MEDICAL CHANNEL

Original Article

COMPARISON OF ANTRAL BIOPSY TO SEROLOGICAL TEST IN DIAGNOSIS OF HELICOBACTOR PYLORI INFECTION

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ABSTRACT:

Objective: The purpose of this study is to compare the biopsy of the antral mucosa to the serological test in diagnosis of Helico-bactor Pylori infection reported in OPD of Al-Tibri Medical College & Hospital during Dec 2010 to June 2011.

Material and Methods: This is prospective observational cohort study. The study was based on the data of patient reported to the medical department for upper abdomen pain. A total of 50 patient were included all adults enrolled them with an informed consent. The patients were reported with the complain of epigastric pain and dyspepsia for more than two weeks had taken multiple drugs like antacids, H_2 blockers, and Proton pump inhibitors but no one has taken any eradication antibiotics.The IgG of H Pyloriwas measured by ELISA and biopsies of the gastric antrum were taken through upper G.I. endoscopy. The data was collected in a preset Performa. SPSS version 16 was used to analyze the data.

Results: The study was conducted in Al Tibri Hospital College &Hospital, a newly built medical college in the vicinity of Gadap Town Malir. All the patients were resident of Gadap Town. A total 50 patient were included. Males were 28 (56%) and female were 22 (44%). Mean age 30.10 +11.3 years. All patient under go upper G.I. endoscopy and had IgG antibody measurement through ELISA.43 cases (86%) had elevated anti H Pylori IgG level. While 34 cases(68 %) had positive histopathology. The difference is mainly depends upon the patchy involvement of H Pylori and prior antibiotic use. The common endoscopic finding was erythema in 31(62%) patients. 28(56%) had erosions.04 (8%)had small ulcer while 3(6%) had nodularity while 5(10%) cases had normal endoscopythe presence of erythema and erosion had very strong association with H.pylori infection.

Conclusion: Serological test shows high prevalence of H pylori infection to document by biopsy. Further studies are required to determine the factor that may affect the detection of H pylori infection.

Key Wards: Helicobactor Pylori, IgG antibody, antral, endoscopy.

INTRODUCTION:

Helicobactorpylori is a spiral gram negative rod that resides beneath the gastric mucous layer adjacent to gastric epithelial cells[1]. Although not invasive it causes gastric mucocal[2]inflammation with neutrophils and lymphocytes. The mechanism of injury and inflammation may in part be related to the products of two genes Vac A and Cag A[3]. The prevalence is high in non-whites and immigrants from developing countries. The 15 % of the cases the inflammation[4] predominates to gastric antrum. Serologicaltest are easily obtained and widely available.Laboratory based quantitative serological ELISA test have an overall accuracy of only 80 %[5 6]. Endoscopy is not indicated to diagnose H. pylori infection in most cases. When endoscopy was done biopsy should be taken to assess the histology of H Pylori. It is a definite test but expensive. H. Pylori are

associated with not only gastric ulcer but also with gastric carcinoma[7] and gastric lymphoma.

MATERIAL AND METHODS:

This is an observational prospective cohort study conducted in a medical department with contribution of pathological and community medicine departments of the hospitals. Al-Tibri Medical collage & Hospital is a 300 beded hospital built in a remote area of district Malir. It is attached with Isra University of Hyderabad. This college is situated adjacent to Ibrahim Eye hospital a teaching hospital serving the area for more than fifteen years.This college is fully approved for MBBS teaching. It has an OPD of more than 200 patients with an average of 45 patients per day in Medicine department. The medical department was conducting OPD daily. All the patients taken in this study were adult and resident of Malir district. In the meeting of the authors it was decided that a total of 50 cases or one year which come first would be the total number of cases included in this study. The total duration of study was seven months.The age ranges from 18-45 years with mean 30.1+11.3. The patients taken in this study were complaining of upper abdominal pain for more than two weeks.

Detailed history and clinical examination was done of every case by one of the author, basic data was recorded and serology and upper G.I. endoscopy was done. The blood and biopsy were sent to clinical laboratory of the same college. All finding and test reports were recorded manually of every case separately.

The data was analyzed for gender, dietary habits, smoking and marital status. The analysis was done by one of the author with the help of a statistician using Statistical Package for Social Sciences (SPSS) version 16

Inclusion Criteria

1) The patients included in this study were adult.
2) Resident of Gadap Town.
3) Upper abdominal pain for more than 15 days.

