Endoscopic Findings And The Frequency Of Helicobacter Pylori Among Dyspeptic Patients In North-Eastern Nigeria

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Abstract

Aim: To determine the types of upper gastrointestinal lesions and the frequency of helicobacter pylori among dyspeptic patients in Maiduguri, Nigeria.

Methods: Three hundred and thirty (330) dyspeptic patients undergoing endoscopy at the University of Maiduguri Teaching Hospital were prospectively studied. Gastric mucosal biopsy specimens were stained with haematoxylin and eosin. Modified Giemsa was employed to demonstrate the presence helicobacter pylori.

Results: One hundred and seventy one (51.8%) of the patients were males while 159 (48.2%) were females. Their ages ranged from 14 to 80 years with a mean of 38.7 (±SD15.2) years. A total of 259 (78.5%) of the patients were positive for H. pylori. The most commonly identified lesion was oesophagitis which was seen in 67.0% of the patients followed by gastritis (60.0%) and duodenitis (27.9%). Gastric ulcer was recorded in 6.4 % of the patients while 4.8% and 1.7% had duodenal ulcer and gastric cancer respectively.

Conclusion: There is high frequency of H. pylori among dyspeptic patients in North-eastern Nigeria. The predominant endoscopic findings were oesophagitis, gastritis and duodenitis.

INTRODUCTION

Dyspepsia is a common presenting complaint in clinical practice. The causes are varied ranging from gastroduodenitis, esophagitis, cholelithiasis, peptic ulcer disease (PUD). Upper gastrointestinal endoscopy is regarded as the investigation of choice in patients with upper gastrointestinal disorders which often present with dyspepsia.

Helicobacter pylori (H. pylori), a gram-negative micro-aerophilic bacillus, is recognized to be associated with diverse upper gastrointestinal pathologies such as chronic gastritis, peptic ulceration, mucosal associated lymphoid tissue (MALT) lymphoma and gastric carcinoma ([1], [2]). Therefore, investigation for this organism has become an integral part of upper gastrointestinal endoscopy. Infection with H. pylori occurs worldwide, but the prevalence varies greatly among countries and among population groups in the same country ([2]). It is more common in developing countries where prevalence is over 80 % in middle- aged adults as compared to 20-50% in industrialised countries ([2]). The overall prevalence of H. pylori infection is strongly correlated with socioeconomic conditions and prevalence tends to increase with age ([3]). In Nigeria, H. pylori prevalence rate of up to 84% has been reported among patients with dyspepsia in general ([4]), while almost 100% of duodenal ulcer (DU) patients and 82% of patients with gastric ulcer (GU) were found to be H. pylori positive ([5]).

H. pylori infection can be diagnosed by non-invasive methods or by endoscopic biopsy of the gastric mucosa. The non-invasive methods include the urea breath test, serologic tests and stool antigen assays. Histology of endoscopically taken biopsy, the method used in this study, has a very high sensitivity and specificity of 96% and 98.8% respectively, even though it requires expertise for interpretation ([6]).

The aim of this study is to determine the common upper gastrointestinal lesions and the frequency of H. pylori among

dyspeptic patients seen at the University of Maiduguri Teaching Hospital. The hospital serves as a referral centre for the north-eastern region of Nigeria.

MATERIALS AND METHODS

This prospective study was conducted at the Departments of Medicine and Histopathology University of Maiduguri Teaching Hospital (UMTH) between February 2003 and April 2006. Three hundred and thirty patients with dyspepsia referred to the gastroenterology unit for endoscopy were recruited. After sedation with intravenous diazepam, upper gastrointestinal endoscopy was performed using Pentax FG-29W forward viewing flexible esophagogastroduodenoscope and at least three antral mucosal biopsies were taken using endoscopic biopsy forceps. The specimens were preserved in 10% formalin and sent to the Histopathology department where routine tissue processing and paraffin embedding were done. The specimens were then cut into 3µm sections and stained with routine haematoxylin and eosin. A modified Giemsa stain was employed to demonstrate the presence of H. pylori.

