

Prevalence of Cholelithiasis among Patients Attending Gastroenterology Department of a Tertiary Care Hospital

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Abstract: Cholelithiasis is a chronic recurrent hepatobiliary disease due to impaired metabolism of cholesterol, bilirubin and bile acid. **Aim:** To evaluate Prevalence of cholelithiasis among patients attending gastroenterology department of a tertiary care hospital. **Objective:** To assess the socio demographic characteristics, comorbidities among cholelithiasis patients and to find the association between abnormal LFT and cholelithiasis. **Method:** This is a cross-sectional study, from January 2022 to June 2022. Among the 924 outpatients in the gastroenterology department, 88 patients were diagnosed with cholelithiasis and was taken as sample size. Socio-demographics and clinical data were noted in a predesigned Performa. **Result:** Prevalence was found to be 9.5 % and was high in the age group of 40-60 years. Gender wise 60.2% females and 39.8% males. Gall stones was predominant among non-vegetarians. Type 2 DM was found to be the most common comorbidity. Abnormalities in LFT showed an association with prevalence of cholelithiasis. (P<0.05) The results show that, early detection is needed in females, patients with non-vegetarian diet, metabolic syndrome etc. Creating awareness among subjects is inevitable as many of them do not have symptoms until they have complications.

Keywords: Cholelithiasis, Prevalence, cross-sectional study, metabolic Syndrome, Treatment Approach

1. Introduction

Gallstone disease (GD) is a chronic recurrent hepatobiliary disease which occurs mainly due to impaired metabolism of cholesterol, bilirubin and bile acid.^[1] In the present scenario GD is one of the mostly occurring gastrointestinal diseases. GD can result in serious outcomes such as acute gallstones, pancreatitis and gallbladder cancer.

- Gall stone prevalence shows a marked difference as per the geographic variation.^[1, 2, 3]
- In Asians, it ranges from roughly 3% to 10%.

There are three main pathways in the conformation of gallstones:

- Cholesterol super saturation, Excess bilirubin, Gallbladder hypo motility or impaired contractility [3]

There are three types of gallstones mainly cholesterol stones, mixed stones, pigment stones.

Abdominal pain (biliary colic), fever, nausea and vomiting, loss of appetite, chills or shivering attack are the commonly observed symptoms^[4, 5]. The main complication of gallstones are gallbladder inflammation leading to cholecystitis, common bile duct blockage resulting in bile duct infection and jaundice, pancreatic duct blockage which can cause pancreatitis, cancer of gallbladder^[6,7].

Gall stones can be detected by Ultrasonography, CT scan,

Magnetic resonance cholangiopancreatography, endoscopic retrograde cholangiopancreatography^[8].

Treatment of gallstones solely depends on the severity of symptoms. Recurrent episodes of upper abdominal pain are related to gallstones are the most common indications for the treatment of gallstones. Delaying optional cholecystectomy until repeated occurrences of pain do results in a minimum drop in life expectation. Cholecystectomy is not suggested for asymptomatic cholelithiasis. Cholecystectomy is the treatment for both complicated and symptomatic cholelithiasis and gallbladder sludge with the characteristics of biliary pain. Firstly oral litholysis agent are given and if there's no improvement, surgical intervention would be needed.^[9]

The principle non-surgical therapy for cholesterol gallstones is still represented by oral litholysis with bile acid such as ursodeoxycholic acid and chenodeoxycholic acid. USDA, in pharmacological doses markedly decreases biliary cholesterol saturation by 40-60% by inhibition of cholesterol absorption in the intestine and the cholesterol secretion into bile as indicated by decrease in cholesterol fraction of biliary lipids. Mainly there are two types of surgery to remove gallbladder. In this century, laproscopic cholecystectomy is more preferred over open cholecystectomy (formerly the gold standard of treatment). The greatest drawbacks to open cholecystectomy are the resulting pain. Laparoscopic cholecystectomy has become widely used, with

complication rate probably is least as that of open procedure. This technique has now replaced open cholecystectomy as first choice treatment for selected types of patients and represent one of the safer surgical procedures.^[10]

2. Methods

- **Study site:** Department of Gastroenterology, S.K hospital, Thiruvananthapuram, Kerala.(India)
- **Sample Size:** Among the 924 patients attended the gastroenterology department during the study period, 88 patients were diagnosed with cholelithiasis and was taken as sample size
- **Study Design:** cross-sectional study
- **Duration of Study:** Six months (January 2022 – June 2022).

Inclusion Criteria: Both genders, Patients with ultrasonographic evidence of gall stones, Age-group of >18 years.

Exclusion Criteria: Pregnant women, Pediatric patients, Patients on oral contraceptives.

