STUDY OF UPPER GASTROINTESTINAL ENDOSCOPY FINDINGS AND PRESENCE OF HELICOBACTER PYLORI INFECTION AMONG ADULT PATIENTS OF UPPER ABDOMINAL PAIN AND DYSPEPSIA

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ABSTRACT

BACKGROUND

Dyspepsia is a common presenting complaint of various upper gastrointestinal disorders. The symptoms of causes of dyspepsia often overlap and this makes aetiological diagnosis difficult. Endoscopy is the ideal procedure for identifying organic diseases of the foregut and rapid urease test with endoscopy is a gold standard method for diagnosing the h.pylori infection. Helicobacter pylori infection is associated with various upper gastrointestinal pathologies.

MATERIALS AND METHODS

This hospital-based case-controlled study was carried out in a tertiary hospital, Dr. Bhim Rao Ambedkar Hospital, which is attached to Pt. J.N.M. Medical College, Raipur, and which provides open access service to endoscopy. Eighty two consecutive adult outpatients and admitted patients under Department of Surgery and Medicine with upper abdominal pain and dyspepsia were screened for eligibility and underwent upper gastrointestinal endoscopy using forward-viewing endoscopes from March 2015 to September 2016. Patients with dyspepsia who are over 18 years of age should undergoendoscopy (EGD) for initial work up and divided in case having endoscopic findings and control having normal findings, then apply rapid urease test to all of these patients.

RESULTS

The most commonly identified endoscopic findings were gastritis (36%), Peptic Ulcer Disease (PUD) (13.3%), oesophagitis (11%), duodenitis (7.3%). Gastric cancer was identified in 4.9% of patients and all of them were aged 18 years and above ($p>0.05$). H. pylori infection was detected in 51% (n=42) of patients. Gastritis andoesophagitis were statistically significantly associated with H. pylori ($p<0.001$). No association was found between Peptic Ulcer Disease (PUD), duodenitis, gastric cancer and H. pylori infection ($p>0.05$). Gastritis, GERD and PUD are the leading causes of dyspepsia. H. pylori infection is present in significant proportion of dyspeptic patients.

CONCLUSION

In present study, we are concluded that all upper abdominal pain is not due to acid peptic disease, but most of upper abdominal pain is due to acid peptic disease with H.pylori positivity. This would prevent irrational use of antacids and antisecretory drugs. So patients having longer symptoms should have always screen for RUT testing. Screening of H.pylori which highly prevent the patients more succeptible for carcinoma of stomach and awareness of the disease makes the present to hospital at earlier stage and prevent devastating complications.

KEYWORDS

Peptic Ulcer Disease, Gastroesophageal Reflux Disease.

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BACKGROUND

Dyspepsia is a common presenting complaint of various upper gastrointestinal disorders. The causes of dyspepsia are many and the major ones include gastroduodenitis, PUD, malignancies, oesophagitis, parasitic infestations and functional dyspepsia. The distribution of these upper gastrointestinal lesions varies significantly in different countries and within geographic locations in the same nation.[1] Furthermore, symptoms of these causes often overlap and this makes aetiological diagnosis difficult. Endoscopy is the ideal procedure for identifying organic diseases of the foregut, but this service is yet to be widely available in developing countries. H. pylori infection is known to be among the most common human infections worldwide. Approximately, 50% of the world's population is infected with H. pylori.[2] H.pylori infection is associated with various upper gastrointestinal pathologies such as gastritis, peptic ulcers and gastric cancer.[2] Because of the strong association between this gram-negative bacterium infection and gastrointestinal diseases and its high prevalence rate

