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FREQUENCY OF PANCREATITIS IN PATIENTS DUE TO GALL STONES.

Muhammad Kaleem[1]*, M. Akram Bajwa[2], Khadim Hussain Samejo[3], Adil Hussain[4], Nand laal Seerani[5], Khalid Hussain[6]

[1]*Post Graduate Resident of Gastroenterology, Liaquat University of Medical and Health Sciences Jamshoro, Email: dralikaleem@gmail.com
[2]Associate professor of Gastroenterology, Liaquat University of Medical and Health Sciences Jamshoro, Email: drakrambajwa69@yahoo.com
[3]Senior Registrar of Gastroenterology, Bilawal Medical College, LUMHS, Jamshoro, Email: drkhsamejo@gmail.com
[4]Consultant Gastroenterologist, Liaquat University Hospital, Hyderabad, Email: dradilchang@gmail.com
[5]Assistant professor of Gastroenterology, Liaquat University of Medical and Health Sciences Jamshoro, Email: lalnandseerani76@gmail.com
[6]Consultant Gastroenterologist, Liaquat University Hospital, Hyderabad, Email: Drkhalid_laghari@hotmail.com

***Corresponding author: -** Muhammad Kaleem
*Post Graduate Resident of Gastroenterology, Liaquat University of Medical and Health Sciences Jamshoro. email: dralikaleem@gmail.com

ABSTRACT

Background: According to world statistics, approximately 20% of adults from the whole population are diagnosed with asymptomatic or silent gallstones in the United States of America and Europe. However, among these 20 percent of people, only a small percent develop complications or symptoms. Due to this, "silent" is the term assigned to most of these gallstones because they are often identified during abdominal investigations that were performed for other purposes.

Objective: This research was performed to identify the association between biliary pancreatitis and silent gallstones.

Study design: a cross-sectional study

Place and Duration: This study was conducted at Liaquat University of Medical and Health Sciences Jamshoro from October 2022 to March 2023.

Methodology: The people who were involved in this research were those who were diagnosed with acute pancreatitis associated with silent gallstones. All the participants were of both genders and all ages. The most common thing that the participants complained about was pain in the upper abdomen, which spread to the back as well for about one to two weeks duration. The silent gallstones were confirmed using ultrasonography.

Results: A total of 150 people were diagnosed with acute pancreatitis, and 97 people were diagnosed with acute biliary pancreatitis associated with the detection of gallstones. The mean age was 49.1 years. Females had a higher frequency of acute biliary pancreatitis.

Conclusion: People who are diagnosed with smaller gallstones are more likely to develop acute biliary pancreatitis.

Keywords: acute biliary pancreatitis, gallstones, silent gallstones, adults

INTRODUCTION

According to world statistics, approximately 20% of adults from the whole population are diagnosed with asymptomatic or silent gallstones in the United States of America and Europe [1]. However, among these 20 percent of people, only a small percent develop complications or symptoms [2]. Due to this, "silent" is the term assigned to most of these gallstones because they are often identified during abdominal investigations that were performed for other purposes [3]. There are also some people with gallstones for whom the complications and symptoms can be identified. These are painful symptoms of biliary colic that lead to acute cholecystitis or pancreatitis [4]. However, this is a rare condition and occurs in only 2 percent to 3 percent of cases [5].

An inflammatory problem of the pancreas is called acute pancreatitis. In almost 80% of people, this condition is self-resolving and mild, without any long-lasting consequences [6]. Acute pancreatitis involves a number of complex episodes, starting with injury to acinar cells of the pancreas. This leads to leakage and premature activation of pancreatic enzymes in the parenchyma [7]. Due to this condition, enzymes break down tissues and cells, causing oedema and emorrhage. The biliary or pancreatic duct can be obstructed by gallstones, which leads to a rise in the duct pressure. Therefore, the unregulated activation of digestive enzymes increases the risk of pancreatitis [8].

The mortality rate in the case of gallstone pancreatitis (GSP) ranges from 1 percent to 3 percent [9]. In 90 percent of the people who are diagnosed with gallstone pancreatitis, the gallstones have been identified by ultrasonography. This shows that the stones usually pass through to the duodenum. There are certain risk factors that involve a number of stones. These stones have a diameter of <5 millimetres and a cystic duct with a large lumen [10]. There is a strong link between the risk of the occurrence of acute biliary pancreatitis and the size of the gallstone. The risk of the occurrence of acute pancreatitis increases when the gallstones are <5 millimetres in size, and vice versa.

