Original Article

Frequency of Helicobacter Pylori Infection in Children Presented with Recurrent Abdominal Pain in Northern Part of Bangladesh

Uzzal Kumar Ghosh[1], Md Imrul Kaes[2], Satabdi Ghosh[3], Mosammat Afroza Jinnat[4], Chandan Kumar Saha[5], Md Zulfikar Ali[6]

Abstract

Background: *Abdominal pain is one of the common symptoms in hospital attended children. Recurrent abdominal pain also is a challenge to diagnosis. Although the most common etiology of recurrent abdominal pain is functional, organic treatable cause exclusion is justified. Peptic ulcer disease is one of the causes of recurrent abdominal pain; whereas association of Helicobacter Pylori is not so uncommon.*

Objective: *To find out the frequency of H Pylori infection in children presented with recurrent abdominal pain.*

Materials and Methods: *A cross sectional was study done in Khwaja Yunus Ali Medical College located in northern part of Bangladesh. One hundred eight recurrent abdominal pain (RAP) cases were included in our study. Along with the other investigations ICT for H Pylori was sent to find out the etiology of recurrent abdominal pain in children attending in outpatient and inpatient department of pediatrics. RAP were our study population (N). H Pylori positive & H Pylori negative test results were included in data sheet. Demographic characteristics were noted among the H pylori positive cases (n) including age, sex and socioeconomic condition. Data were analyzed in Microsoft Excel.*

Results: *Among the 108 RAP cases H Pylori infection were found 37(34.25%) by diagnostic test ICT for H. pylori. Out of 37(34.26%) H pylori positive children 21(56.76%) were male 16(43.24%) were female. Children aged 7 to 9 year constituted 6(16.21%), 10 to12 year 12(32.43%), 13 to 15 year 19(51.36%). Twenty six (70.27%) belonged to rural area and 11 (29.73%) belonged to urban area. Low income family 28(75.68%), medium income family 5(13.51%) and high income family were found 4(10.81%).*

Conclusion: *About thirty five percent H Pylori infection are found in children presented with recurrent abdominal pain in northern part of Bangladesh among the seven to fifteen year child.*

Keywords: *Helicobacter Pylori, Recurrent abdominal pain.*

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Introduction

Recurrent abdominal pain (RAP) in children is defined as three episodes of pain that occur over three months and affect the child to perform normal activities. RAP is mostly considered as functional (nonorganic), but an organic cause is found in 5% to 10% of cases.[1] Among them peptic ulcer disease caused by Helicobacter pylori is one the etiology. Helicobacter pylori (H Pylori) is a gram-negative organism that is seen worldwide. Robin Warren and Barry Marshall discovered it as the causative microorganism of gastritis and peptic ulcer in 1982. More than 50% population worldwide is infected with H Pylori. It is more common in developing countries and the prevalence of H Pylori is 90% in these countries.[2] H Pylori infection is acquired in childhood and remains an essential etiology of peptic ulcer disease and gastric cancer. Most of the infected children are asymptomatic and pediatric studies do not support a role for H Pylori in functional disorders such as RAP.[3] H Pylori infection is a worldwide health issue, presenting with gastrointestinal or extra gastrointestinal symptoms. The infection is common in developing than developed countries.[4] H Pylori infection affects more than 50% of the world population and it occurs mainly in childhood. It is associated with gastro duodenal ulcer, intestinal metaplasia, gastric atrophy, lymphoid tissue-associated lymphoma and gastric adenocarcinoma. In children, the infection is

1. Assistant Professor, Dept. of Paediatrics, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.
2. Assistant Professor, Dept. of Paediatric Hematology & Onchology, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.
3. Assistant Professor, Dept. of Pharmacology, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.
4. Assistant Professor, Dept. of Paediatrics, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.
5. Consultant, Dept. of Laboratory services, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.
6. Professor, Dept. of Medicine and Gastroenterology, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh.

Corresponding author: Uzzal Kumar Ghosh, Assistant Professor, Dept. of Paediatrics, Khwaja Yunus Ali Medical College & Hospital, Sirajgonj, Bangladesh. Cell Phone: +880 1717-439273, Email: uzzalghosh1987@gmail.com

asymptomatic in the most cases and complications are not so common.[5] The prevalence of H Pylori infection is decreasing gradually worldwide, but is still high in developing countries. We previously observed a H Pylori infection rate of 52% among children and adolescents with chronic non-ulcer dyspepsia.[6] H Pylori infection is associated with growth delay in children, resistant iron-deficiency anemia, and chronic gastritis that is related to duodenal ulcer, gastric ulcer, and gastric adenocarcinoma.[7] Incidence and prevalence was studied in different countries in different geographical location.[6-12] In our country there is very less studied about the frequency as well as different geographical incidence and prevalence of helicobacter pylori infections in children. So, our study was done to see the frequency of helicobacter pylori infection among children presented with RAP in northern part of Bangladesh.

