipolysis of the cells and tissue within the pancreas and leads to damage to the blood vessels, coagulative necrosis, fat necrosis, and pseudocyst formation. The body is affected systemically when severe acute pancreatitis occurs as both proinflammatory cytokines and vasoactive peptides are released from it into the bloodstream. Manifestations include (list any of the following but must list three and how each relates to the pathophysiology): Epigastric or midabdominal pain radiating to the back due to the inflamed pancreas. Pain worsens after eating due to the hypermobility that is occurring within the bowels along with persistent nausea. Abdominal distention may also be noted due to hypermobility. Fever, hypotension and tachycardia occur due to the activation of leukocytes, vessel wall injury, and coagulation abnormalities. Jaundice is present if the pancreatitis results from a bile duct obstruction.

Rationale: The pancreas is located behind the stomach and is responsible for helping break down food in the small intestine. It also is responsible for secreting digestive juices that neutralize gastric secretion and works to release insulin, regulating blood glucose levels within the body (Afghani, 20214). The pancreas has three different types of cells, acinar cells produce digestive enzymes, ductal cells secrete a liquid that carries those enzymes into the intestine, and endocrine cells secrete hormones and insulin. Afghani (2014) further explains that these enzymes are inactive when they are made and as they travel to the small intestine.

Activation occurs in the small intestine to allow for the digestion of food. If these enzymes are activated too soon, and they are still present in the pancreas, the pancreas is attacked, leading to inflammation of the pancreas known as pancreatitis (Afghani, 2014). Acute pancreatitis occurs when the pancreatic juices become backed up in the pancreas, causing the enzymes to activate. The activation causes the release of the digestive enzymes trypsin, chymotrypsin, lipase, and elastase (McCance & Huether, 2016). Inflammation results as the active enzymes cause proteolysis and lipolysis of the cells and tissue within the pancreas (McCance & Huether, 2016). This causes damage to the blood vessels, coagulative necrosis, fat necrosis, and pseudocyst formation (McCance & Huether, 2016). The body is affected systemically as both proinflammatory cytokines and vasoactive peptides are released into the bloodstream (McCance & Huether, 2016). McCance and Huether (2016) added that fever, vasodilation, hypotension, and shock can all occur due to the activation of leukocytes, vessel wall injury, and coagulation abnormalities. The cardinal sign of pancreatitis is epigastric or midabdominal pain, which can radiate to the back and is worse after eating due to the inflammation and hypermotility occurring (Mayo Clinic Staff, 2018). Abdominal distention and persistent nausea are also typically present because of the hypermobility of the bowel (McCance & Huether, 2016). The patient may be jaundiced, especially in the case of bile duct obstruction (Afghani, 2014).

The level of cognition for this question is synthesis. The question seeks for the student to explain the pathophysiological process of pancreatitis and also relate the manifestations that are seen with pancreatitis to the pathophysiology of it. Phrasing the question in this way goes beyond having the student only identify an understanding of concepts, which is comprehension based, and is asking the students to consider how the manifestations result from what is occurring in the pathophysiology (McDonald, 2018).

Question #5 – Identify the two most common causes of acute pancreatitis and describe how each causes pancreatitis.

Salient grading criteria: Bile duct or pancreatic duct obstruction. Gallstones blocking the ducts. Chronic alcohol usage - sphincter of Oddi spasms and protein plugs form within the pancreatic ducts.

Rationale: Premature activation of the digestive enzymes within the pancreas causes the inflammation. There are two main reasons for this to occur, which include bile duct or pancreatic duct obstruction, usually from the presence of gallstones, or chronic alcohol use (McCance & Huether, 2016). In chronic alcohol usage, this occurs as it causes the sphincter of Oddi to spasm and protein plugs can also form within the pancreatic ducts, causing an obstruction (McCance & Huether, 2016).

The level of cognition for this question is analysis. This question is asking the student to first identify the causes of acute pancreatitis and then break them down to recognize the effects each has on the pancreas that leads to pancreatitis (McDonald, 2018).

Question #6 – Identify two main factors a nurse should focus on when managing acute pancreatitis.

Salient grading criteria: Reduce the inflammation by stopping autodigestion and prevent further complications.

