

STUDY OF THE RISK FACTORS RELATED WITH HELICOBACTER PYLORI INFECTIONS IN CHILDREN WITH PEPTIC ULCER DISEASE

Farid Imanzadeh¹, Ali Akbar Sayyari², Aziz Ighbali³, Hazhir Javaherizadeh⁴, Naser Valaie⁵

ABSTRACT

Objective: Helicobacter pylori is the cause of peptic ulcer and gastroduodenal disease in children and adults. The prevalence of H-pylori infection has increased during past decade. Most of evidence has shown the patients got infected child hood. This study was carried out for recognizing the risk factors of H-pylori in children with gastrointestinal problems who had undergone evaluation endoscopy in Mofid Children Hospital.

Methodology: In this case control study, the number of patients infection and control were 47 in each group. The patient and control groups were matched for age and sex. Demographic variable were registered in information forms. Positive urease test was considered as a patient and negative urease test was considered as control group. All of the risk factors for H-pylori infection were evaluated for both groups and CI in the samples was evaluated with 95% estimation.

Results: The number of family members were 4.1 ± 1.2 in the control group and 5.7 ± 1.2 in the patients group. Attitude were higher in the patients group toward low consumption of fruit, vegetables, liquid vegetables, seed oil, smoking in family, low level education of parents, blood group A and parents dyspepsia. In the all risk factors CI >1.0 and P<0.05.

Conclusion: The consumption of fruit, vegetables, liquid vegetable, seed oil, and negative history of smoking are the reasons for decreasing H-pylori infection in the children and adults.

KEYWORDS: Helicobacter Pylori, Infections, Peptic Ulcer.

Pak J Med Sci May - June 2007 Vol. 23 No. 3 446-448

INTRODUCTION

Helicobacter pylori (H pylori) is a gram negative bacillus responsible for one of the most common infections found in human world

1. Dr. Farid Imanzadeh
Asstt. Prof. of Pediatric Gastroenterology
 2. Dr. Ali Akbar Sayyari
Prof. of Pediatric Gastroenterology
 3. Dr. Aziz Ighbali
Resident Department of Pediatrics
 4. Dr. Hazhir Javaherizadeh
Resident Department of Pediatrics
 5. Dr. Naser Valaie
Department of Biostatistics
- 1-5: Mofid Children Hospital,
Shahid Behsehti University of Medical Sciences,
Tehran - Iran.

Correspondence

Dr. Hazhir Javaherizadeh,
E-Mail: hazhirja@yahoo.com

* Received for Publication: July 17, 2006

* Accepted: December 27, 2006

wide.¹ It is acquired early in life in developing countries and most of the population is infected by the age 10 years.² More than 50% of children in our country were infected with H pylori.³ There have been some interesting reports published, which have highlighted rather unusual manifestations of H pylori infection in children like protein losing enteropathy,⁴ diarrhea and malnutrition,⁵ and iron deficiency anemia.⁶ This study was carried out to evaluate the risk factors for H pylori infection in children aged 4-14 years old who visited Mofid Children Hospital.

PATIENTS AND METHODS

This case- control study was carried out on the children aged 4-14 years who had gastrointestinal symptom such as epigastric pain, vomiting, heart burn. These children under-

went Endoscopy after parent's consent. The patients who have previous history of antibiotic therapy since last month and history of omeprazole since two weeks ago, and known history of H-pylori were excluded from our study. A total of 47 patients were included in this study and similar number of 47 age and sex matched control were selected. Patient's data such as age, sex, risk factors were recorded in the questionnaire. Blood group was identified before endoscopy. The children who had positive urease test were classified as patients group and children without positive urease test were classified as control group. All patients had matched with control for age and sex. T-Test and Chi-square were used for data analysis. Odds ratio and Confidence interval

Table-I: Distribution of patients and controls based on blood group. (* p<0.05)

Group	A	B	AB	O
Patients (H.Pylori +)	48.8%*	13.6%	13%	24.6%
Controls (H.Pylori -)	20.9%	27.9%	14%	37.2%

Blood group A was significantly higher seen in patients than controls (p<0.05). There is no difference between two groups for the AB, B, and O blood group.

with 95% were calculated. Data were analyzed with SPSS for windows.

RESULTS

This study was carried out in 47 patients and 47 controls. The mean age for patients and controls was 9.8±2.9 and 8.5±2.8 years respec-

Table-II: Risk factors in patients and controls groups.

Risk factor		Controls (N=47)	Patients (N=47)	P value	OR(Sample)	OR (Population)
Smoking(+)		24(51.1%)	7(14.9%)	<0.0005	5.96	2.2-15.9
Smoking(-)		23(48.9%)	40(85.1%)			
Liquid oil in diet (Frequently)		26(55.3%)	14(29.8%)	0.03	2.9	1.2-6.8
Liquid oil in diet (Rarely)		21(44.7%)	33(70.2%)			
Fresh fruit & vegetable in diet (frequently)		43(91.5%)	28(59.6%)	<0.0005	7.3	2.2-23.7
Fresh fruit & vegetable in diet (infrequently)		4(8.5%)	19(40.4%)			
Father's level of education	University level	17(36.2%)	5(10.6%)	<0.01	4.7	1.5-14
	Less than University	30(63.8%)	42(89.4%)			
Mother's level of education	12 years	43(91.5%)	33(73.2%)	<0.01	4.5	1.3-4.9
	<12 years	4(8.5%)	14(29.8%)			
Hx. Of dyspepsia in father	Negative	34(72.3%)	17(36.2%)	<0.0005	4.6	1.9-10.9
	Positive	13(27.7%)	30(63.8%)			
Hx. Of dyspepsia in mother	Negative	37(78.7%)	22(46.8%)	<0.001	4.2	1.7-10.2
	Positive	10(21.3%)	25(53.2%)			

