

Prevalence and Association of Common Symptoms with Gender and Age in Cholelithiasis Patients

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Abstract

Cholelithiasis is a significant public health concern, prevalent in affluent regions. It affects adults more than children or the elderly, with higher rates in women. Limited epidemiological research on gallstones in men, traditionally seen as a female-related disorder. To find the frequency and common symptoms of cholelithiasis in adults. A descriptive cross sectional study was conducted. The sample of 141 patients was collected through services hospital, Lahore via purposive sampling. Data was collected through the questionnaire based on demographic and common symptoms related to cholelithiasis. Then, collected data was analyzed using SPSS v26. The percentage of 32% male and 68% female were present in 141 selected patients. The age distribution have shown that 67% of patients ranges between 25-35 years while 33% lie between 36-50 years. Marital status showed 41% single and 59% married patients. Cholelithiasis frequency has depicted the 100 diagnosed patients diagnosed, and 41 patients non diagnosed. Common symptoms included right hypochondrium pain (92%), pain backward to the region (77%), fever (74%), and jaundice (52%). Vomiting was prevalent in 90% of patients. Fatty food association with pain was reported to be 85%. Bloating and dyspepsia were seen in 76% and 85% of patients, respectively. Pain in right shoulder was present in 74% and heartburn in 84% of patients. The study reported the high prevalence of cholelithiasis in the population especially females. Common symptoms include right hypochondria pain radiating to the back, vomiting, nausea, fever, dyspepsia, pain between shoulder blades and in the right shoulder, bloating, and heartburn.

Key words: Cholelithiasis, Gall Stone, Frequency.

Introduction

Cholelithiasis is a major public health issue in several parts of the world, particularly in affluent countries¹⁻³. Adults are more likely to develop gallstones than children or the elderly, and women are more likely than males, and the reasons for these differences in age and gender are now well understood⁴. According to epidemiological research undertaken in a number of countries, gallstones have always been regarded to be a disorder that only affects women. Only a few epidemiological studies have looked into the prevalence of gallstones in male communities¹. Gallbladder stone disease is extremely widespread in various parts of the globe. During the twentieth century, the frequency of cholelithiasis grew rapidly in the Western world. Gallstones were identified in at least 20% of females and 8% of males over the age of forty in autopsy

