Prevalence of Helicobacter pylori infection among the patients undergone for endoscopic biopsy

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ABSTRACT

Introduction: Helicobacter pylori (H.pylori) is well known organism which colonizes in the gastric mucosa. It can cause variety of upper gastrointestinal disorder such as; chronic gastritis, peptic ulcer, gastric mucosa associated lymphoid tissue (MALT) lymphoma and gastric cancer.

Objective: To identify the prevalence of H.pylori based on histopathology among the patients undergoing for endoscopic biopsy.

Materials and Method: Cross sectional study was conducted after the ethical approval from KDC-IRC. A total of 84 endoscopic biopsies with histological examination from Baishak 2077 to Baishak 2079 were included in the study. Statistical analysis was done using percentage, mean, sensitivity, specificity, positive and negative predictive value. Chi –square test was used to analyze the relation between the various variables. The p value of <0.05 was taken as statistically significant.

Result: The prevalent of H.pylori infection was 42.9% (36) among them 64.3% (54) were male and 35.7% (30) were females. The most frequent type of gastritis was chronic erosive gastritis 35.7%(30,), followed by chronic active HP associated gastritis 28.6%(24), chronic inactive HP associated gastritis 10.7%(9), chronic gastritis 4.8%(4), chronic follicular gastritis 3.6%(3), suppurative gastritis2.4%(2), superficial gastritis 2.4%(2), eosinophillic gastritis 1.2% (1) and reactive gastropathy 1.2%(1).

Conclusion: The prevalence of H.pylori infection among the gastritis patients was high therefore; examination for H.pylori infection in patient undergoing for the endoscopic examination was suggested.

Keywords: Gastritis; Endoscopy; Helicobacter pylori

INTRODUCTION

Helicobactor pylori (H.pylori) is a spiral, gram negative rod shaped bacilli which has strong association with chronic active gastritis, gastric adenocarcinoma and mucosa associated lymphatic tissue lymphoma (MALToma).[1] Presence of in gastric mucosa was discovered in 1983 by Warren and Marshall. The prevalence of H.pylori infection is 50% worldwide and 90% in developing countries.[2] In Nepal the prevalence of H.pylori infection is 30% to 87%.[2,3] The present study aims to determine the prevalence of H.pylori infection among the patient undergone for endoscopic biopsy in Kantipur Dental College and Grande City Hospital.

MATERIALS AND METHOD

A cross sectional study was conducted among the patient with endoscopic biopsy after ethical approval from KDC-IRC. A total of 84 gastric biopsies with histological examination from Baishak 2077 to Baishak 2079 entered in hospital record were included in the study studied. The biopsy specimens were processed, embedded in paraffin, sliced, and stained with hematoxylin and eosin (H and E) after being fixed overnight in 10% buffered formalin. Geimsa stain was done for each biopsy to demonstrate the H.pylori. Histological reporting; gastric mucosa inflammation, atrophy, intestinal metaplasia, and neoplasia and H. pylori colonization were included. Gastritis was classified into: chronic active HP associated follicular gastritis, chronic active HP associated gastritis, chronic erosive gastritis, superficial gastritis and chronic inactive HP associated gastritis. Statistical analysis was done using SPSS 20. Mean, sensitivity, specificity, positive and negative predictive value was calculated. Chi –square test was used to analyze the association between the various independent variables. The p value of <0.05 was taken as statistically significant.

RESULT

Among 84 cases of endoscopic biopsy, 54 (64.3%) were males and 30 (35.7%) females and H.pylori infection prevalent was 42.9%. The association between the gender and H.pylori infection was statistically insignificant with p value of 0.189 as shown in Table 1.

Table 1: Association between gender and H.pylori infection

H.pylori	Male (%)	Female(%)	Chi square	P
Present	26(48.1)	10(33.3)	1.728	0.189
Absent	28(51.9)	20(66.7)		
Total	54	30		

The age of patients undergone for the procedure ranged from 24 to 70 yrs with mean age of 45.15 (SD ± 13.42) years. The association between age and H.pylori infection was also statistically insignificant with p value of 0.99 as shown in Table 2. The frequency of H.pylori infection was more among age 50 -59 years.

Table 2: Association between age and H.pylori infection

H. pylori	Age					Chi square	P
	< 30	30-39	40-49	50-59	>=60		
Present	7(46.7)	8(44.4)	7(43.8)	8(42.1)	6(37.5)	0.305	0.99
Absent	8(53.3)	10(55.6)	9(56.2)	11(57.9)	10(37.5)		
Total	15(17.8)	18(21.4)	16(19.1)	19(22.6)	16(19.1)		

The most frequent type of gastritis was chronic erosive gastritis 30 (35.7%), followed by chronic active HP associated gastritis 24 (28.6%) and chronic inactive HP associated gastritis 9 (10.7%) Table 3.

