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Original Research Article

Incidence of Helicobacter pylori in patients with upper gastrointestinal symptoms: a hospital-based study

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ABSTRACT

Background: Commonest complaints for which patients seek hospital care are upper gastrointestinal (UGI) symptoms. Prevalence of these symptoms range from 8-54%. Most common cause is Helicobacter pylori. The objective of this study was to investigate incidence of Helicobacter pylori in patients with UGI symptoms.
Methods: Hospital-based study was carried out among 200 cases with esophageal disorders, gastric disorders, duodenal disorders, gastro duodenitis. Predesigned and pretested questionnaire was used to record information. Gastric and duodenal biopsy was taken. Rapid antigen test kit was used to identify for Helicobacter pylori.
Results: Incidence of Helicobacter pylori was 80%. Most common disorders associated with UGI symptoms were gastritis (29%), gastritis with duodenal ulcer (21%) and esophagitis (21%). They were more common in males except esophageal varices. Gastritis and esophagitis were significantly more in 21-40 years (46.55%) ($p<0.05$). Most common age of UGI symptoms was 21-40 years (34.5%). H. pylori infection was more among males (62.50%). Most common indication for endoscopy was dyspepsia in 48 (24%).
Conclusions: Incidence of H. pylori was 80%. Upper GI diseases are more common in men (65.5%) compared to females (34.5%) with the most affected age group between 21-60 years (68%). H. pylori was the commonest cause of chronic gastroduodenitis in this study.

Keywords: Symptoms, Gastritis, Esophagitis, Rapid urease test, Patients

INTRODUCTION

The commonest complaints for which the patients seek hospital care are Upper gastrointestinal (GI) symptoms. It has been estimated that the prevalence of these symptoms ranges from 8% to 54%. Some of the most common of them are 'dyspepsia, dysphagia, gastrointestinal bleeding, progressive unintentional weight loss, persistent vomiting or of unknown cause, anemia or epigastric mass'. Endoscopy is the most commonly offered investigation for these cases.[1] Helicobacter pylori are a non-spore forming, gram negative bacterium with a helical shape. Curved forms occur and the bacillus also converts to a coccoid morphology under environmental stress. It has multiple flagella at one pole (1-5) and is actively motile. Flagella play important role in motion and adhesion. H. pylori can survive in an acid environment for a short time but is not an acidophile. H pylori are oxidase positive and catalase positive and are a strong producer of urease.[2]

The evaluation and management of dyspepsia constitutes a significant clinical and economic burden. Endoscopy helps in early detection of carcinoma in dyspepsia. Patient with alarm symptoms add significant increase in both GI cancer and mortality. Endoscopy helps in detection of cut-off age for carcinoma of upper GI tract in dyspepsia and outcome of various other alarming symptoms.[3]

Experimental evidence on dyspepsia management is scarce and guidelines are based on information drawn from trials and clinical studies conducted in academic or specialist settings. It has been shown that their impact on general practices may be eminently critical in order to invalidate the implementation process.[4] One of the series of statement by American society for GI endoscopy defines the role of upper GI endoscopy in the diagnostic evaluation and management of patients with dyspepsia. It states that endoscopic examination of the upper GI remains the gold standard for establishing/ excluding peptic ulcer disease; other causes of non-ulcer dyspepsia.[5]

Upper gastrointestinal (GI) bleeding, defined as bleeding derived from a source proximal to the ligament of Treitz, is a common and potentially life-threatening abdominal emergency that remains a common cause of morbidity and mortality worldwide.[6,7]

Upper gastrointestinal tract bleeding is more common than that from lower gastrointestinal tract.[8] These bleeding can vary from non-significant variety to severe one.[9]

Fortunately, majority of the bleeding from the upper gastrointestinal tract stops spontaneously.[10]

Present study was carried out to study the clinical profile of patients with upper gastrointestinal symptoms.

METHODS

Study design

The study was hospital-based study.

Study setting

Surgery was at ward tertiary care center.

Study duration

The study period was of 2 years (from October 2018 to October 2020).

Study population

The study population included all the cases with esophageal disorders, gastric disorders, duodenal disorders, gastro duodenitis admitted at a tertiary care center

Inclusion criteria

Patients with following criteria's were included- (a) aged >18 years of age of either gender; (b) patients complaining of persistent upper abdominal pain, upper GI bleeding (hematemesis and malena), acid peptic disorders dyspepsia, gastritis, dysphagia admitted in wards undergoing fiberoptic gastroscopy; (c) patients complaining similar complaints in OPD not relived on conservative management; and (d) post-operated cases of gastric perforation closure, duodenal perforation closure after one and half months.