Chi-square test was used to compare means of proportions and a p value of ? 0.05 was considered significant.

RESULTS

Table 1: Age and sex distribution of 330 dyspeptic patients seen at UMTH

Figure 1

Age group	Sex		Total	%
	Male	Female		
10 -19	17	13	30	9.1
20 – 29	37	35	72	21.8
30 – 39	36	34	70	21.2
40 – 49	37	45	82	24.9
50 – 59	26	19	45	13.6
60 – 69	16	11	27	8.2
≥ 70	2	2	4	1.2
Grand Total	**171**	**159**	**330**	**100**

A total of 330 were scoped; 171(51.8%) males and 159 (48.2%) females. Their ages ranged from 14 to 80 years with a mean of 38.7(±SD15.2) years, the age group with the highest frequency being 40 – 49 years (Table 1).

Two hundred and fifty-nine (78.5%) of the patients were positive for H. pylori. Two hundred and seventy one (82.1%) had endoscopically identifiable cause for their dyspepsia while the remaining 59 (17.9%) had normal endoscopic findings. There was no significant difference ($p<0.5$) between the frequency of H. pylori among those with endoscopically identifiable lesions (81.5%) and those with normal findings (74.5%).

The most common endoscopic lesion was esophagitis which was seen in 227 (67.0%) of the patients, followed by gastritis including erosions (60.0%) and duodenitis (27.9%) but there was considerable overlap between the three with many of the patients with gastritis having oesophagitis and duodenitis, and vice versa. Gastric ulcer was recorded in 21 (6.4%) of the patients while 16 (4.8%) and 6 (1.7%) had duodenal ulcer and gastric cancer respectively. Table 2 shows the spectrum of endoscopic findings, while table 3 shows the age-wise distribution of the endoscopic findings and the H. pylori status of the patients

Endoscopic diagnosis of gastritis was confirmed in all cases histologically, however 114 (86.4%) of the132 patients with apparently normal mucosa on endoscopy had gastritis on histology. The frequency of H. pylori among patients with histologic gastritis was 89.1%, while it was 83.3%, 100% and 61.9% among patients with endoscopic duodenitis, duodenal ulcer and gastric ulcer respectively, and 33.3% among those with gastric cancer.

Figure 2

Table 2: Endoscopic findings and H.pylori status of dyspeptic patients seen at UMTH

Endoscopic findings	H. pylori status n = 330[a]		Total (%)
	Positive (%)	Negative (%)	
Reflux Oesophagitis	120 (52.9)	107 (47.1)	227 (67)
Gastritis	176 (89.1)	22 (9.9)	198 (60.0)
Duodenitis	77 (83.3)	15 (16.7)	92 (27.9)
Gastric ulcer	13 (61.9)	8 (38.1)	21 (6.4)
Duodenal ulcer	16 (100)	0 (0)	16 (4.8)
Gastric cancer	2 (33.3)	4 (66.7)	6 (1.7)
Normal	44 (74.5)	15 (25.5)	57 (17.9)

a = most patients have more than one lesion.

Figure 3

Table 3: Age-wise distribution of endoscopic findings and H. pylori status among dyspeptic patients at UMTH

Age-group	Endoscopic findings							H. pylori status	
	Oes(%)	Gas (%)	Dn(%)	GU(%)	DU(%)	GC(%)	Normal (%)	Positive (%)	Negative (%)
10-19	19(8.4)	16(8.1)	16(17.4)	0(0)	2(12.5)	0(0)	9(15.3)	20(66.7)	10(33.7)
20-29	48(21.2)	36(18.2)	26(28.3)	0(0)	7(43.8)	0(0)	18(30.5)	55(76.4)	17(23.6)
30-39	52(22.9)	44(22.2)	14(15.2)	3(14.3)	5(31.2)	0(0)	12(20.3)	53(75.7)	17(24.3)
40-49	57(25.1)	49(24.8)	27(29.3)	7(33.3)	2(12.5)	0(0)	10(16.9)	66(80.5)	16(19.5)
50-59	31(13.7)	34(17.1)	7(7.6)	6(28.6)	0(0)	2(33.3)	7(11.9)	37(82.7)	8(17.8)
60-69	18(7.9)	16(8.1)	2(2.2)	4(19.0)	0(0)	3(50)	3(5.1)	25(92.6)	2(7.4)
≥ 70	2(0.8)	3(1.5)	0(0)	1(4.8)	0(0)	1(16.7)	0(0)	3(75.0)	1(75.0)
Total	227(100)	198(100)	92(100)	21(100)	16(100)	6(100)	59 (100)	159(78.5)	71(21.5)