It is very important to diagnose acute biliary pancreatitis accurately because when the stones are removed, the chances of recurrence are also eliminated. To diagnose biliary lithiasis, imaging is considered the standard method. In some uncomplicated situations, the ultrasonography's sensitivity is >90%. However, in the case of acute biliary pancreatitis, the sensitivity is <80% because of the distension of the bowel and ileus [11].

For the diagnosis of acute pancreatitis, the sensitivity of serum lipase is a little bit higher than the sensitivity of serum amylase. Hence, it is recommended that people who are diagnosed with acute pancreatitis undergo a serum lipase test for confirmation [12]. Therefore, this research was performed to identify the association between biliary pancreatitis and silent gallstones.

METHODOLOGY

The people who were involved in this research were those who were diagnosed with acute pancreatitis associated with silent gallstones. All the participants were of both genders and all ages. Each individual was briefed about the research, and their written consent was obtained. The ethical review committee approved this research.

Exclusion criteria: People who were diagnosed with acute pancreatitis but the cause was other than silent gallstone were not a part of this research.

The most common thing that the participants complained about was pain in the upper abdomen which spread to the back as well for about one to two weeks. Vomiting and nausea were also associated with this pain. The silent gallstones were confirmed using ultrasonography. There were also some other investigations that were carried out on the participants. They were the following: renal function test, serum electrolytes, complete blood count, hepatitis B and C status, prothrombin time, X-ray chest, liver function tests, ECG, and activated partial thromboplastin time. SPSS version 26 was used to conduct the statistical analysis, and all of the data was presented in Excel sheets.

RESULTS

During the time period of our research, a total of 150 people were diagnosed with acute pancreatitis, and 97 people were diagnosed with acute biliary pancreatitis associated with the detection of gallstones. The mean age was 49.1 years. The results show that females had a higher frequency of acute biliary pancreatitis. Table 1 shows the frequency of acute pancreatitis. Table 2 shows the frequency of acute biliary pancreatitis. Table 3 shows the severity of acute pancreatitis in our population.

Table number 1: The frequency of acute pancreatitis in both genders

Age (years)	Acute Pancreatitis	Female	Male
14-23	12	2	10
24-33	22	11	11
34-43	17	6	11
44-53	36	23	13
54-63	35	24	11
64-73	19	10	9
≥74	9	2	7

Table number 2: The frequency of acute biliary pancreatitis in both genders

Age (years)	Biliary Pancreatitis	Female	Male
14-23	8	1	7
24-33	10	6	4
34-43	9	3	6
44-53	30	21	9
54-63	25	18	7
64-73	10	6	4
≥74	5	1	4

Table number 3: severity of acute pancreatitis in the study population.

Gender	Mild	Moderate	Severe
Male	38	10	6
Female	75	15	6

DISCUSSION

If we talk about the topic of our research, we can say that there are very limited research studies based on this topic in Pakistan [13-15]. In our research, when we performed abdominal ultrasound for abdominal pain, we found that there were silent gallstones identified in 35 percent of our sample population. Gallstones are the primary cause of acute pancreatitis in several studies, accounting for 40–60% of cases [16]. Other prominent reasons include alcohol and hypertriglyceridemia. Gallstones were found to be more common in females and older people in our study. Similarly, a German study on pancreatitis discovered a clear link between older age groups and female preponderance in biliary-related acute pancreatitis [17]. These findings indicate that older, obese individuals, particularly females, are at an increased risk of developing acute biliary pancreatitis.

Infectious agents such as bacteria, viruses, and fungi, as well as some drugs, are among the less common and infrequent causes of acute pancreatitis. Some investigations have found that azathioprine, paracetamol, and 6-mercaptopurine can cause acute pancreatitis [18, 19]. However, these findings are extremely rare. Notably, none of the people in our research were given these drugs. Nonetheless, when faced with a case of unexplained pancreatitis, it is critical to consider drug-induced pancreatitis as a possible culprit.

Approximately 10% of acute pancreatitis cases have been linked to infections. These infectious culprits encompass viruses, bacterial agents, fungi, and parasites [20]. It's important to note that none of the participants in our study were diagnosed with any microbial infections. Consequently, in our research, the cause of acute pancreatitis cannot be attributed to infectious agents. However, it is critical to do an extensive examination to rule out other causes of acute pancreatitis before linking the condition to an infectious agent. An incorrect diagnosis can lead to inappropriate illness management, and such scenarios can occur in up to 10% of all acute pancreatitis cases.

Because our data comes from a single institution, its relevance to populations with diverse demographic and regional characteristics may be limited. Furthermore, it is likely that certain variables were assessed incorrectly.

CONCLUSION

People who are diagnosed with smaller gallstones are more at risk of developing acute biliary pancreatitis.

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