Among the 924 patients who visited the Gastroenterology department during the study period 88 patients were diagnosed with cholelithiasis and was enrolled in the study. The data collection form includes patient’s socio-demographic details like age, gender, parity, BMI, family history, social history, food habits, physical activity. Laboratory investigation including liver function test and ultrasonographic data were collected. Also details on the treatment option suggested, including medication intervention and surgical intervention were noted in a predesigned Performa and analyzed through SPSS version 26.

Ethical clearance from the institute and written consent form from the patients were collected beforehand.

3. Results

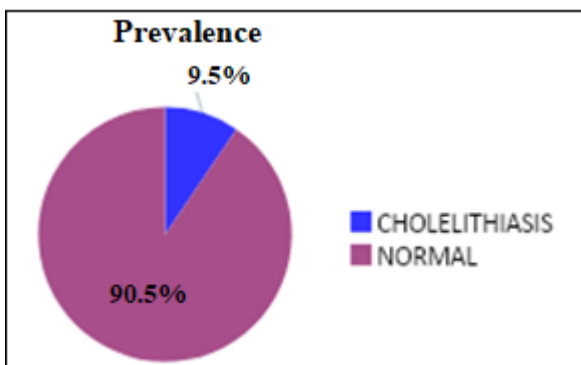


Figure 1: Prevalence of cholelithiasis.

Table 1: Presence of cholelithiasis among age group

Age	Frequency	Percent
31 - 45	20	22.7
46 - 60	29	33.0
61 - 75	28	31.8
76 - 94	11	12.5
Total	88	100.0

Table 2: Presence of cholelithiasis among gender

Sex	Frequency	Percent
Female	53	60.2
Male	35	39.8
Total	88	100.0

Table 3: Cholelithiasis and Body Mass Index

Body Mass Index	Frequency	Percent
Underweight	0	0.0
Normal	30	34.1
Overweight	46	52.3
Obese	12	13.6
Total	88	100.0

Table 4: Parity

Parity	Frequency	Percent
Uniparous	6	11.3
Multiparous	47	88.7
Total	53	100.0

Table 5: Assessment of physical activity in cholelithiasis

Physical Activity	Frequency	Percent
Sedentary	13	14.8
Moderate	69	78.4
Vigorous	6	6.8
Total	88	100.0

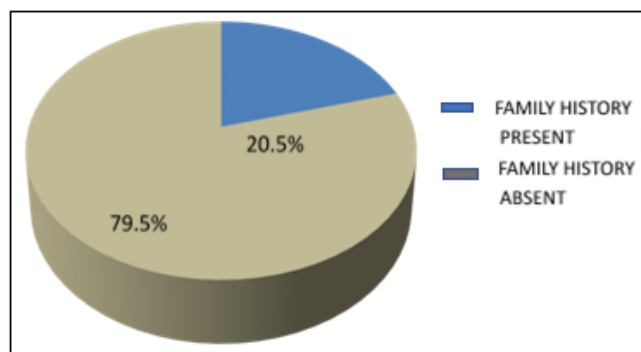


Figure 2: Cholelithiasis and family history

Table 6: Food habits among cholelithiasis cases

Food	Frequency	Percent
Non Vegetarian	75	85.2
Vegetarian	13	14.8
Total	88	100.0

Table 7: Presence of Symptoms among Cholelithiasis Cases

Asymptomatic or Symptomatic	Frequency	Percent
Asymptomatic	71	80.7
Symptomatic	17	19.3
Total	88	100.0

Table 8: Most Commonly Observed Comorbidities

Comorbidities	Frequency	Percent
Dyslipidemia	23	26.1
Fatty Liver	44	50.0
Diabetes Mellitus	46	52.3
Hypertension	35	39.8
Chronic Liver Disease	14	15.9
Benign Prostatic Hyperplasia	17	19.3
Others	28	31.8