Oes – Oesophagitis
Gas – Gastritis
Dn – Duodenitis
Gu – Gastric ulcer
Du – Duodenal ulcer
GC – Gastric cancer

DISCUSSION

Our study found that 259 (78.5%) of the patients that presented with dyspepsia had H. pylori infection. This is consistent with findings from other studies in Nigeria where prevalence rates of between 73% and 84% were reported ([4], [5], [7]). This high prevalence is seen through out sub- Saharan Africa as shown by studies from Ghana ([8]), Kenya ([9]) and Zimbabwe ([10]) where prevalence rates of between 75 and 85% were reported. This study also showed that despite the high prevalence of H. pylori infection, the prevalence of serious gastrodudenal pathology (ulcer and gastric cancer) was low as these lesions were documented in only 12.4% of the patients. This is in keeping with previous observations in this region ([4], [17]) but contrary to the findings in Southern Nigeria where relatively high incidence of these lesions was reported among dyspeptic patients. ([5]). There is however a very high frequency of gastritis among our dyspeptic patients as 312 out of the 330 biopsy specimens (94.5%) had histologic gastritis. This is even higher than the 92 % prevalence rate documented by Holcombe et al ([4]) in the same region over 10 years ago.

It is noteworthy that 86.4% of endoscopically normal looking mucosae revealed gastritis histologically. Other studies have highlighted the problem of disparity between normal endoscopic gastric mucosal appearance and histology in dyspeptic patients undergoing endoscopy ([10], [12]). This emphasizes the need for routine gastric mucosal biopsy in all dyspeptic patients undergoing endoscopy. Previous studies have shown that the pattern and distribution of gastritis correlate strongly with the risk of clinical sequelae namely duodenal or gastric ulcers, gastric carcinoma or gastric lymphoma ([2]). Patients with antral- predominant gastritis, the most common form of H. pylori gastritis, are predisposed to duodenal ulcers, whereas patients with corpus-dominant gastritis are more likely to have gastric ulcers, gastric atrophy, intestinal metaplasia, and ultimately gastric carcinoma ([2]).

The result of this study also showed that all (100%) of the DU patients as well as 60% of those with GU were infected with H. pylori. This is similar to reports from other studies in Africa where H. pylori prevalence rates of 90 to 100% and 60 to 90% were reported for duodenal and gastric ulcers respectively ([5], [8], [9]). However, only 33.3% of the patients with gastric cancer were H. pylori positive which is less than what was reported in those studies. One cannot however draw a definite conclusion from this because of the very small number (six) of patients with gastric cancer. A further study with a larger number of patients is needed to establish the true association between H. pylori and gastric cancer in this region.

We did not find a significant difference in the frequency of H. pylori infection among patients with organic dyspepsia and those with normal endoscopic findings (non-ulcer dyspepsia). This could be explained by the very high H. pylori prevalence (80-85%) even among healthy Nigerians ([13], [14]). In view of the undoubted benefit of H. pylori eradication in preventing relapse after treatment for PUD ([15]), eradication therapy should be comprehensive part of PUD treatment.

In conclusion, there is high frequency of H. pylori infection among dyspeptic patients in north-eastern. In spite of this, the prevalence of PUD and gastric cancer are low indicating that other factors also play a role in the pathogenesis of these disorders. In view of the large number of patients with endoscopically normal gastric mucosa who had histologic gastritis, it seems prudent to take multiple gastric biopsies to rule out microscopic gastritis, and to look for H. pylori in all dyspeptic patients undergoing endoscopy.

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