collections conducted in the United States. In the United States, gallstones afflict at least 20 million individuals, with one million new instances of gallstone disease reported each year⁴. Most common treatment option. It may, however, be avoided by recognising and regulating relevant risk factors as well as putting in place preventative measures⁵. As a result of diet westernization (increased fat), the composition of stone changed from pigment to cholesterol cholelithiasis⁶, and lifestyle and diet were major determinants. Gallstones and other bile tract diseases are becoming more common in developing countries, particularly Pakistan, as the socioeconomic burden on the country grows. Cholelithiasis is a hepatobiliary condition characterized by abnormalities in cholesterol metabolism, bile acids, and bilirubin levels, Gallstones can occur in the common bile duct, the hepatic bile duct, or the gallbladder. Diabetics have a higher prevalence of gall stones, according to epidemiological studies. However, just a few local studies have been undertaken to establish the link⁷. Cholelithiasis is a common problem in the Department of Surgery, and it frequently demands surgery. Between 800 B.C. and 400 A.D., pittaashmarijanya, or jaundice caused by a bile stone, was recorded in ancient Indian literature as pittaashmarijanya, or A bile stone can induce jaundice, which can also be caused by a bad diet⁸. Gall stones are thought to affect at least ten percent of adults around the world. Biliary calculi have been discovered in 20% of people ended the age of 40 and 30% of persons ended the age of 70⁹. The frequency has recently grown due to the growing availability of processed foods. Cholelithiasis is identified in 18.5 percent of postmortem investigations in Europe, with the lowest prevalence of 5% in Ireland and the greatest prevalence of 38 percent in Sweden. In Australia, the prevalence rate is estimated to be between 15% and 25%. With an overall incidence of 49 percent and a female prevalence of 73 percent, correspondingly, the Pima Indian tribe in Arizona has the greatest prevalence¹⁰. The most common surgical option is a cholecystectomy, which gives immediate relief from symptoms. Because data on the frequency of cholelithiasis in our community is few, we performed this study to explore the prevalence, a etiology, and surgical therapy of cholelithiasis in patients presenting to the Department of General Surgery¹¹. Women are double as expected as men to suffer, according to some estimates, with a male-to-female ratio ranging from 1.7 to 4:1. Female, obese, fertile, and forty is the best mnemonic for remembering the dangers of gallstones. Women who use oral contraception, have three or more children, or have been pregnant for the whole term are also more vulnerable¹². The gallbladder is a pear-shaped organ located below the liver's visceral inferior surface. Bile stones, also known as gall vessel cholelithiasis, are solidifications that can form in any section of the bile duct¹³. Gallstones are the most frequent biliary problem. Cholelithiasis is a global condition that continues to be a leading cause of surgical surgery, resulting in large financial costs to the health-care system¹⁴. Cholelithiasis affects 10–15 percent of people in Western countries and 3–4 percent of people in Asian communities¹⁵. Gallstones are discovered in 8% and 20% of adults over the age of 40 and 60 in Pakistan, respectively¹⁶. Gallstones are solid bile fragments that resemble stones. Approximately 80% of gallstone carriers are completely ignorant of their condition, and their gallbladder problem was discovered by accident when imaging for unrelated symptoms¹⁷. Gallstones and gallbladder cancer are two typical symptoms of gallbladder disease. Epidemiological research must first establish the prevalence of disease in a specific community before identifying risk variables. By their very nature, studies using necropsy investigations or healthcare records have hidden preferences: they are postmortem or require biliary symptoms/complications, respectively^{18,19,20}. The frequency of cholecystectomy, another possible indicator of disease severity, is a limited indicator of gallstone prevalence since the perceived threshold for surgery and patient access to care differed significantly²¹. Certain epidemiological studies have been compromised by insufficient sample sizes or selection bias. When a tiny sample size fails to reliably detect a real difference, this is known as a beta-II mistake (i.e., a false negative result). Erroneous discrepancies might arise as a result of selection bias (i.e.,

a false positive result). Tran's abdominal ultrasonography is now being utilised to screen large numbers of asymptomatic persons in more trustworthy epidemiological studies. Ultrasonography is a noninvasive and safe imaging technique that may correctly detect the prevalence of gallstones in a specified asymptomatic population, making it an excellent method for quantifying gallstone disease frequency. Gallbladder cancer is a disreputably rare but deadly cancer that has significant ethnic and regional differences. Because the presenting symptoms are usually ambiguous, diagnosis is usually done at a later stage. Because of the late diagnosis and the absence of a serosa in the gallbladder, the prognosis is bleak^{22,23}. The median survival rate for patients with advanced gallbladder cancer was six months, with a 5-year survival rate of 5%²⁴. Although primary gallbladder cancer (partial to the mucosa) is uncommon, it can be cured with a cholecystectomy. Adenocarcinomas develop from the fundus (60 percent), body (30 percent), or neck (>80 percent) of gallbladder malignancies (10 percent). The cause is most likely hereditary predisposition, which may be triggered by long-lasting gallbladder inflammation, which is frequently a symptom of cholelithiasis²⁵. Not only will elucidating such risk factors give insight into its pathogenesis while accounting for geographic and ethnic diversity, but it will also lead to new approaches to prevent and cure this uncommon cancer²⁶. The most prevalent reason for abdominal surgery is gallbladder illness, which is also the second most common intra abdominal operation in Western countries²⁷. More than 95 percent of biliary tract illness is caused by gall stones²⁸. Gall stone formation is thought to be caused by a number of reasons, one of which being bile infection. Bacteria can be cultivated from the bile or the gallbladder wall in roughly 30% of cholelithiasis patients. Bacteria of all types, from aerobic gram positive to gram negative to anaerobic, can effect biliary infection. 94 percent of biliary tract infections are caused by aerobic organisms, whereas the other 4% are caused by anaerobic species. Bacteria are frequently detected in inflamed gallbladders in cholelithiasis patients, despite evidence that normal bile is sterile²⁹.