Exclusion criteria

Patients with following criteria's were excluded- (a) unconscious patients; (b) presenting with acute GI bleed with shock; (c) uncooperative patients; and (d) patients previously diagnosed of upper GI tract disorder.

Sample size

The sample size of the study was 200.

Methods of data collection and questionnaire

Predesigned and pretested questionnaire was used to record the necessary information. Questionnaires included general information, such as age, sex, religion, occupation of parents, residential address, and date of admission. Medical history- chief complain, past history, general examination, systemic examination was taken. Data on demographic profile, endoscopic findings, treatment modalities, and clinical outcome was collected from endoscopy unit and from patient files at the Medical Records department. Information on demographic characteristics, endoscopic findings, medical and/or surgical management and clinical outcome (transfusion requirements, length of hospital stay, re-bleeding rate, mortality) of all patients were recorded in a specially designed case recording proforma (CRF). We took gastric and duodenal biopsy and with the help of rapid antigen test kit, we were able to identify the specimens which were positive for H. pylori. If the color of the rapid antigen kit changes from yellow to pink, it signifies the infection with H. pylori. All the procedures and investigations were conducted as per standard guidelines. Proforma of endoscopy notes were maintained. Endoscopy was also done in postoperative cases of gastric perforation and duodenal perforation during follow up period preferably after 6 weeks of postoperative period to assess the status of operated ulcer/ any other ulcers/H. pylori infection. The data were entered in Microsoft excel and data analysis was done by using Open Epi statistical software. The analysis was performed by using percentages in frequency tables and association of esophageal disorders, gastric disorders, duodenal disorders, and gastro duodenitis with age, sex, H. pylori infection. $p<0.05$ was considered as level of significance using the Chi-square test.

RESULTS

Table 1 shows proportion of various causes of upper gastrointestinal (GI) symptoms. Most common cause was gastritis in 29% of cases followed by gastritis with duodenal ulcer (21%) and esophagitis (21%) of the cases. All these diagnoses were more common in males except esophageal varices. Overall males were more than females 65.5% vs 34.5% who were presenting with upper GI

symptoms. Table 2 shows distribution of Gastritis cases according to age (n=58). It was most commonly seen in the age group of 21-40 years (46.55%) followed by 41-60 years of age (37.93%) and it was found to be statistically significant (p<0.05).

Table 1: Proportion of various causes of upper GI symptoms.

Diagnosis	Male (%)	Female (%)	Total (%)
Gastritis	38 (65.5)	20 (34.5)	58 (29)
Gastritis with duodenal ulcer	30 (71.4)	12 (28.6)	42 (21)
Esophagitis	27 (64.5)	15 (35.5)	42 (21)
Hiatus hernia	10 (71.4)	4 (28.6)	14 (7)
Gastritis with reflux changes	12 (54.5)	10 (45.5)	22 (11)
Duodenal ulcer	4 (100)	0	4 (2)
Esophageal varices	2 (33.3)	4 (66.7)	6 (3)
Esophageal carcinoma	4 (100)	0	4 (2)
Carcinoma stomach	4 (100)	0	4 (2)
Gastric outlet obstruction	3 (75)	1 (25)	4 (2)
Total	131 (65.5)	69 (34.5)	200 (100)

Table 2: Distribution of gastritis cases according to age (N=58).

Age (years)	Gastritis	Percentage (%)
Less than 20	2	3.44
21-40	27	46.55
41-60	22	37.93
Above 60	7	12.08
Total	58	100

Note: X^2=10.8539, p=0.0125.

Table 3 shows distribution of esophagitis cases according to age (n=42). It was most commonly seen in the age group of 21-40 years (40.47%) followed by 41-60 years of age (33.33%).

Table 4 shows distribution of all cases according to age (n=200). Most common age of upper GI symptoms was 21-40 years (34.5%) followed by 41-60 years (33.5%). Only 7% cases were seen in age group of less than 20 years.

Table 3: Distribution of esophagitis cases according to age (n=42).

Age (years)	Esophagitis	Percentage (%)
Less than 20	2	4.76
21-40	17	40.47
41-60	14	33.33
Above 60	9	21.44
Total	42	100

Table 4: Distribution of all cases according to age (n=200).

Age (years)	Frequency	Percentage (%)
Less than 20	14	7
21-40	69	34.5
41-60	67	33.5
Above 60	50	25
Total	200	100

Table 5 shows distribution of H. pylori cases (detected on rapid urease test) incidence according to sex. The incidence of H. pylori was 80% among patients with symptoms of upper gastrointestinal tract. It was found that majority of H. pylori infection cases were found among male i.e.; 100 (62.50%) and in female were 60 (37.50%). This association was not found to be statistically significant.

