

ORIGINAL RESEARCH

Analysis of Etiology and Outcome of Cholelithiasis in a Known Population

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ABSTRACT

Background: The broad spectrum of biliary tract disease includes the most often diagnosed gallstone disease (cholelithiasis), cholecystitis, or biliary dyskinesia. The present study was conducted to assess etiology and outcome of cholelithiasis.

Materials & Methods: This was a hospital based, “cohort” study to assess etiology and outcome of cholelithiasis. Data was collected. All the patients received UDCA treatment. A treatment response was considered complete dissolution of gallstones, as determined by USG. Chi square test, Student’s t test and Mann–Whitney U tests were conducted for comparisons of variables using SPSS 19.0. Statistical significance was set at 0.05 in all tests.

Results: A total of 100 patients were enrolled in the study in which 40% were males and 60% were females. Maximum participants were of age group 31-40 years (32%). Most common etiology was advanced age (72%). Gallstones disappeared within six months after treatment 22 32% cases, and in 10% more by the end of 1.5 years. No change was observed in 58% cases.

Conclusion: The present study concluded that advanced age was the most common etiological factor. Only 32% Gallstones disappeared within six months after treatment.

Keywords: Gallstones, Ursodeoxycholic Acid, Cholelithiasis.

INTRODUCTION

Cholelithiasis is a very common gall bladder disease in India which may be symptomatic or asymptomatic. Most of the patients with cholelithiasis are asymptomatic and usually diagnosed during ultrasonography as an incidental finding. Prevalence of cholelithiasis in India is very common especially in northern area.¹ Gallstone disease is a chronic recurrent hepatobiliary disease, the basis for which is the impaired metabolism of cholesterol, bilirubin and bile acids, which is characterized by the formation of gallstones in the hepatic bile duct, common bile duct, or gallbladder.² The prevalence of gallstones among adult population in the West is 10% to 20% and this figure in India is 3% to 6%. Interestingly the prevalence of gallstones is seven times more frequent in north India than in south India and the composition of gallstones is also different in different parts India. In north and eastern India, gallstones are predominantly cholesterol stones and mixed stones; on the other hand, in south India, pigment stones are predominant.³ The etiology of cholesterol cholelithiasis is considered

multifactorial, with interaction of genetic and environmental factors.⁴ Most common risk factors associated with cholelithiasis are diabetes mellitus, obesity, female sex, rapid weight loss, hormone therapy and oral contraceptives use.^{5,6} However, surgery for symptomatic cholelithiasis may not always be warranted. The majority of patients with gallstone disease will not experience recurrent symptoms or disease progression. Patients may opt for observation alone, which may in part depend on how pain is managed in the emergency department (ED). Others may pursue non-surgical treatment options, including extracorporeal shock-wave lithotripsy or medical treatments such as ursodeoxycholic acid (UDCA), but success rates for such options are unclear.⁷ The present study was conducted to assess etiology and outcome of cholelithiasis.

MATERIALS & METHODS

This was a hospital based, “cohort” study to assess etiology and outcome of cholelithiasis. Informed consent were taken from the patients after explaining them the study. Gallstones were detected by abdominal ultrasonography (USG) and separated into five groups according to the USG analysis: a large single stone ≥ 1 cm, more than one gallstone, multiple millimeter-sized stones, bile sludge and microlithiasis.⁸ Data were collected on demographic characteristics, personal and family histories, underlying disease that might lead to stones, symptoms and laboratory findings. All the patients received UDCA treatment at a dose of 20 mg/kg per day at admission. The UDCA treatment was stopped in case of no treatment response after six months and in cases of failure to achieve complete dissolution by one year.⁹ Treatment was continued in cases where gallstones were partially dissolved after six months.⁹ A treatment response was considered complete dissolution of gallstones, as determined by USG. The patients underwent USG and laboratory examinations every three months. Chi square test, Student’s t test and Mann–Whitney U tests were conducted for comparisons of variables using SPSS 19.0. Statistical significance was set at 0.05 in all tests.

RESULTS

A total of 100 patients were enrolled in the study in which 40% were males and 60% were females. Maximum participants were of age group 31-40 years (32%). Most common etiology was advanced age (72%).

Gallstones disappeared within six months after treatment 32% cases, and in 10% more by the end of 1.5 years. No change was observed in 58% cases.

Table 1: Demographic distribution

Demographic distribution	N (%)
Gender	
Male	40(40%)
Female	60(60%)
Age group (yrs)	
20-30	10(10%)
31-40	32(32%)
41-50	30(30%)
51-60	28(28%)

Table 2: Etiology for cholelithiasis

Etiology for cholelithiasis	N (%)
Advanced Age	72(72%)
Female gender	59(59%)
Family history or genetics	50(50%)
Obesity	59(59%)

Rapid weight loss	25(25%)
Sedentary lifestyle	63(63%)
Pregnancy	2(2%)
Drugs like ceftriaxone, octreotide and thiazide diuretics,	4(4%)
Total parenteral nutrition	2(2%)
Fasting	3(3%)
Diseases like cirrhosis, chronic hemolysis and ileal Crohn's disease	2(2%)

Table 3: UDCA treatment response for cholelithiasis

UDCA treatment response	N (%)
Disappeared within six months by the end of 1.5 years	32(32%)
No change observed	10(10%)
	58(58%)

DISCUSSION

Cholelithiasis represents a significant burden for healthcare systems worldwide and is one of the most common disorders among patients presenting to emergency rooms with abdominal discomfort e.g. epigastric pain, nausea, vomiting, loss of appetite.^{9,10} The estimated prevalence of gallstone disease in India has been reported as 2% to 9%.^{11,12} It is seven times more frequent in North compared to South India.¹³

A total of 100 patients were enrolled in the study in which 40% were males and 60% were females. Maximum participants were of age group 31-40 years (32%). Most common etiology was advanced age (72%). Gallstones disappeared within six months after treatment 22 32% cases, and in 10% more by the end of 1.5 years. No change was observed in 58% cases.

A study carried out by Sharma showed that 30% were male and 70% were female¹⁴ and Thamil Selvi et al. showed 20.5% males and 79.5% females were patients of cholelithiasis.¹⁵

The frequency of gallstones increases with age, escalating markedly after age 40 to become 4 to 10 times more likely in older individuals.¹⁶ The reason for more incidence of cholelithiasis in middle age group may be due to increase in the rate of gall stone formation with increasing age. After 20 years of age, the rate of gallstone formation increases with each decade.¹⁷

Several studies have evaluated the role of diet as a potential risk factor for gallstone formation, including energy intake, cholesterol, fatty acids, fiber, carbohydrates, vitamins and minerals, and alcohol intake. The association between cholesterol intake and gallstone disease has been variable in different studies. Recent discoveries of the role of orphan nuclear receptors in the regulation of fatty acid and hepatic cholesterol metabolism and excretion open new perspectives for a better understanding of the role of dietary constituents on cholesterol gallstone formation.¹⁸

Some previous studies reported that UDCA had no effect on gallstones, whereas others reported that it had some effect.¹⁹

Baran M, et al conducted a study among 74 children with cholelithiasis and underwent ultrasonography to detect gallstones. The commonest risk factor was a family history of gallstones. Most children responded to UDCA treatment in the first six months; children with hemolytic diseases showed no response to UDCA.²⁰

CONCLUSION

The present study concluded that advanced age was the most common etiological factor. Only 32% Gallstones disappeared within six months after treatment.

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