

Recurrent Abdominal Pain and Helicobacter Pylon Infection in Children

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Abstract

Recurrent chronic upper abdominal pain is a common problem in children and it has been associated with Helicobacter Pylon gastritis.

Aims and Objectives: We under took this study, to find out the prevalence of Helicobacter pylori gastritis in children with recurrent chronic upper abdominal pain, in our set up.

Material and Methods: This was prospective study carried out at KRL Hospital, Islamabad. Forty three children with chronic recurrent upper abdominal pain (age 3 to 14 years), underwent diagnostic gastroscopy and antral biopsies with histopathology, over a period of one year. Another 42 children of the same age group were taken as control group. Fifteen patients, who tested positive for H. pylon were tested for IgG antibodies in whole blood and compared with 15 patients having negative histology for H. pylon.

Results: Thirty two (75%) children tested positive for H. pylon, in the test group, as compared to 17 (40%) histological positives in the control group ($P < 0.1$). The patients who were tested for IgG antibodies showed that this, test has 93% sensitivity, 60% specificity and a negative predictive value of 90% as compared to histological identification.

Conclusion: Recurrent chronic upper abdominal pain in children, in our population has a significant association with Helicobacter pylon gastritis. Testing of IgG antibodies for H. pylon in whole blood can be used as initial, non invasive screening test for this organism UPMA 49:112, 1999).

Introduction

Recurrent abdominal pain (RAP) in children is a common problem in pediatric practice. It has been attributed to many factors but no definitive etiology has yet been established. In last few years this condition has been associated with Helicobacter Pylon infection in children. A number of studies have addressed this issue in the recent past¹⁻³. The prevalence rates of H. Pylon in children in a community, ranges from 10-40% depending upon the socioeconomic background³. However, this percentage has been found to be much higher in children complaining of upper abdominal pain⁴⁻⁹. The subject has gained even more importance since H. Pylon has also been classified as group I carcinogen by the WHO due to its role in the etiology of gastrointestinal cancers. Consequently, a great concern has arisen in this organism and the conditions associated with this gram negative spiral shaped bacteria. We under took this study to assess the association between RAP and H. pylon gastritis, in our pediatric population.

Patients and Methods

From 1st July, 1997 to 30th June, 1998, children with recurrent abdominl pain referred from PIMS Islamabad, Military, KRL Hospital Rawalpindi and KRL Hospital Islamabad, between 3 to 14 years of age, were seen for RAP They were included in the study, after taking informed consent of the parents.

For the purpose of this study, RAP was defined as any moderate to severe pain in umbilical or epigastric region, persisting for more than six weeks and occurring at least twice a week. All these children were assessed in detail by the pediatrician to rule out any cause of abdominal pain. Complete blood picture, urine analysis, ultrasound abdomen and stool examination was carried out in all these patients in addition to any other investigation indicated. An upper GI endoscopy with pediatric sized fiberoptic endoscope was carried out in all children. A complete endoscopic examination of duodenum, stomach and esophagus was carried out by the same endoscopist and multiple antral biopsies from at least three sites were taken. These biopsy specimens were sent to Armed Forces Institute of Pathology (AFIP) for histological examination. Another set of children undergoing endoscopies for various other reasons were taken as control group and the same routine including the antral biopsies, was carried out on them. The histopathology report was the main outcome measure. Fifteen patients with positive Pylon, on histology were tested for IgG antibodies in whole blood, while 15 patients with negative histology for H pylori were taken as controls. The results were analysed to calculate sensitivity, specificity and negative and positive predictive value.

Results

Eighty-three children were endoscoped. Their ages ranged from 3 to 14 years with a mean of 7 years 6 months. Majority (58%) of children were females. Of forty three children with RAP 32 (47.4%) were found positive for H. pylori on histology as against 17 of 40 controls (P value <0.1). There was no significant difference in the prevalence of H. Pylon gastritis in males and females. The youngest child with H. pylori and RAP was 4 years old. The prevalence increased with increasing age (Table 1).

Table 1. H. pylori infection and age.

Age group	Children with positive H Pylori	
	No.	%
< 6 yrs	7	16
6-10 yrs	15	35
>10 yrs	21	49

Three families were identified with more than one member having H. pylori colonisation, including parents in two cases (investigated by adult gastroenterologist).

IgG antibodies were positive in 14 patients in the test group as compared to 6 of 15 patients in the control group giving a 93% sensitivity, 60% specificity, a negative predictive value of 90% and positive

predictive value of 70% of this test, as compared with histological identification (Table 2).

Table 2. Comparison of IgG serology with histological detection.

	H Pylori present	H Pylori absent
Antibody +ve	14	6
Antibody -ve	1	9

Discussion

Studies have shown that majority of children with primary gastritis are positive for H. pylori¹. Upper GI endoscopy and biopsy of the gastric mucosa is the best method for diagnosis in such children². Although, macroscopically the stomach appears normal in majority of cases, as was the case in our study, but in a small minority a nodularity is observed³. Biopsy specimen from the antrum can be assessed for H. pylori infections by culture, histological examination and urease testing. Culture is the gold standard for identification but it is not recommended for routine evaluation⁴. Serology is considered appropriate for prevalence studies and as an initial test⁵. We selected IgG antibody test for our patients, to assess it for screening purposes. The results showed high sensitivity, modest specificity and high negative predictive value, which was comparable with other studies.

In our study 75% of children having RAP tested positive for H Pylon, on histological examination.

There are a number of studies from other countries reporting a variable figure from 22% to 71%^{4,8}. In the view of some experts this proportion does not attain a statistically significant level but in our study comparing these subjects with age matched controls, showed that the prevalence of H. Pylon gastritis in children having RAP was much higher than the other group. The prevalence in control group was 40% which is higher because all children endoscoped in this group had some G.I. complaints like chronic diarrhoea, failure to thrive, portal hypertension etc. All these conditions may be indirectly associated with colonisation of H. Pylon. So the selection of controls was biased. Other authors have also confirmed this observation that than the community at large. The prevalence rates of H. pylori in children in the community ranges from 10-40% depending upon the socio-economic backgrounds³. In our series no statistically significant relationship was observed with regard to sex and prevalence of H. Pylon. This has been reported by other authors as well⁶⁻⁹. In 10-12 years old group the prevalence was higher as compared to 3 to 5 years age group. This acquisition rate in children varies from 10 and 50% per year as compared to 3% in adults¹⁰. The spread is mainly feco-oral in humans¹⁰. This mode of transmission makes other family members at risk of acquiring the infection. This was observed in our study when three such families having more than one member positive for H. Pylon were identified. Family clustering in this infection is a known phenomenon and screening of members is recommended by the authors⁷.

To conclude, it is suggested from our data that H. Pylon gastritis is significantly associated with recurrent abdominal pain. Children presenting with RAP should be screened with antibody test in whole blood and if positive, upper G.I endoscopic examination along with antral biopsies should be carried out to confirm the diagnosis.

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