Rationale: McCance and Huether (2016) explained that the two priorities for acute pancreatitis management include trying to stop the autodigestion that is occurring and causing inflammation and to prevent any further complications.

The level of cognition for this question is application. This question is asking the student to take the material that has been learned and apply it to a situation (McDonald, 2018). This tests the student's ability to apply the basics of pancreatitis to identify what should take priority in managing the disease.

Question #7 – A client who is hospitalized for the treatment of acute pancreatitis has all of these prescriptions. The client is resting comfortably. Which one should the nurse implement first?

- A. Morphine 2 mg IV push q 1 hour PRN
- B. Ibuprofen 600 mg po q 6 hours PRN
- C. Ondansetron 4 mg IV push q 6 hours PRN
- D. Lactated Ringer's 250 ml/hr IV

The most correct answer: D. Lactated Ringer's 250 ml/hr IV

Rationale: It is recommended that Lactated Ringer's specifically are given at a rate of 250-500 mL per hour within the first 24 hours as giving IV fluids early in pancreatitis will help to prevent or reverse the alteration of the pancreatic microcirculation, including the ischemic injury and necrosis that are oftentimes in issue (Zamescu et al., 2015). While pain management is an important component of nursing care, it is indicated in the stem that the client is resting comfortably, not indicating any need for pain medication or an antiemetic. The IV fluids, thus, would be the priority intervention.

The level of cognition for this question is analysis. Per McDonald (2018), with this type of question, a student must analyze the situation of the client to identify which of the medications listed should be given first. The student should analyze that the client is not indicating signs of pain or nausea as the stem includes that the client is resting comfortable, thus making the IV fluids the most appropriate medication choice at that time.

Question #8 – Discuss the diagnostic findings that are used to diagnosis pancreatitis. Include in your answer a) two labs and the values necessary for diagnosing pancreatitis, b) three types of imaging and what each seeks to identify, and c) how many and which findings must be present to diagnosis acute pancreatitis.

Salient grading criteria: Elevated amylase and lipase. These will both be at least three times their normal level. A CT scan to identify if the pancreas is swollen or enlarged, which is associated with inflammation. An ultrasound of the abdomen may be used to identify whether a gallstone or other obstruction is present in the ducts. An MRI may be ordered to check for any abnormalities in the pancreas, gallbladder, and associated ducts. To diagnosis pancreatitis, at least two diagnostic findings must be present, which can include elevated amylase and lipase levels three times the normal upper limit. An ultrasound or CT scan may also be used if both lab levels are not elevated but pancreatitis is suspected.

Rationale: Serum levels of the pancreatic enzymes amylase and lipase are elevated in acute pancreatitis, usually by at least three times the normal level (Afghani, 2014). Elevated lipase levels in the blood is a primary indicator for acute pancreatitis as these levels usually increase 4-8 hours after onset (McCance & Huether, 2016). A CT scan can identify if a pancreas is swollen or enlarged, which is associated with inflammation and also pseudocysts and fluid collections within the pancreas (Afghani, 2014). An Ultrasound of the abdomen helps determine whether a gallstone or other obstruction is present in the ducts (Afghani, 2014). An MRI may be ordered to check for any abnormalities present within the pancreas, gallbladder, and associated ducts (Mayo Clinic Staff, 2018). Confirmation of pancreatitis occurs when both amylase and lipase levels are high, over three times the normal upper limit, while

imaging such as an ultrasound or CT scan may be used if the lab values are both not elevated, but pancreatitis is suspected based on client symptoms and risk factors (Cleveland Clinic, 2016).

The level of cognition for this question is application. This question is asking the student to discuss diagnostic findings that are used to diagnose pancreatitis. The student must take the knowledge learned about pancreatitis and how it is diagnosed and apply it to understand how it is diagnosed in the clinical setting and why certain tests are used and in which situations.

Question #9 – The nurse has completed education with a client on the type of diet to follow after being hospitalized with acute pancreatitis. The nurse determines that the client has understood the teaching when the client indicates he will eat which of the following at home?

- A. French fries
- B. Fried chicken
- C. Grilled chicken
- D. Cheeseburger

The most correct answer: C. Grilled chicken

Rationale: The most correct answer is grilled chicken as it is important for patients to eat a high protein, nutrient-dense diet and include fruits, vegetables, whole grains, low fat dairy, and lean protein sources once discharged home (Pancreatitis Diet, n.d.). Greasy and fried foods such as French fries, fried chicken, and a cheeseburger should be avoided to help prevent pain and malnutrition (Pancreatitis Diet, n.d.).

