Helicobacter Pylori Infection with Recurrent Abdominal Pain in Children

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Significance:
It has been suggested by few studies that there exists a connection between RAP and H pylori in children whereas other research have failed to do so. In the current research, the prevalence will be determined in the local children having RAP. The findings of this research will provide local extent of the issue and will also be helpful for local gastroenterologists and paediatricians for the development of strategies for prospective research.

Abstract

Background: Childhood Recurrent Abdominal Pain results in the one of the adulthood complications i.e., irritable bowel syndrome, which is a gastro-intestinal disease. The stomach's acidic environment is the growth site for Helicobacter Pylori, a pathogenic Gram-negative bacterium with rod shape. It is the main reason for chronic gastritis, gastric adenocarcinoma, peptic ulcers, non-ulcer dyspepsia and mucosa-associated lymphoid tissue (MALT) lymphoma. According to one estimate, 50% of people in world are infected with Helicobacter Pylori. Currently the developing countries are on the hit list of Helicobacter Pylori. The objective of this study was to determine the frequency of Helicobacter pylori infection in the children having recurrent abdominal pain.

Materials and Methods: It was a cross-sectional study. This research was carried out during 1.1.2018 to 1.6.2018 in the D.H.Q hospital Mirpur AJK. The sample was consisted of 200 participants among them the proportion of Helicobacter was 8% in patients with Recurrent Abdominal Pain.

Results: The mean age of the patients was 12.43 ± 1.23 years. Mostly the age of the sample group was between 8 to16 years. The 4.23 ± 0.47 months was the mean time period of abdominal pain. Helicobacter pylori was found in 47% of patients.

Conclusion: In paediatric population, Helicobacter pylori is very common with Recurrent Abdominal Pain. It is a severe problem in children and further study is recommended to explore the risk element associated with this increase trouble of Helicobacter Pylori.

Introduction

Clinical advice is being sought by many children for Recurrent Abdominal Pain (RAP) (1). The routine activities of school going children (4% to 25%) get obstructed by the RAP (2). It appears to be a benign issue, but morbidities are connected with RAP which covers poor attendance in school, laparotomies and admission in hospital, sometimes symptoms continue to maturity. Absent from the school, poor physical abilities, social withdrawal is occurring in school children from 10% to 15% because of RAP on regular basis which lead to more visits to hospitals and have adverse effect on the health of a child (3).The disease burden is under scored as one out of three is experiencing the chronic pain for at least 5 years (4). Childhood RAP results in the one of the adulthood complications i.e., irritable bowel syndrome, which is a gastro-intestinal disease. The stomach's acidic environment is the growth site for Helicobacter Pylori, a pathogenic Gram-negative bacterium with rod shape. It is the main reason for chronic gastritis, gastric adenocarcinoma, peptic ulcers, non-ulcer dyspepsia and mucosa-associated lymphoid tissue (MALT) lymphoma (5). According to one estimate, 50% of people in world are infected with H pylori. Currently the developing countries are on the hit list of Helicobacter Pylori. Long experience of Helicobacter Pylori is normally asymptomatic, but it may take towards the chronic gastritis in paediatric patients and occasionally peptic ulcer is associated with it (6). In one study, epigastric pain has been considered as red flag symptom, abdominal pain and Helicobacter Pylori are indicated to have prominent connection with paediatric patients (7-9). No causal relationship in other studies has been found in between H pylori infection and abdominal pain. H pylori infection is the reason for RAP and dyspepsia in 65% of Turkish child patients (10). The current study is focused to assess the prevalence of Helicobacter Pylori in children having RAP. H pylori is common in the population; variation has been suggested in the literature with regard to the prevalence rate from region to region. Furthermore, it has been suggested by few studies that there exists a connection between RAP and H pylori in children whereas other researches have failed to do so. In the current research, the prevalence will be determined in the local children having RAP. The findings of this research will provide local extent of the issue and will also be helpful for local gastroenterologists and paediatricians for the development of strategies for prospective research. The objective of this study was to determine the frequency of Helicobacter pylori infection in the children having recurrent abdominal pain.

Materials and Methods

The current cross-sectional research was carried out in D.H.Q hospital Mirpur AJK. The research was carried out in 6 months period. The sample was consisted of 200 participants among them the proportion of Helicobacter was 8% in children with Recurrent Abdominal Pain (RAP), confidence interval was 95% withmargin of error being 4%, used according to World Health Organisation formula for estimation of sample size. Both male and female children between the age of 5 to 16 years having Recurrent Abdominal Pain for minimum 3 months were registered. The study excluded the children who had previously been diagnosed or had been treated for Helicobacter Pylori and also who had history of in taking of PPI in last two weeks.

Data Collection Procedure: The approval for conducting the study was given by the hospital research and ethical board. All patients who fulfilled the criteria for inclusion (according to Rome II criteria for Recurrent Abdominal Pain) were registered in research through Outdoor Patient Department. The object and significance of research was elaborated to the guardians and consequently written informed consent was acquired. Examination was conducted of all children. Under strict sceptic technique 5 ml blood was taken and sent for Helicobacter Pylori detection by using the method of ELISA in the hospital laboratory.