Exclusion Criteria

1) Hypertension and diabetes mellitus had been excluded.
2) Had taken H pylori eradication
3) Had done serological/biopsy of H pylori before

RESULT:

Total numbers of cases were 50. Male were 28 (56%) while 22 (44%) were female. The mean age of the patient was 30.1+11.3 years. There were 28 smokers and 29 were fond of spicy food. 7 females were smokers.The basic data was shown in table no. 1

ENDOSCOPIC FEATURES:

The common endoscopic finding was erythema in 31(62%) patients. 28(56%) had erosions.04(8%) had small ulcer while 3(6%) had nodularity.5(10%) cases had normal upper gastro-intestinal endoscopy. These result were shown in table no. 2. The presence of erythema and erosion had very strong association with H.pylori infection. 34(68%)antral biopsies were positive for H.pylori organism while the serological test were raised in 43(86%) cases. 19 males (55.88%) had positive antral biopsy for H pylori while 15 females(44.12%) were positive. 26 males(60.46%) had positive serological test for H pylori while 17 females (39.54%) were positive.

Table No. 1

BASIC CHARACTERISTIC

Indicators/Variables	N(%)
Gender	
Male	28(56)
Female	22(44)
n	50
Year to be enrolled in the study	
2010	15(30)
2011	35(70)
n	50
Religion	
Islam	49(98)
Don't know	1(2)
n	50
Marital status	
Single	15(28.6)
Married	35(71.4)
n	50
Smoking behavior	
Yes	28(56)
No	22(44)
n	50
Eats spicy food ?	
Yes	29(55.3)
No	21(44.7)
n	50
Dietryhabbit	
Yes	28(56)
No	22(44)
n	50
Serological test	
Positive	43(86)
Negative	7(14)
n	50
Endoscopy for histopathology	
Positive	34(68)
Negative	16(32)
n	50

Table No. 2
ENDOSCOPIC RESULT

Endoscopic Lesions	Number of Cases Showing Result on Endoscopy
Erythema	31(62)
Erosion	28(54)
Ulcers	4(8)
Nodular	3(6)
Normal	5(10)

DISCUSSION

H pylori is a spiral gram negative rod that resides beneath the gastric mucous layer. It is non-invasive, causes gastric mucosal inflammation with polymorphonuclear cells and lymphocytes[8].The mechanism of injury and inflammation may related to the product of the two genes i.e. Vac A[9 10 11] and Cag A.

Approximately 50 % of the population has been colonized with the bacterium. The prevalence is being different for developed to developing countries. It was mainly depend upon economic factors. In industrialized areas the incidence of infection appear to be declining in younger population the reason behind this is not fully clear, but it is assumed that it was because of the improved economic conditions.

In this study the prevalence of H pylori infection in patients undergoing upper G.I. endoscopy wascomparable with other studies.[12 13 14 15]43 cases (86 %) had serological test positive while the biopsies were detected in 34 cases(68 %). The reason of this difference was prior antibiotic use and patchy nature of H pylori infection. The number of positive cases determined by serum IgG to H pylori was significantly higher than the number of cases detected by biopsy[16 17]. Previous studies using biopsy techniques to detect infection have reported that any where from 49 % to 67 % of patient undergoing upper gastrointestinal endoscopies were infected with H pylori infection. The number of seropositive cases determined by serum IgG to H pylori was significantly greater than the number of cases detected by biopsies. The present study described a 18 % difference in the prevalence of infection according to weather biopsy or serological method were used. Similar to the 15.4 % to 17.9 % difference were reported in previous studies.

On endoscopy[18] the patient with gastric erosion was more compatible with positive biopsy for H pylori. While five cases had normal upper G.I. endoscopy, in which two had positive biopsies of H pylori infection. Redeen et al[8] concluded that absence of rugae and presence of dilated vessels correlated with positive infection in antrum while this study the presence of erosion is more compatible with the H pylori.

The present study described an 18 % difference in the prevalence of infection according to weather biopsy or serological method was used. Similar to the 15.4 % to 17.9 % difference were reported in previous studies[19 20 21].Farhan et al [19]the sensitivity of the test was 84 % and specificity being 60 % and the study conducted by Cutler[22]et al the sensitivity was 91.3 % while specificity was 66.6 %. They used IgG antibody to detect. Sensitivity and specificity of the test are comparable with other studies [2324].

The study showed greater serological evidence of H pylori infection in patients reported to OPD for dyspepsia when compared to biopsies. It was detected that positive symptoms andhigh titer of serological test was more sensitive, easy, convenient and less expensive method to detect H pylori infection than biopsy. The stool antigen testing[25] is another option to detect H pylori infection but it is not evaluated in this study and it was because of its cost.

CONCLUSION

Serological test showed high prevalence of H pylori infection to document by biopsy. It is recommended that if there are positive symptoms and very high titer of H pylori antibody so we can start H pylori eradication regime.Further studies are required to determine the factors that may affect the detection of H pylori infection.

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