Materials and Methods

After taking a permission from ethical committee a cross sectional study done in Khwaja Yunus Ali Medial College, Sirajgonj, Bangladesh from April 2021 to March 2023 among the children 5 to 15 year attending in pediatrics outpatient and inpatient department presented with abdominal pain. After taking proper history and clinical examination RAP cases were included in our study, other acute or chronic cases of abdominal pain were excluded. Then proper and relevant investigation sent to find out the etiology with keeping in mind peptic ulcer disease caused by Helicobacter pylori. Complete blood count, C-reactive protein, SGPT, Serum amylase, serum lipase, serum calcium, random blood sugar, serum electrolytes, serum creatinine, ICT for H Pylori, stool routine microscopic examination, OBT, MT test, urine routine microscopic examination, chest radiograph, abdominal radiograph, ultrasonography of whole abdomen and others were sent accordingly to find out the etiology. RAP were our study population (N). H Pylori positive & H Pylori negative test results were included in data sheet. Demographic characteristics were noted among the H pylori positive cases (n) including age, sex and socioeconomic condition. Data were analyzed in Microsoft Excel.

Results

ICT for H Pylori positive were found 37 (34.26%), and negative were found 71(65.74%) among the RAP cases (N=108) (Fig 1)

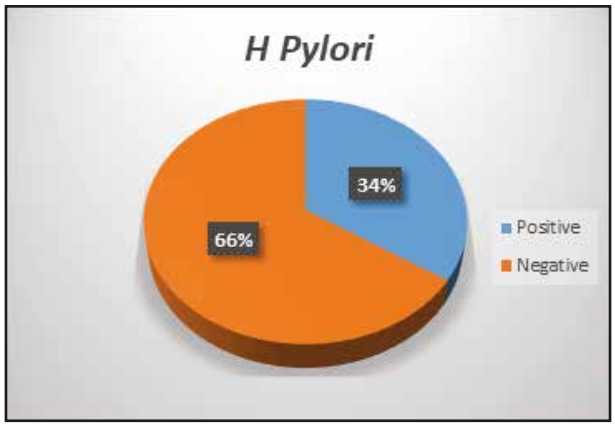

Fig 1: Frequency of ICT for H Pylori positive among children presented with RAP (N=108)

Out of 37(34.26%) H pylori positive children 21(56.76%) were male 16(43.24%) were female. Children aged 7 to 9 year constituted 6(16.21%), 10 to12 year 12(32.43%), 13 to 15 year 19(51.36%). Twenty six (70.27%) belonged to rural area and 11 (29.73%) belonged to urban area. Low income family were found 28(75.68%), medium income family were found 5(13.51%), high income family were found 4(10.81%).

Table I: Demographic characteristics of H pylori positive cases (n=37)

Characteristics	Number of patient (n =37)	Percentage
Age		
7 - 9 year	6	16 .21 %
10 - 12 year	12	32.43 %
13 - 15 year	19	51 .36 %
Sex		
Male	21	56.76 %
Female	16	43 .24 %
Residence		
Rural	2 6	70 .27 %
Urban	11	29.73 %
Monthly family income	28	75.68 %
Low income	5	13 .51 %
Medium income	4	10.81 %
High income		

Discussion

Although H pylori-associated infection in our country has limited data for the epidemiology. Frequency of H. pylori-associated infection were found 37 (34.26%) among the 108 children presented with RAP in our study. In Turkey, the prevalence of H pylori infection in children has been reported as 23.6% to 78.5% in different rates.[5]

In this study, children aged 7 to 9 year constituted 16.21%, 10 to12 year 32.43%, 13 to 15 year 51.36%. Among 5-9-year-old children, the prevalence of H Pylori was reported in Nigeria and Mexico 82% and 43% respectively. In Sudan, a prevalence was 56% of H Pylori infection in children 3 year to 9 year, while in African countries such as Uganda, Kenya, and Cameroon, it was 44%, 45%, and 37%, respectively. A study conducted in Europe (Bulgaria) showed that most infected children were within a range of 1-17 year, while the least infected children came from the Netherlands. A previous study conducted in Iran reported a prevalence of H Pylori infection of 57-82% in children between 9 month and 15 year of age. Two previous studies showed that the prevalence of H Pylori infection had decreased during recent decades, which was in contrast to a study from Denmark.[4] One study from Iceland involved 205 children aged 7–17 year and found only 3.4% of infection.[7] The prevalence of H pylori infection was significantly higher in and in older children than in younger children (41·6% in 13–18-year-olds vs 33·9% in 7–12-year-olds vs 26·0% in 0–6-year-olds.[13]

Among the sex distribution of H. Pylori infection male were predominant (56.76%) in our study. In our study 70.27% belonged to rural area and 29.73% belonged to urban area. Low income family 75.68%, medium income family 13.51%, high income family were found 10.81%. The prevalence is known in children worldwide and varies among high- income, low to middle-income countries respectively 34.7 % & 50.8 %.1 The overall global prevalence of H pylori infection in children was 32·3%, which varied by serological diagnostic test. The prevalence of H pylori infection was significantly higher in low-income and middle-income countries than in high-income countries (43·2% vs 21·7%).[13]

Conclusion

About thirty five percent H pylori infection found in children presented with recurrent abdominal pain in northern part of Bangladesh among the seven to fifteen year child.

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