Data Analysis Procedure: Data was analysed by SPSS version 26. Calculation of Mean ±SD was made for quantitative variables such as age and period of abdominal pain. Calculation of percentages and frequencies was made for gender and Helicobacter Pylori. Helicobacter Pylori was stratified with sex and age in order to find out the effect modifications. Chi-square test was used to perform post stratification keeping p-value ≤ 0.05.

Results

200 children were registered in the research having RAP. The mean age of the sample group was 12.43 ± 1.23 years. In the current study the age range was 8 years with maximum of 15 years of age and minimum of 5 years of age. By dividing the sample in different age groups, it has been found that in the age group of 5 to 8 years there were 15.58% patients, in the age group of 8 to 12 years there were 63.52% patients and in the age group of 12 to 16 years there were 73.68% patients. While dividing the children with regard to sex, it has been observed that in the current study there were 50% male and 50% females.

The 4.23 ± 0.47 months was the mean duration of abdominal pain. On ELISA, Helicobacter Pylori was found in 47% of patients. Under strict sceptic technique 5 ml blood was taken and sent for Helicobacter pylori detection by using the method of ELISA in the hospital laboratory whereas Helicobacter Pylori was stratified with respect to age groups, Chi-square test was used for obtaining statistically insignificant difference and p-value of 0.67 (Table 1) that showed there is no specific relationship between age and infection.

Table 1: Distribution of H. pylori infection on the basis of age

			H. Pylori		Total
			Yes	No	
Age groups	5-8 yrs	Frequency	12	65	77
		Percentage	15.58%	84.41%	100%
	8-12 yrs	Frequency	54	31	85
		Percentage	63.52%	36.47%	100%
	12-16 yrs	Frequency	28	10	38
		Percentage	73.68%	26.31%	100%
Total		Frequency	94	106	200
		Percentage	47%	53%	100%

On the other hand, Helicobacter Pylori was stratified with respect to sex, it has been observed while using chi-square test and p-value of 0.44 (Table 2) the difference was statistically significant that showed that male children are more prone to H pylori infection as compared to female children.

Table 2: Distribution of H. pylori infection on the basis of gender

			H. Pylori		Total
			Yes	No	
Gender	Male	Frequency	48	52	100
		Percentage	48%	52%	50%
	Female	Frequency	46	54	100
		Percentage	46%	54%	50%
Total		Frequency	94	106	200
		Percentage	47%	53%	100%

Discussion

Undiagnosed medical cases are labelled with functional abdominal pain. Disturbed social life, poor physical and mental activity and school failure because of frequent abdominal pain has been found in 10% to 15% school going patients which is leading to the frequent visits to healthcare at different countries (11). There was 29.3% prevalence of Helicobacter Pylori in people in their twenties, 49.1% was in their thirties, 57.8% was in their forties and 61.5% prevalence was in their fifties this reveals that prevalence is enhancing with the age (12).

The data of the current study is comparable with other developing countries such as Benin, India, Egypt and other reported studies from Pakistan, have alike result. It has been reported in Germany, New Zealand and US that the prevalence of Helicobacter Pylori between 7% to 15% is in paediatric age (13). The main cause of different prevalence of Helicobacter Pyloriin the children of developing and developed countries is that poor environment, low socio-economic status and poor living condition. It has been reported in literature that the low socio-economic class is at the hit list of Helicobacter Pylori infection. Children who belongs to group of low income have poor sanitary habits and living condition therefore are more vulnerable to Helicobacter Pylori infection; but this is not happening all the time because there is other source of infection as well such as there exist people independent from social class. Disputed reports have been prepared relating to the connection between Helicobacter Pylori infection and RAP. From India and Sweden no connection has been proved between Helicobacter Pylori infection and RAP. Likewise, no connection has been shown in meta-analysis and reviews between Helicobacter Pylori infection and RAP (14). In the current research it has been found that children with RAP have prevalence of Helicobacter Pylori infection. Studies conducted in US and Saudi Arabia are comparable to current studies. In our society, the common cause of Recurrent Abdominal Pain in paediatric patients is Helminthiasis particularly low socio-economic class (15). It is routine practice for parents and general physician to manage anti-helminthic to children with RAP. The current research has suggested the additional role of Helicobacter Pylori in RAP (16). These results need further research in large number of children to report the role of Helicobacter Pylori in RAP. The patients of the current study were enrolled from hospital. The main restriction which was difficult to make the current result general as the patients from the general paediatric population was removed. It is very hard task to extract the patient from general paediatric population for the purpose of study because they do not consent for blood sampling. For that very reason community base research on Helicobacter Pylori is the current population has restriction. In developing countries study test like faecal antigen test or urea breath test are recommended because they are adequate (17).

Conclusion

Recurrent Abdominal Pain is considered common in the current paediatric population causing because of Helicobacter Pylori. Therefore, more study is recommended to find risk elements for Helicobacter Pylori infection. This will significantly lessen the load of Helicobacter Pylori and other connected morbidities.

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