Table 6 shows that majority of indication for endoscopy was dyspepsia in 48 (24%) cases followed by dysphagia 39 (19%).

Table 5: Incidence and distribution of H. pylori cases incidence according to sex.

Sex (years)	Frequency	Percentage (%)
Male	100	62.50
Female	60	37.5
Total	160	100

Note: X^2=10.8539, p=0.0125.

Table 6: Indications for endoscopy.

Indications	N	Percentage (%)
Dyspepsia	48	24
Dysphagia	39	19
Persistent vomiting	6	3
Confirmation and tissue sampling of radiological abnormality	8	4
Hematemesis	18	9
Symptoms after gastric surgery	24	12
Management of achalasia and benign and malignant stenosis	29	14.5

Continued.

Indications	N	Percentage (%)
Removal of foreign body	14	7
Percutaneous endoscopic gastrostomy	8	4
Others	6	3

DISCUSSION

Most common cause was gastritis in 29% of cases followed by gastritis with duodenal ulcer (21%) and esophagitis (21%) of the cases. All these diagnoses were more common in males except esophageal varices. Overall males were more than females 65.5% vs 34.5% who were presenting with upper GI symptoms. It was most commonly seen in the age group of 21-40 years (46.55%) followed by 41-60 years of age (37.93%) and it was found to be statistically significant ($p<0.05$). It was most commonly seen in the age group of 21-40 years (40.47%) followed by 41-60 years of age (33.33%). Most common age of upper GI symptoms was 21-40 years (34.5%) followed by 41-60 years (33.5%). Only 7% cases were seen in age group of less than 20 years. It was found that majority of H. pylori infection cases were found among male i.e., 100 (62.50%) and in female were 60 (37.50%). This association was not found to be statistically significant. Majority of indication for endoscopy was dyspepsia in 48 (24%) cases followed by dysphagia 39 (19%). We observed that males were more commonly affected with upper GI symptoms compared to females 65.5% vs 34.5% and these findings were similar to the study done by Puttaraju et al and Jaka et al.[11,12] The more incidence in males may be attributed to their lifestyle of being smokers and alcoholic as well as not taking food on time.

The most common diagnosis for upper GI symptoms in the present study was gastritis in 29% of cases followed by gastritis with duodenal ulcer (21%) and esophagitis (21%) of the cases and these findings were similar to the study done by Puttaraju et al.[11] We observed that the gastritis was most common in the age groups of 21-40 years and 41-60 years. But Ahmad et al did not find any such association.[13] We noted that in 80% of the upper GI symptoms, H. pylori were the cause. Muller et al found that the incidence of H. pylori in their study was 76% which is comparable to the findings of the present study.[14] Misra et al also reported an incidence of 78% which is also comparable with the present study.[15]

We found that there were 4 cases (2%) of stomach cancer in the present study and this finding is similar to the study done by Puttaraju et al.[11]

Bhattarai et al studied 660 patients with upper GI bleeding and found that peptic ulcer and ruptured esophageal varices were the most common causes.[16] 14.8% of the patients died. Repeat bleeding episode, varices, and presence of comorbidities were important risk factors for death. Pilotto et al studied 3100 cases in their study and found that 43% among them had upper GI symptoms.[17] It was significantly more in females, but in the present study we found that it was more common in males compared to females. The authors reported that females were 1.39 times more likely to have upper GI symptoms compared to males; smokers had 1.29 times risk of having upper GI symptoms compared to nonsmokers.

CONCLUSION

The indications for diagnostic upper GI endoscopy are dyspepsia, dysphagia, persistent vomiting, confirmation and tissues sampling of radiological abnormality, hematemesis, and symptoms after gastric surgery. The esophageal disorders (26%) constituted of esophagitis (21%), esophageal varices (3%), and carcinoma (2%) of which majority cases were of esophagitis suggesting that the use of fiberoptic gastroscope helps to diagnose the cases in early stage of inflammation and thus guiding and starting the therapy early with better outcome. Similarly, the gastric disorders (65% of total) have a spectrum of gastritis (29%), gastritis with duodenal ulcer (21%), gastritis with reflux changes (11%), gastric carcinoma (21%), and gastric outlet obstruction (2%), with isolated gastritis contributing majority to this group. Duodenal disorders (23% of total) consisted of isolated duodenal ulcer (2%) and gastritis with duodenal ulcer (2%). From epidemiological perspective, this study reaffirms the fact that the upper GI diseases are more common in men (65.5%) compared to females (34.5%) with the most affected age group is between 21 to 60 years (68%). In this study, rapid urease test was performed in all the cases, out of which 80% were positive for H. pylori infections. Thus, H. pylori is the commonest cause of chronic gastroduodenitis as per this study.

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