Material and Methods

This Descriptive Cross Sectional Study was conducted on 141 patients from the department of General surgery ward Service Hospital Lahore. This survey was conducted from November 2023 to February 2024. Both male and female patients having Chololithiasis were included in this study. The age of the Patient was between the 25 to 50 years. Sample size were calculated on the bases of prevalence of Chololithiasis from online sample size calculator. Purposive sampling technique was used for data collection. Data was collected through Questionnaire developed from literature review and expert opinion. Researcher itself went to hospital and got the permission from hospital, describe about the study to the patients about Chololithiasis and gets the written consent of parents. Data was analyzed by SPSS 26 and references were given through End Note.

Results:

In our study the mean age of patient was 35 years. Descriptive Cross Sectional Study shows the result that.

Table 1 showed Demographic of patients and frequency of cholelithiasis.

Variables	Frequency	Percentages
Gender	Male 54 Female 87	(38.3%) (61.7%)
Age	25 to 35 years 89 36 to 50 years 52	(63.1%) (36.9%)
Marital status	Single 58 Married 83	(41.1%) (58.9%)
Frequency of diagnosed cholelithiasis patient	Diagnose 100 Not diagnose 41	(70.9%) (29.1%)

Table 2 showed that most common symptom is pain in right hypochondria region 92(92.0%) Pain in RHC towards the back77 (77.0%). Jaundice 52(52.0%) Fever74 (74.0%) Nausea77 (77.0%) Vomiting (bilious, green in color) 90(90.0%) Fatty food can increase the pain85 (85.0%) Pain relieve by pain killers Medicine87 (87.0%) Bloating 76(76.0%) Dyspepsia85 (85.0%) Back pain between your shoulder blades63 (63.0%) Pain in your right shoulder 81(81.0%)

Table: 2 Shows those Symptoms of Cholelithiasis

Symptoms	Frequency	Percentages
pain in right Hypochondria	92	(92.0%)
Pain in RHC towards the back	77	(77.0%)
Jaundice	52	(52.0%)
Fever	74	(74.0%)
Nausea	77	(77.0%)
Vomiting (bilious, green in color)	90	(90.0%)
Fatty food can increase the pain	85	(85.0%)
Pain relieve by pain killers medicine	87	(87.0%)
Bloating	76	(76.0%)
Dyspepsia	85	(85.0%)
Back pain between your shoulder blades	63	(63.0%)
Pain in your right shoulder	74	(74.0%)
Belching	81	(81.0%)

The results show that the most common symptom among participants was pain in the right hypochondrium (92.0%), followed by vomiting (90.0%), pain relief with painkillers (87.0%), and both pain aggravated by fatty food and dyspepsia (85.0% each). Other frequently reported complaints included belching (81.0%), nausea and pain radiating to the back (77.0% each), fever and right shoulder pain (74.0% each), and bloating (76.0%), while back pain between the shoulder blades was noted by 63.0% of patients. Although less common, jaundice was still present in more than half of the cases (52.0%). Overall, these findings suggest that pain in the right hypochondrium, gastrointestinal disturbances, and food-related aggravation are the predominant clinical features, with jaundice also observed in a considerable proportion of patients.

Table: 3 Associations with Gender and Age

Patient Outcomes	Percentage of RHC	Ranges	Frequencies	Percentages	P-Value
RHC Association with Gender	92(92.0%)	Male	54	(38.3%)	0.001
	92(92.0%)	Female	87	(61.7%)	
RHC Association with Age	92(92.0%)	25 to 35	89	(63.1%)	.243
	92(92.0%)	36 to 50	52	(36.9%)	

The analysis of patient outcomes revealed a significant association between right hypochondrial (RHC) pain and gender, with females being more frequently affected (61.7%) compared to males (38.3%), a difference that was found to be statistically significant ($p = 0.001$). In terms of age distribution, the majority of patients reporting RHC pain were within the 25–35 years age group (63.1%), while 36.9% belonged to the 36–50 years age group; however, this association between RHC pain and age was not statistically significant ($p = 0.243$). These findings suggest that RHC pain is more common among females, whereas age does not appear to play a significant role in its occurrence.

