ORIGINAL ARTICLES

FREQUENCY OF HELICOBACTER PYLORI IN HISTOLOGICALLY PROVEN GASTRITIS CASES - A STUDY OF 100 CASES

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ABSTRACT

Objective: To determine the frequency of *Helicobacter pylori* (*H. pylori*) based on endoscopic biopsy with the help of special stains in gastritis cases.

Study Design: Prospective descriptive study.

Place and Duration of Study: Histopathology department, Army Medical College Rawalpindi, from Oct 2016 to Mar 2017.

Material and Methods: One hundred (100) cases were included in the study. Gastric biopsies of the patients histologically diagnosed as gastritis were included in the study, which were evaluated for the presence of *H. pylori* with the help of special stain (Modified Giemsa stain).

Results: Gastric biopsies of 100 patients, who were diagnosed as gastritis on histopathological examination were analyzed with the help of Giemsa stain for the presence or absence of *H. pylori*. Out of these 100 cases, 60 were males and 35 were females. Most patients were between the age group of 30-40 years. Histological examination and special stain analysis revealed presence of *H. pylori* in 30 cases (30%), while rest of the 70 cases (70%) showed no *H. pylori*. Out of 30 cases positive for *H. pylori*, 28 cases (93%) had chronic active gastritis, while 2 cases (7%) had no element of activity.

Conclusion: Among the cases of chronic gastritis, *H. pylori* negative gastritis was more common than *H. pylori* associated gastritis. A significantly decreased frequency of *H. pylori* in histologically gastritis cases in our population may be due to more frequent use of complete or incomplete therapies against *H. pylori* by general practitioners at some stage of disease.

Keywords: Gastritis, Giemsa stain, *Helicobacter pylori*.

INTRODUCTION

Helicobacter pylori (H. Pylori) has been considered as a common cause of gastritis worldwide. Beside gastritis and gastric ulcers, it is also implicated as an etiological agent in causing gastric carcinoma and mucosa associated lymphoid tissue (MALT) lymphoma. This diversity of clinical outcome, which may be the result of interaction between the microorganism, host and environmental factors, makes it important to detect presence of *H. pylori* in gastritis cases[1]. Diagnosis of *H. pylori* can be done by both non invasive and invasive techniques. Non invasive techniques include *H. pylori* serology, antigen in stool and urea breath test. Invasive techniques include gastric biopsy which is stained with routine haematoxylin and Eosin (H&E) and application of special stains like Giemsa stain, toluidine blue and Warthin starry stain. *H. pylori* culture and polymerase chain reaction (PCR) can also be done to detect the organism[2]. The Sydney system, used for reporting chronic gastritis which was given in 1990 and updated in 1994 includes an important component of presence or otherwise of *H. pylori* and their grading, (mild, moderate, severe)[3]. *H. pylori* infection is considered as one of the commonest health problem, causing significant morbidity and economic loss with deterioration in quality of life[4]. Gastric biopsy analysis with routine H&E staining and incorporation of

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special stains can be very effective in detection of *H. pylori*. Timely management of this disease can not only alleviate the morbidity, but can also prevent the later on occurring malignancies like gastric carcinoma and MALT lymphoma[5]. This study was carried out to find out the presence and frequency of *H. pylori* in histologically proven cases of gastritis. Outcome of this study could be of help in analyzing the current status of *H. pylori* infection in gastritis cases for management and prevention of this disease.

MATERIAL AND METHODS

This prospective descriptive study was carried out at histopathology department of Army Medical College, Rawalpindi. The study extended over a period of 06 months with effect from October 2016 to March 2017. Gastric biopsies received in histopathology department of Army Medical College, which were having the histological evidence of chronic gastritis, were analyzed for the presence of *H. pylori* by doing Giemsa stain. Sample Size was calculated by WHO Calculator by taking 23.37% population proportion, absolute precision 9% with 45% confidence interval. Total 100 patients were selected by non-probability convenience sampling technique.

Gastric biopsies of the patients, which were adequate and had the histological evidence of chronic gastritis, were included in the study. Gastric biopsies having inadequate material or histologically having unremarkable fragments of gastric mucosa were excluded from the study.

The specimens were labeled and fixed in 10% formalin. Paraffin blocks were made and sectioned at 3-5 micrometer thickness were prepared. The sections were stained with Haematoxylin and Eosin (H&E). For highlighting the presence of *H. pylori*, Giemsa stain was done on one section[6]. The slides were examined by consultant histopathologist and presence or absence of *H. pylori* was noted and graded. In cases of gastritis, other histopathological variables were noted and graded according to updated Sydney system of gastritis[7]. Data were entered and analyzed by using SPSS version 17. Perscriptive statistics like frequency and percentages were calculated for all the variables.

RESULTS

A total of 100 gastric biopsies which were having the histological evidence of gastritis, were analyzed for the presence or otherwise of *H. pylori*. They included 65 (65%) males and 35 (35%) females. The age range was between 18-70 years. Maximum number of cases 45 (45%) were between 30-40 years, followed by 25 cases (25%) which were between 20-30 years.