The level of cognition for this question is application. This question focuses on material the student has learned about the proper diet for those with pancreatitis or recovering from it. The student must apply what they know about that diet to determine which of the listed foods would be appropriate for a client recovering from pancreatitis (McDonald, 2018).

Question #10 – Create a discharge teaching plan for a client was hospitalized for acute pancreatitis resulting from chronic alcohol usage.

Salient grading criteria: Avoidance of alcohol usage is only way to prevent reoccurrence of acute pancreatitis and/or development of chronic pancreatitis. Provide resources for the client related to alcohol usage, treatment options, and support groups. Include 24 hour nurse line availability. Make and encourage client to go to follow-up appointments for both acute pancreatitis hospitalization and substance abuse disorder. Include information on diet and nutrition and role it plays for those recovering from acute pancreatitis. Foods should include high protein, nutrient-dense ones and include fruits, vegetables, whole grains, low fat dairy, and lean protein sources. Avoid alcohol, greasy and fried foods to help prevent pain and malnutrition.

Rationale: For a client who has acute pancreatitis related to chronic alcohol use, a key factor to provide education and support on is the use of alcohol. According to Healthy People 2020, in 2005 there were over 22 million Americans struggling with an addiction to drugs or alcohol, impacting health negatively and leading to health problems and disorders such as acute pancreatitis (U.S. Department of Health and Human Services [USDHHS], n.d.). Many of these individuals are unaware of their problem, or those that are aware and have tried to make an attempt at treatment, are unsuccessful at locating treatment centers or resources (USDHHS, n.d.). It is important that clients who have issues with substance abuse are provided with resources that they can turn to after discharge. Support groups are also beneficial, so participation in one should be encouraged. Discharge teaching should stress that avoiding alcohol is the only way to prevent pancreatitis from reoccurring and/or developing chronic

pancreatitis (Afghani, 2014). It is important for the nurse to schedule any necessary discharge appointments related to the hospitalization for pancreatitis and the client's substance abuse disorder. A 24 hour nurse access line can also be helpful for clients to access more information once returning home or if questions or concerns arise. Diet also plays an important role in recovering from pancreatitis. During hospitalization, the client will be re-introduced to a bland diet that is tolerable before discharge. Once at home, it is important to eat a high protein, nutrient-dense diet and include fruits, vegetables, whole grains, low fat dairy, and lean protein sources (Pancreatitis Diet, n.d.). Alcohol, greasy, and fried foods should be avoided to help prevent pain and malnutrition (Pancreatitis Diet, n.d.).

The level of cognition for this question is synthesis. This essay question requires the student to work through what is important for the client with pancreatitis when returning home and what that client should be educated on before discharging such as follow-up, resources for help with substance abuse, and diet. It makes the student put the pieces together and consider not only the acute pancreatitis but also issues with substance abuse that led to the pancreatitis (The University of Kansas, n.d.).

Component 2: Test Blueprint

Topic of the Teaching Presentation: The Leader Of GI Disorder Hospitalizations				
Broad Outcome for the Teaching Presentation: After the completion of this presentation and activities, the learner will understand acute pancreatitis, its causes and how it is diagnosed, along with how to properly care for the client with acute pancreatitis				
Learning Objectives for the Teaching Presentation	Number of the Test Item	Type of Test Item	Level of Cognition for Each Test Item	Total Number of Test Items for Each Objective
In conclusion of this activity, the learner will describe what occurs in the process of acute pancreatitis and how it is diagnosed (affective).	#1, 2, 4, 8	<i>Multiple choice (2), essay (2)</i>		4
After watching the PowerPoint presentation on acute pancreatitis, the learner will list two causes of acute pancreatitis (cognitive).	#5	<i>Short answer</i>		1
Following the presentation, the learner will be able to identify three of the four components necessary to the treatment plan for acute pancreatitis (psychomotor).	#3, 6, 7, 9, 10	<i>Short answer (2), multiple choice (2), essay</i>		5
Total Number of Test Items for the Examination:				10

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