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**SERUM AMYLASE SENSITIVITY IN DIAGNOSED CASES
OF ACUTE PANCREATITIS**

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Abstract:

Introduction: Acute pancreatitis is a disease which has a wide range of clinical presentation which includes mild symptoms needing conservative treatment and a severe form requiring a more aggressive approach to treat the disease as it can progress to multiple organ failure rapidly. **Objectives:** The main objective of the study is to analyse the serum amylase sensitivity in diagnosed cases of acute pancreatitis. **Material and methods:** This cross sectional study was conducted in Health department Punjab during July 2019 to January 2020. A total of 100 patients presented with acute pancreatitis were taken into account of this study with simple random sampling technique used. All the patients with moderately raised serum amylase and lipase levels or symptoms pointing towards acute pancreatitis were subjected to further investigations, only the diagnosed cases were included in the study. **Results:** The data was collected from 100 patients. The serum amylase levels of the patients were grouped into three categories i.e. normal, mildly elevated, 3x elevated. The data was then analysed and the sensitivity of serum amylase was calculated from all the diagnosed cases of acute pancreatitis. The value of serum amylase was found to be normal in 31.29% of the patients, while mildly elevated in 35.37% of the patients.

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INTRODUCTION:

The incidence of acute pancreatitis in the United Kingdom has been estimated at 100 to 250 per million population per year. Men and women are affected at a similar rate, although the aetiology differs between the sexes, with gallstones and biliary sludge (echogenic, gravitating material composed of cholesterol crystals, calcium bilirubinate granules, and muco-glycoproteins) being more frequent in women, and alcohol more common in men. Iatrogenic causes include endoscopic retrograde cholangiopancreatography (ERCP) and drugs (for example, azathioprine, frusemide (furosemide), and salicylates) [1].

Hypertriglyceridaemia, hypercalcaemia, hypothermia, and pancreatic neoplasia are less common causes, as are viral infections and hereditary acute pancreatitis. In more than 80% of patients, acute pancreatitis is mild and resolves without serious morbidity, but in up to 20% it can be severe and complicated by major morbidity and mortality [2].

Acute pancreatitis is a disease which has a wide range of clinical presentation which includes mild symptoms needing conservative treatment and a severe form requiring a more aggressive approach to treat the disease as it can progress to multiple organ failure rapidly. Obstruction by gallstones has been recognized as the most common cause of acute pancreatitis, while other causes such as alcohol, trauma and idiopathic causes are also responsible for this condition [3].

The disease is clinically classified into mild and severe acute pancreatitis. The mild form has no associated complications such as abscess formation, necrosis, hypocalcemia while the severe form is commonly associated with these complications resulting in multi organ failure. Elevated levels of pancreatic enzymes remain the key to diagnosing acute pancreatitis however, a normal level does not rule out a person having the disease either [4]. A raised level of serum amylase activity, at least three times the upper limit of normal, supports the diagnosis of acute pancreatitis. Its activity rises quickly within the first 12 hours after the onset of symptoms and returns to normal within three to five days. Serum amylase activities may be normal in 19–32% of cases at the time of hospital admission,

as a result of delayed presentation or exocrine pancreatic insufficiency for example, secondary to chronic alcohol abuse [5].

Hypertriglyceridaemia competitively interferes with the amylase assay and can produce falsely low results, although this is variable and can be modulated by the use of lipid clearing agents. Conversely, serum amylase activities can be increased in other intra-abdominal inflammatory conditions and salivary gland pathologies, and also where there is decreased renal clearance because of renal impairment or macroamylasaemia [6].

Objectives

The main objective of the study is to analyse the serum amylase sensitivity in diagnosed cases of acute pancreatitis.

MATERIAL AND METHODS:

This cross sectional study was conducted in Health department Punjab during July 2019 to January 2020. A total of 100 patients presented with acute pancreatitis were taken into account of this study with simple random sampling technique used. All the patients with moderately raised serum amylase and lipase levels or symptoms pointing towards acute pancreatitis were subjected to further investigations, only the diagnosed cases were included in the study.

Data was analysed using the latest version of SPSS version20. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 100 patients. The serum amylase levels of the patients were grouped into three categories i.e. normal, mildly elevated, 3x elevated. The data was then analysed and the sensitivity of serum amylase was calculated from all the diagnosed cases of acute pancreatitis. The value of serum amylase was found to be normal in 31.29% of the patients, while mildly elevated in 35.37% of the patients. Serum amylase was found to be raised three times the normal value in 33.33% of the patients who were diagnosed as having acute pancreatitis.

The sensitivity of serum amylase in recognizing acute pancreatitis was found to be 33%, in both the genders.

Table 01: Serum amylase activity in selected patients

Serum amylase activity				
		Normal	Moderate	High levels
Gender	Female	25	25	7
	Male	25	17	1
		50	42	8

DISCUSSION:

The pancreas is an organ in the abdomen (tummy) that secretes several digestive enzymes (substances that break down the food we eat) into the pancreatic ductal system, which empties into the small bowel. The pancreas also contains the islets of Langerhans, which secrete several hormones such as insulin (which helps regulate blood sugar) [7]. Acute pancreatitis is sudden inflammation of the pancreas, which can lead to damage of the heart, lungs, and kidneys and cause them to fail. Acute pancreatitis usually manifests as upper abdominal pain radiating to the back. However, there are several potential causes of upper abdominal pain. It is important to determine if someone with abdominal pain has acute pancreatitis or another illness in order to start appropriate treatment [8]. Blood tests such as serum amylase and serum lipase, as well as urine tests such as urinary trypsinogen-2 and urinary amylase, can be used to determine if someone with abdominal pain has acute pancreatitis. It is usually the case that a patient is considered to have acute pancreatitis only when amylase or lipase levels are three times the upper limit of normal [9]. With regard to urinary trypsinogen-2, a level of more than 50 ng/mL of trypsinogen-2 in the urine is considered an indication of acute pancreatitis. With regard to urinary amylase, there is no clear-cut level beyond which someone with abdominal pain is considered to have acute pancreatitis [10].

CONCLUSION:

It is concluded that that serum amylase has a lower sensitivity and misses the diagnosis of about two thirds of the diagnosis. Hence it is a poor screening test and health care providers should not rely solely on it and order more sensitive tests.

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