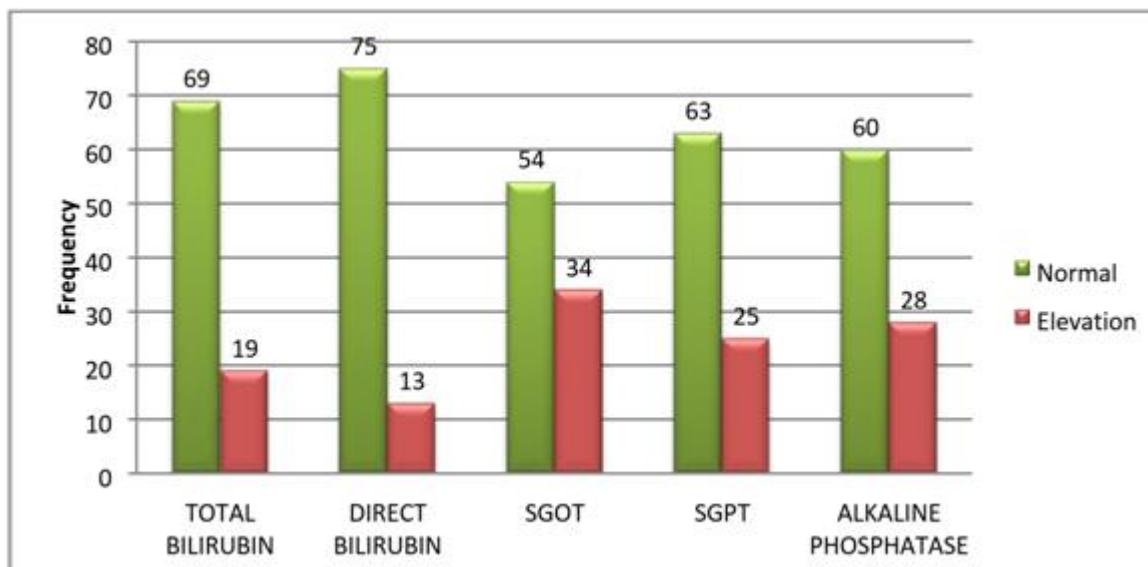


Figure 3: LFT changes in CHOLELITHIASIS

ASSOCIATION BETWEEN ABNORMAL LFT AND CHOLELITHIASIS was found using one sample t-test. The values of Total bilirubin, Direct bilirubin, SGOT, SGPT, ALKALINE PHOSPHATASE is statistically different from the normal value with p value < 0.05 One-Sample t Test, *Significant at 0.05 level

In this study, prevalence of cholelithiasis was found to be 9.5%. Cholelithiasis was more predominant in the age group 46-60yrs (33%) followed by 61-75yrs (31.8%), 31-45yrs(22.7%) and 76-94yrs(12.5%) respectively. Females (60.2%) were found to be more prone to gallstone disease than males (39.8%). GD was more in overweight individuals (52.3%). People with moderate physical activity(78.4%) are more prone to develop gallstones when compared with vigorous (6.8%) and sedentary (14.8%) activity. Among the female subjects 88.7% were found to be multiparous. All the 88 subjects were assessed for comorbidities in which diabetes mellitus(52.3%)>fatty liver(50%)>hypertension(39.8%)>dyslipidemia(26.1%),etc.

4. Discussion

In the study the prevalence of cholelithiasis was found to be 9.5%. Among the study population females and males were found to be 60.2% and 39.8% respectively. These findings were similar with the study of *Rachamalla R R et al.*^[11]

Our findings demonstrate that the prevalence of gallstone disease was high in the age group of 46-60(33%).Females at their fertile years are at high risk for gallstones.ultrasonogram of abdomen in all the cases of present study shows that solitary calculus were seen in 38% and multiple calculi in 61.4 % of cases. These findings were consistent with the study of *Veerabhadrapa P S et al.*^[12]

As far as dietary habits were concerned 85.2% of the cases were non vegetarians. This study shows that patients consuming non vegetarian diet have more chance for developing cholelithiasis .Out of the total subjects 20% showed positive family history .This was having a close resemblance with the study of *Aditya patal et al.*^[13]

In the current study 52.3% of subjects were overweight and 13.6% were obese and 78.4% subjects have moderate physical activity. This result was having resemblance with study of *Deepak phamnetiya et al.*^[14] Among the study population 80.7% was asymptomatic and for them treatment is not preferred.20.5 % patients were suggested for laparoscopic surgery these findings have a close resemblance with the study conducted by *Renu Pimpale et al.*^[15] which suggest that laparoscopic cholecystectomy offer best surgical management with lesser complication.

The most common comorbidities among the study population was type2DM (22.2%) followed by fatty liver (21.3%), dyslipidemia (11.1%), we focussed a positive comparison with the study of *Dr.Anil kamal et al.*^[16]

5. Conclusion

Prevalence of cholelithiasis was found to be predominant in females with high BMI, fertile, under middle age group. In the modern world there are several risk factors for cholelithiasis, both modifiable and non-modifiable. From this study other factors that are having link with gall stone prevalence are mixed diet (non-vegetarian), lack of physical activity, family history. Patients with cholelithiasis had significant changes in LFT parameter, this is suggestive of histology changes in liver. The results shows that there may be a relationship between metabolic syndrome and gallstone. Creating awareness among subjects is inevitable as many of them do not have symptoms until they have complications.

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Ethical approval: The study was approved by the

institutional ethics committee

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