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ORIGINAL ARTICLE

Gall stones in the pediatric population in Pakistan: Causes and Consequences

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ABSTRACT

Aim: To investigate the causes of incidence of gallstones in case of children and response to treatment via ursodeoxycholic acid (UDCA) **Methods:** 42 children suffering from cholelithiasis were selected, and gallstones were scanned using ultrasonography. The findings of scan of these children were recorded in Performa. Study duration
18 months Children's Hospital and the Institute of Child Health Lahore
Results: The most common risk factor in case of incidence of gall stones was a family history. By the aid of UDCA treatment many children showed positive response especially in first six months where as children suffering from hemolytic diseases were failed to depict any response to UDCA. Treatment
Conclusion: UDCA treatment proved to be beneficial to patients with asymptomatic profile before surgery in case of children suffering from cholelithiasis and having no hemolytic pathologies.
Keywords: Cholecystectomy, Gallstone, Ursodeoxycholic acid.

INTRODUCTION

About 1.8% and 1.5%, prevalence of bile sludge and gallstones have been noted in case of children[2]. In children who are symptomatic, cholecystectomy is treatment of choice .Treatment via aid of Ursodeoxy-cholic acid (UDCA) showed positive response in case of 18–38% children in dissolving gallstones[4]. No consensus is available with respect to most appropriate surgical or medical treatment of gallstones in case of children. This case research aimed at investigation demographically gall stones symptoms in case of children suffering from gallstones, its causes, treatment via UDCA response and rate of cholecystectomy in children admitted in two hospitals.

METHODS

A retrospective case reach in case of children who were suffering from gallstones was carried out and detected at gastroenterology outpatient clinic from 2019 January to 2021 June. The detection of gallstones were carried out via aid of abdominal ultrasonography (USG) and divided into five categories with respect to assessment via USG: a single large stone >1.2 cm, presence of more than one gallstone, millimeter-sized multiple stones, bile sludge and microlithiasis (<2 mm)[3].

On the basis of demographic aspects data was collected with respect to family and personal histories, underlying etiology that become cause of stones, laboratory investigations and symptoms of gallstones in children. All the children who were admitted were administered dose of 20mg/kg per day treatment via UDCA. The treatment via UDCA was ceased in children who showed poor outcome after duration of six months of treatment and failure cases in which dissolution of stones completely after duration of one year of treatment[4] failed. The continuation of treatment was done in children where gallstones dissolved partially after treatment of six months[6]. A treatment is regarded as well responding in case where gallstones completely dissolve after detected via USG. All the children were supposed to undergo laboratory as well as USG examinations after every three months of duration. The approval for this case reach was approved via ethics committee.

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RESULTS

About 42 children were selected owing mean (SD) age of about 6.9 year. The Clinical findings on admitting children included nausea, 27.1, abdominal pain 49%, lack of appetite 18%, vomiting 28.4%, acholic stool 1% and cholestasis 5.2%, The symptoms such as acute pancreatitis, increased levels of transaminase enzymes and dehydration were evident in about 14.9% 2.9% and 4.8% of cases, respectively. Gallstones showing no symptoms were seen in case of 34.4%. The mean follow up span (SD) was 19.2 months and span of treatment via UDCA was 9.6 months. The dissolution of gallstones was evident within six months of duration after carrying out treatment in 28.1%) cases and in children further by 18 months. No alterations were evident in case of 61.2%) cases. The gallstones took average duration of 3.2 months for gallstones dissolution. Adverse side effects like abdominal pain and vomiting was seen in case of just one child (1.7%).

TABLE I Risk factors Pakistani children with Gallstone

Risk factors	(%)
Total parenteral nutrition	18.3
Blood diseases	6.4
Prematurity	4.2
Oncological disease	5.7
Familial hyperlipidemia	5.4
Ceftriaxone use	3.9
Choledochal cyst	4.8
Others	7.2
Idiopathic	44 .1

TABLE 2 Responses in Children with Cholelithiasis

		Ursodeoxycholic Acid Treatment	
Characteristic	Received (%)	Responded (%)	Underwent cholecystectomy (%)
Size of gallstones			
Larger than 1 cm	33.2	22.1	37.1
Multiple gallstones	35.6	26.7	38
Multiple millimetre-sized gallstones	12.4	60.3	24.3
Bile sludge	7.9	97	12
Microlithiasis	5.2	63.2	68.1

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In about 29.1% of cases cholecystectomy was opted laparoscopically, except for children showing choledochal cysts. About thirteen children were without any sign and symptoms. Out of these, eight patients had a gallstone measuring about >1 cm, whereas five children were suffering from multiple stones. All details with respect to treatment response are depicted in Table II.

DISCUSSION

One of the most common etiology for gall stone incidence is Hematological pathologies with incidence of 49%[7]. In this case research, a cholecystectomy was opted for 27.4%, most of were without any sign and symptoms and suffering from gallstones that measured >1cm. These investigations showed similarity with the literature [9].

According to past researches, it was documented that effect of UDCA on dissolving gallstones was not significant , whereas with respect to other researches, it depicted that it has some influence[11]. It is documented that a child with no presenting symptoms could be cured safely without undergoing surgical treatments. In current case study, interestingly, the dissolution gallstones were witnessed in case of 17% of children owing larger stones (>1 cm). Although assessment of stones were not carried out , since these were stones of cholesterol most likely , as these are the most common stones found in pediatric population without any haematological pathologies[12]. In case where treatment failed to respond among pediatric population with hemolytic diseases depicted pigmented black stones that were resistant to treatment via UDCA .

In case of asymptomatic children, no consensus is available that supports cholecystectomy[13]. A previous case research showed long duration of operations as well as long post-operative admissions, in addition to higher rate of morbidity in case of symptomatic patients who were operated for gall stones as compared to asymptomatic patients [14].

Thus, as it was said earlier, children having gallstones and who were failed to show any positive response should opt for cholecystectomy laparoscopically[15].

The current case study has many shortcomings since there is a need of controlled prospective research involving big population of patients is required in order to provide more reliable results with respect to UDCA for pediatric patients suffering from gallstones.

In a nutshell, surgical or medical treatment for gall stones is still a matter of dispute and debate especially in case of children. We can use UDCA in case of children who are asymptomatic and without any hemolytic pathologies before opting for surgery

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