Table 3: Frequency of different histological type of gastritis

Types of Gastritis	N	%
Chronic erosive gastritis	30	35.7
Chronic active HP associated gastritis	24	28.6
Chronic inactive HP associated gastritis	9	10.7
Chronic active HP associated follicular gastritis	7	8.3
Chronic gastritis	4	4.8
Chronic HP associated follicular gastritis	3	3.6
Superficial gastritis	2	2.4
Suppurative gastritis	2	2.4
Eosinophillic gastritis	1	1.2
Reactive gastropathy	1	1.2
Total	**84**	**100**

In the present study, the histopathological finding of atrophy of mucosa associated with H. pylori associated gastritis was 25%, the finding of intestinal metaplasia in H.pylori associated gastritis was 30.6% with significant p value of 0.015 and 0.042 respectively Table 4.

Table 4: Frequency of atrophy and metaplasia associated with gastritis

	HP associated gastritis (N=36)	HP not associated gastritis (N=48)	p value
Atrophy			
Absent	27 (75%)	45 (93.8%)	0.015
Present	9(25%)	3(6.2%)	
Metaplasia			
Absent	25(69.4%)	42(87.5%)	0.042
Present	11(30.6%)	6(12.5%)	

DISCUSSION

H.pylori is one of the most common chronic bacterial infections. The prevalence of H.pylori infection in developing country varies widely from 11% to 70% whereas in developed country rate of infection is low 20 to 40%.[2] The reason for variation in prevalence is due to differences in socioeconomic status of the population. The transmission of H.pylori is mainly by oral to oral or faecooral route. The lack of safe drinking water, sanitation, poor diet, and overcrowding plays role in determining the prevalence of the infection. [2, 4, 5]

In the present study the prevalence of H.pylori infection was 42.9% which was comparable with other studies; 30%

to 87%.[3,4,6,7] The prevalence of H.pylori infection was high among 50 to 59 years old population which was similar in Shakya RP *et. al* study and Shrestha UK *et. al* study.[6, 7] But, Ansari S *et. al* study reported that the prevalence was more in the young people.[8]

In the present study, the association between H.pylori infection and age and with gender was statistically insignificant with p value of 0.99 and 0.189 respectively. Similar to present study; Shakya RP *et. al* and Shokrzadeh *et. al* reported no significant difference according to gender.[5,9] In contrast, a study by Kaore *et. al* found higher prevalence in female.[10] The study of Graham *et.al* mentioned that the prevalence of H.pylori infection was twice high in blacks than in white.[9]

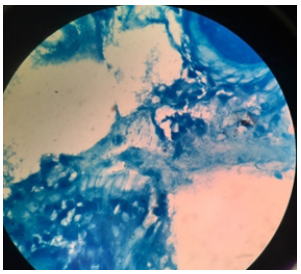
In the present study according to the histopathological feature, the most frequent type of gastritis was chronic erosive gastritis (35.7%), followed by chronic active HP associated gastritis (28.6%). Similarly, in KC Shiva Raj *et al* study the most common pathology in histopathology was chronic active gastritis (42.1%) followed by chronic persistent gastritis (38.2%) and chronic follicular gastritis (19.1%). Chronic active gastritis (85.3%) was the most common finding followed by chronic persistent gastritis (83.3%) and chronic follicular gastritis (41.4%).[3, 11]

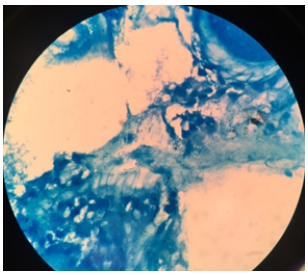
The histopathological finding of atrophy of mucosa associated with H. pylori associated gastritis was 25%, the finding of intestinal metaplasia in H.pylori associated gastritis was 30.6% with significant p value of 0.015 and 0.042 respectively. The incidence of atrophy and intestinal metaplasia was high in the present study as compared to the other study. In Shrestha UK *et. al*, the atrophic changes and intestinal metaplasia were detected in very low number of cases. In Shrestha R *et. al* study the intestinal metaplasia was detected in 5% cases and KC Shiva Raj *et. al* study revealed intestinal metaplasia in 3% and atrophy in 2.35% cases. [3,7,11]

CONCLUSION

The prevalence of H.pylori infections detected by histopathology method was 42.9%.The infection was more in male than in female. The frequency of the H.pylori was more common in age of 50-59 years. The most common histopathology finding was chronic erosive gastritis followed by chronic active gastritis. Therefore, patient undergoing endoscopic procedure should always be examined for H.pylori infection and appropriate management of the infection should be advised.

Photograph No.1 and No.2





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