Smoking, infrequently using liquid oil, poorly regimen for fresh fruit and vegetable, low level of parents education, positive history of dyspepsia in parents, were significantly higher in patients groups. In the above risk factors, low fresh fruits and vegetables consumption, has the highest odds ratio (OR=7.3).

tively. Two groups were matched for age and sex. Twenty three boys and 24 girls were included in each group. The number of household in control and patients groups were 4.1 ± 1.2 and 5.7 ± 1.2 respectively ($p < 0.0001$). The result of this study for the blood groups and risk factors are shown in Tables-I & II.

DISCUSSION

This study showed that children with gastrointestinal problem and positive H pylori test have a higher exposure rate for smoking in their family, poor liquid oil diet, poor vegetable and fruit diet, parents low educational level, positive history of dyspepsia in their parents, and blood group A. Hunt et al. reported that household size is a risk factor for H pylori infection.⁷ Indirect evidence from a number of studies has suggested that transmission may be from mother to child,⁸ whereas other studies have suggested that transmission is more likely from father to child. Walker et al. Showed that the most common route for H pylori transmission is a person to person route. Salivary secretion and oral contact are the factors for H pylori transmission. The major risk factor for infection is poor socioeconomic conditions in childhood.⁹⁻¹¹ Hollander et al reported that unsaturated fatty acid in the daily diet can lower the rate of H. pylori infection via increased mucosal prostaglandin secretion. Some investigations showed that fresh vegetables and fruit has a protective effect against H. pylori infection.¹² Kuarta et al reported that smoking related mucosal injury increase rate of H. pylori infection.¹³ In the current study, the children were the passive smoker and there is no available paper in this regard. Niv et al. Reported that H. pylori infection in person with O blood group has a higher rate than person with A blood group.¹⁴ The discrepancy seen in this study may be due to difference in hereditary and genetic specification in children. Smoking restriction and increasing vegetables and

fruit consumption will decrease the rate of H. pylori infection.

REFERENCES

1. Triantafyllopoulou M. Helicobacter Pylori Infection. Available from: URL: <http://www.emedicine.com>
2. Megraud F, Brassens RMP, Denis F, Belbourni A, Hoa DQ. Seroepidemiology of Campylobacter pylori infection in various populations. *J Clin Microbiol* 1989;27:1870-3.
3. Alborzi A, Soltani J, Pourabbas B, Obboodi B, Haghghat M, Hayati M, et al. *Diagn Microbiol Infect Dis* 2006;54(4):259-61.
4. Hill D, Sinclair-Smith C, Lastovica AJ, Bowie MD, Emms M. Transient protein losing enteropathy associated with acute gastritis and Campylobacter pylori. *Arch Dis Child* 1987;62:1215-9.
5. Sullivan PB, Thomas JE, Wight DGD. Helicobacter pylori in Gambian children with chronic diarrhea and malnutrition. *Arch Dis Child* 1990;65:189-91.
6. Dufour C, Brisgotti M, Fabretti G, Luxardo P, Mori PG, Barabino A. Helicobacter pylori gastric infection and sideropenic anemia. *J Pediatr Gastroenterol Nutr* 1993;17:225-7.
7. Hunt RH, Sumanac K, Huany JQ. Should we kill or should we save H.Pylori? *Aliment-Pharmacol Ther* 2001;15 Suppl 1:51-9.
8. Rowland M, Bourke B, Drumm B. Helicobacter pylori and Peptic Ulcer Disease. Walker WA, Goulet O, Kelnman RE, Sherman PM, Shneider BL, Sanderson IR. In: *Pediatric Gastrointestinal Disease*. 4th ed. BC Decker Inc. Ontario, Canada. 2004;491-5.
9. Fidorek SC, Malaty HM, Evans DL. Factors influencing the epidemiology of Helicobacter pylori infection in children. *Pediatrics* 1991;88:578-82.
10. McCallion WA, Murray LJ, Bailie AG. Helicobacter pylori infection in children: relation with current household living conditions. *Gut* 1996;39:18-21.
11. Webb PM, Knight T, Greaves S. Relation between infection with Helicobacter pylori and living conditions in childhood: evidence for person to person transmission in early life. *BMJ* 1994;308:750-3.
12. Hollander D, Tarnawski A. Dietary essential fatty acids and decline in peptic ulcer disease. *GUT* 1986;27(3):239-42.
13. Kurata JH, Nogawa AN. Meta-analysis of risk factors for peptic ulcer. Nonsteroidal anti-inflammatory drugs, Helicobacter pylori, and smoking. *J Clin Gastroenterol* 1997;24(1):2-17.
14. Niv Y, Fraser G, Delpre G, Neeman A, Leiser A, Samma Z, et al. Helicobacter pylori infection and blood groups. *Am J Gastroenterol* 1996;91(1):101-4.