Discussion:

Naganoor, Karimnagar conducted an article in 2020. A total number of cases was 50 out of which 20 were male and 30 were female cases. The female group the youngest was 18 years female and the oldest was 62 years female and the male group of range 22 years was youngest and 65 years was oldest male. The most cases from 41 to 50 years group age. In our study the most cholelithiasis patient was female. Which age group range youngest 25 years and oldest 45 years female are included. And the male age range was youngest 28 years and oldest was 50 years male are included in our study. The most effected patient age range was 26 to 45 years. In our study, out of 141 patients, 54 were male and 87 were female. The age range of patients was from 25 years to 35 years was 89 patients and 36 years to 50 years was 52 patients. Muhammad bilal, abdul haseeb, Muhammad saad, bilal ahmad, vanita motiani conducted this article in 2015 they showed that the prevalence of cholelithiasis and risk factor of gallstone in adults. It was found the 184 patients of cholelithiasis. The frequency of cholelithiasis 10.2% in out of 184 participants. The higher occurrence of cholelithiasis was in female (14.8%) then the male participants (5.7%). In our study showed the frequency of cholelithiasis in adults out of 141 patients 100 had cholelithiasis and 41 had not cholelithiasis. The percentage of gallstone patient in our study was 70.9%. The occurrence of cholelithiasis was higher in female (61.7%) then in male participants (38.3%). The more effected range was 26 years to 45 years. Naseem A, Channa, Fateh D Khand, Muhammad Bhangar and Muhammad H Lgari, conducted this research in 1999 to 2001, the data was collected from multiple medical institute of Karachi. The total number of participants was 483 male and 1583 female patients. The incidence of cholelithiasis is higher in female the sex wise distribution of gallstone cases the age group of female 30 to 44 years was seen to be more to develop the gall stone the female of any other age group. The surgical cases of cholelithiasis in female gradually increased whereas in males had slightly decreased. In our study the also cholelithiasis patients rate is higher in female. The more effected age range in female was 25 years to 40 years, and the surgical incidence was higher in female then the male cases. G Chandra Shekhar Goud was conducted the article in 2020. The most common symptom in the cholelithiasis cases was a pain in right hypochondrium region out of 50 participants 98% was present with the pain of right hypochondrium region and 2% was present without pain in right hypochondrium region. The

jaundice was found in 14% of cases and tenderness was found on examination in 96% of present cases. 10% percent patient had a complain pain toward back. The common symptoms of nausea and vomiting out of 50 participants, 28 (56%) had experience and 22 (44%) had not experience nausea / vomiting. The dyspepsia was present in out of 50 participants, (24%) had experience of dyspepsia. The fever was out of 50 cases 8% had experience during the cholelithiasis disease. In our study the common symptoms of cholelithiasis was. The most common symptoms pain in right hypochondrium region. The out of 100 participants 92% was present with pain in right hypochondrium region and 8% participants was present without pain in right hypochondrium region. And the jaundice was found in out of 100 participants, 52% was present with jaundice and 48% was present without jaundice complained. The common bile duct was explored in these cases and gall stone was removed. 85% of patients had dyspepsia. During the endoscopic examination the patient did not reveal any pathology but on ultrasound examination patient had gall stone. Fever was 74% cases in the present study out of 100 participants and 26% cases are present in surgical OPD without fever. In the present study nausea and vomiting was spontaneous. The 77% cases of cholelithiasis had experienced of nausea and 23% had not nausea experience. And the other thing in this present study, out of 100 cases, 90% cases had vomiting (bilious, green in color) and 10% had not vomiting experience.

Conclusion

The study conducted that majority of the population had cholelithiasis. The common symptoms of cholelithiasis includes pain in right Hypochondrium region, pain in right hypochondrium towards back, vomiting, nausea, fever, pain in between the shoulder.

Recommendation

- Need for further studies that include larger sample size
- The study area should be broadened to whole Punjab level so that results could be generalized to population

Limitation

- This study was conducted on a small sample size and study should be conducted on large sample size.
- Study area was limited

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