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Dr. Radhanath Das
Department of Paediatrics,
Veer Surendra Sai Institute of
Medical Science and Research,
Burla, Odisha, India

Evaluation of cholelithiasis cases in children: A clinical study

Dr. Radhanath Das

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Abstract

Background: Diseases of the gallbladder are common and costly. The present study was conducted to evaluate cholelithiasis cases in children.

Materials & Methods: The present study was conducted on 56 cases of cholelithiasis in children age ranged 6-14 years of both genders. Gallstones were detected by abdominal ultrasonography (USG). Risk factors for cholelithiasis were recorded.

Results: Out of 56 patients, boys were 25 and girls were 31. Common risk factors were total parenteral nutrition in 15, pre maturity in 14, family history in 6, blood diseases in 2, oncological diseases in 5, Choledochal cyst in 3, others in 4 and idiopathic in 5. The difference was significant ($P < 0.05$).

Conclusion: Cholelithiasis in children is quite uncommon. Common risk factors found to be total parenteral nutrition, pre maturity, family history, blood diseases, oncological diseases, choledochal cyst, others and idiopathic.

Keywords: Cholelithiasis, Children, choledochal cyst

Introduction

Diseases of the gallbladder are common and costly. The best epidemiological screening method to accurately determine point prevalence of gallstone disease is ultrasonography. Many risk factors for cholesterol gallstone formation are not modifiable such as ethnic background, increasing age, female gender and family history or genetics. The reported incidence of gallstones and bile sludge in children is 1.9% and 1.46%, respectively. In symptomatic patients, a cholecystectomy is performed^[1].

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 of India^[2]. In north and eastern India, gallstones are predominantly cholesterol stones and mixed stones; on the other hand, in south India, pigment stones are predominant. The natural history of gallstones in adults has shown that the majority (more than 80%) are incidentally detected asymptomatic gallstones and the majority of them (>80%) remains asymptomatic on long term follow up; even if they develop complications (like pancreatitis, cholecystitis, choledocholithiasis), they are usually preceded by biliary colic^[3].

Gallstones were considered to be uncommon in infants and children but have been increasingly diagnosed in the recent years, mainly due to wide spread use of ultrasonography. There is not much information about cholelithiasis in children from India and there is no consensus among Indian pediatricians and pediatric surgeons regarding the management of gallstones in children^[4]. The present study was conducted to evaluate cholelithiasis cases in children.

Materials & Methods

The present study was conducted in the department of pediatrics. It comprised of 56 cases of cholelithiasis in children age ranged 6-14 years of both genders. The study protocol was approved from institutional ethical committee and written consent was obtained from parents of all children.

Data related to children such as name, age, gender etc. was recorded. Gallstones were detected by abdominal ultrasonography (USG). Risk factors for cholelithiasis were recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 as considered significant.

Corresponding Author:
Dr. Radhanath Das
Department of Paediatrics,
Veer Surendra Sai Institute of
Medical Science and Research,
Burla, Odisha, India

Results

Table I: Distribution of patients I Distribution of patients

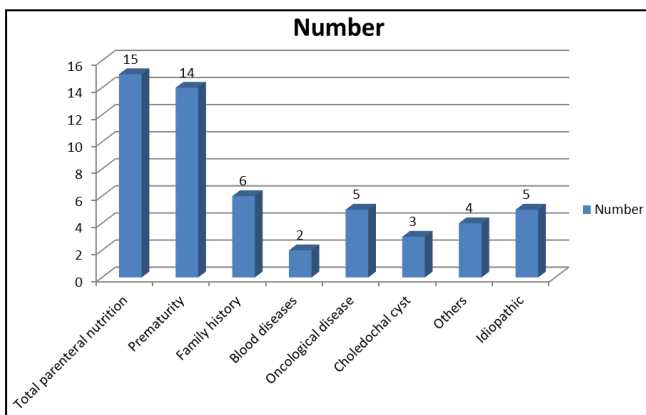
	Total- 56	
Gender	Boys	Girls
Number	25	31

Table I shows that out of 56 patients, boys were 25 and girls were 31.

Table 2: Risk factors of cholelithiasis

Risk factors	Number	P value
Total parenteral nutrition	15	0.01
Prematurity	14	
Family history	6	
Blood diseases	2	
Oncological disease	5	
Choledochal cyst	3	
Others	4	
Idiopathic	5	

Table II shows that common risk factors were total parenteral nutrition in 15, pre maturity in 14, family history in 6, blood diseases in 2, oncological diseases in 5, choledochal cyst in 3, others in 4 and idiopathic in 5. The difference was significant (P<0.05).



Graph I: Risk factors

Discussion

Since most gallstones are asymptomatic, it is essential to define exactly which symptoms are caused by gallstones: true biliary pain and/or complications, versus nonspecific abdominal complaints including dyspepsia [5]. Gallstone-associated pain seems to follow a certain pattern in most patients [6]. Consensus groups have attempted to establish criteria for biliary pain relative to defined characteristics (e.g., episodic, steady, severe pain located in the upper abdomen and lasting more than 30 minutes) and some accompanying features (e.g., nocturnal onset; nausea and vomiting; radiating through to the back). The importance for clarifying what constitutes true biliary pain is to better predict relief following cholecystectomy [7]. The present study was conducted to evaluate cholelithiasis cases in children.

In present study, out of 56 patients, boys were 25 and girls were 31. We found that common risk factors were total parenteral nutrition in 15, pre maturity in 14, family history in 6, blood diseases in 2, oncological diseases in 5, choledochal cyst in 3, others in 4 and idiopathic in 5.

Nomura *et al* [8]. in their study, 74 children with cholelithiasis were recruited, and underwent ultrasonography to detect gallstones. All relevant clinical information was recorded in a structured proforma. 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. UDCA treatment may be useful before surgery in asymptomatic patients of cholelithiasis without hemolytic diseases.

Studies revealed that total parenteral nutrition (TPN) impairs enterohepatic circulation and cholecystokinin induced gallbladder contraction resulting in biliary stasis, sludge and stones. The longer the duration of TPN therapy, the higher the risk of developing cholelithiasis. The risk of developing gallstones in children on prolonged TPN therapy is increased if there is concomitant ileal resection or disease [9].

Herzog *et al* [10] conducted a study and extensive electronic literature search was made for this purpose and literature (original articles, clinical trials, case series, review articles) related to gallstones in children were reviewed. The etiologies of cholelithiasis are hemolytic (20%-30%), other known etiology (40%-50%) such as total parenteral nutrition, ileal disease, congenital biliary diseases, and idiopathic (30-40 %). Spontaneous resolution of gallstones is frequent in infants and hence a period of observation is recommended even for choledocholithiasis. Children with gallstones can present with typical biliary symptoms (50%), nonspecific symptoms (25%), be asymptomatic (20%) or complicated (5%-10%). Cholecystectomy is useful in children with typical biliary symptoms but is not recommended in those with non-specific symptoms. Prophylactic cholecystectomy is recommended in children with hemolytic disorders.

Conclusion

Cholelithiasis in children is quite uncommon. Common risk factors found to be total parenteral nutrition, pre maturity, family history, blood diseases, oncological diseases, choledochal cyst, others and idiopathic.

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