Table: H. Pylori and other histological graded variable in histologically proven gastritis cases.

Histological Variables	Grade				
	None (0)	Mild (1)	Moderate (2)	Severe (3)	Total
Chronic inflammation	00	30	40	30	100 (100%)
H. Pylori	70	02	25	03	30 (30%)
Activity	25	10	30	25	65 (65%)
Glandular atrophy	96	02	02	00	04 (4.0%)
Intestinal metaplasia	95	03	02	00	05 (5.0%)

Out of these 100 cases of histologically proven gastritis, 30 cases (30%) showed presence of *H. pylori*, which were moderate in 25 cases (83.3%), severe in 03 cases (10%) and mild in 2 cases (6.7%).

Most of the *H. pylori* associated gastritis cases showed an element of activity which was seen in 28 cases (93.3%) out of total 30 *H. pylori* positive cases. The grade of activity was moderate to severe in most of the cases. A summary of results including *H. pylori* and other graded variables is given in table.

DISCUSSION

H. pylori is considered to be the most important cause of gastritis, gastric and duodenal

ulcers and is classified as class I carcinogen[8]. In 1983, Warren and Marshall described strong association of *H. pylori* with chronic gastritis[9]. The distribution of *H. pylori* associated gastritis is well established in Western society[10] and its incidence varies widely in literature from 30-90%[11]. However, in our set, there are few reports, indicating frequency of *H. pylori* in histologically proven gastritis cases in Pakistani population.

In our study, the frequency of *H. pylori* in histologically proven gastritis cases was 30%, which is relatively less in few studies conducted in the our population earlier. In one study conducted by Mohsin et al in 1999, the frequency of *H. pylori* in histologically proven gastritis was 43%[12], while in another local study carried out by Shiza et al, the frequency of *H. pylori* in histologically proven gastritis cases was 61%[13]. In another local study carried out by Khalid et al, the frequency of *H. pylori* was 83%, which is quite high as compared to *H. pylori* frequency in our study[14]. The higher frequency of *H. pylori* in previous local studies previously may be due to the fact, that now a days many of the patients with dyspepsia are treated with complete or incomplete triple regimen therapy by general practitioners and by the time they come for endoscopy, they may be having histological evidence of gastritis, but no *H. pylori*.

In few studies conducted in other Asian countries, the frequency of *H. pylori* was comparable to our results. In one study carried out at Khatmandu (Nepal), the frequency of *H. pylori* in histologically proven gastritis was 33.9%, comparable to this study. In one study carried out in India, the frequency of *H. pylori* was 34%, resembling results of this study[15]. In another study carried out at India, the frequency of *H. pylori* in gastritis cases was 48%[16], which is relatively higher as compared to this study. In another study carried out in rural area of India, the frequency of *H. pylori* was 78% which is quite high as compared to our study[17]. Recently, in a large scale study carried out in Japan, the frequency of *H. pylori* in gastritis cases was 27.5%[18], which was slightly less than the frequency noted in this study. In another study carried out in Japan, a significant decrease in frequency of *H. pylori* was noted[19]. In a large scale study done in Korea, the frequency of *H. pylori* noted in histologically proven gastritis cases was 54.4%. This frequency decreased from 69.9% (in 1998) to 59.6% (in 2005) to 54.4% (in 2013)[20]. In a study done at China, the frequency of *H. pylori* in gastritis cases was 43.8%[21]. In Western studies, the frequency of *H. pylori* in gastritis cases is widely variable. In United States of America (USA), the frequency of *H. pylori* in gastritis noted in one study was 19.6%[22]. Among the European countries, the frequency of *H. pylori* is quite variable. In one study done at Italy, the frequency of *H. pylori* in gastritis cases was 33.9%, which is closer to this study[23]. In an other study done at Germany, the frequency of *H. pylori* in gastritis cases was 48.0%[24].

In most of our cases of *H. pylori* associated gastritis, an element of activity was noted which was moderate to severe in most of our cases. This finding was also noted in most of the studies carried out locally as well as in different parts of the world.

A significantly decreased frequency of *H. pylori* noted in histologically proven gastritis in our population as compared to the past suggests that most of the patients with symptoms of dyspepsia are treated by general practitioners with complete or incomplete therapies against *H. pylori*, before they report to gastroenterology department for endoscopic examination. These patients may be having histological evidence of gastritis, but no *H. pylori*.

CONCLUSION

Among the histologically proven gastritis cases, *H. pylori* negative gastritis was more common than *H. pylori* associated gastritis.

The frequency of *H. pylori* in gastritis cases is decreasing in our population as compared to the past. This decrease is likely due to frequent use of complete or incomplete anti *H. pylori* therapies, given to the patients with symptoms of dyspepsia by the general practitioners. More studies at a

larger scale are required in the country to know the exact frequency of *H. pylori* in urban and rural population and in different socioeconomic groups, to do the remedial measures.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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