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in developing countries.[3] H. pylori infection is among the leading gastroenterological public health problems in developing countries.[3] H. pylori infection can be diagnosed either by invasive tests, which require endoscopy and gastric biopsy (e.g., rapid urease test) or by noninvasive tests (e.g. urea breath test). The choice of test depends to a large extent on availability and cost. Other important factors are- clinical situation, population prevalence of infection, pretest probability of infection, differences in test performance and factors that may influence the test results, such as the use of antisecretory treatment and antibiotics. The gold standard (endoscopy with rapid urease testing) is not readily available in all parts of the world. In some regions where H. pylori prevalence is very high, diagnostic tests for the infection are not cost effective and the decision to treat must then assume the presence of the infection. In low-resource communities, considerations of precision and sensitivity may sometimes be traded against costs and the availability of resources. Therefore, it is recommended to do empirical eradication therapy than do nothing.[4] Eradication therapy heals peptic ulcers, prevent relapses and thus cure the disease in most patients.[5] Some studies suggest eradication of the organism reverses some low-grade Mucosa-Associated Lymphoid Tissue (MALT), lymphomas of the stomach.[6] and early treatment of H. pylori infection before the development of gastric atrophy or intestinal metaplasia prevents the development of gastric cancer.[6]

An optimal diagnostic approach to patients with dyspepsia continues to be debated and there is no single algorithm that would be applicable in all geographic settings. In resource limited settings, especially when access to endoscopy service and tests for H. pylori are limited, it is very important for clinicians to know common causes of dyspepsia and frequency of H. pylori infection. Thus, the aim of this study is to determine the common upper gastrointestinal lesions and the prevalence of H. pylori infection among dyspeptic patients. This study would assist clinicians in choosing an optimal diagnostic and management approach to dyspeptic patients in our setting and similar institutions. It will also contribute evidence for development of a guideline for the management of dyspepsia and provide valuable information for similar studies in the future.

MATERIALS AND METHODS

Study Area

This hospital-based case-controlled study was carried out in a tertiary hospital, Dr. Bhim Rao Ambedkar Hospital, which is attached to Pt. J.N.M. Medical College, Raipur, and which provides open access service to endoscopy. The hospital caters for whole Chhattisgarh has the catchment population of over 15 million. The hospital has 25 clinical departments and an official capacity of 1000 beds of which 300 beds are committed to the Department of Internal Medicine and General Surgery. There is an endoscopy unit within the department.

Study Design and Data Collection

Consecutive 82 patients (≥18years) with dyspeptic symptoms who presented to outpatient medical clinic or admitted to hospital or referred for endoscopy between from March 2015 to September 2016 were recruited to participate in the study. Only patients who signed informed written consent and who had at least one of the following three symptoms; epigastric pain or burning, early satiety and postprandial fullness, belching, bloating, vomiting, nausea and the study was approved by the Institution's Research and Ethics Committee. Upper GI endoscopy was performed by experienced endoscopist using videoendoscope PENTAX and findings were coded and documented on standardised data collection sheet. Antral biopsy was taken from the lesser or greater curvature of the stomach and rapid urease test (CLO test®) was performed to test for H. pylori infection.

Data Analysis

Data was analysed using SPSS version 15. Chi-square test/Fischer's exact was used to test the association between variables and a p value of ≤0.05 was considered indicative of statistically significant difference. The likelihood of occurrence of events was tested by odds ratio at 95% confidence level.

RESULTS

Risk Factors for H.pylori		RUT Test		Total	P value
		Positive	Negative		
Smoking	Absent	20 (47.6%)	29 (72.5%)	49 (59.8%)	<0.001
	Present	22 (52.4%)	11 (27.5%)	33 (42.2%)	
Alcoholism	Absent	17 (40.5%)	29 (72.5%)	46 (56.1%)	<0.001
	Present	25 (59.5%)	11 (27.5%)	36 (43.9%)	
NSAIDs	Absent	18 (42.9%)	26 (65%)	44 (53.7%)	<0.001
	Present	24 (57.1%)	14 (35%)	38 (46.3%)	

Table 1. Association of Smoking, Alcoholism and NSAIDsHabits of Study Subjects with RUT Positivity

Table 1 indicates association of smoking habit with RUT positivity using Chi-square/Fischer's exact test. Smoking habit was absent in 49 (59.8%); 20 (47.6%) were RUT positive and 29 (72.5%) were RUT negative, whereas smoking habit was present in 33 (40.2%), subjects 22 (52.4%) were RUT positive and 11 (27.5%) were RUT negative.

Association of alcohol intake of study subjects with RUT positivity using Chi-square/Fischer's exact test. 46 (56.1%) subjects were not having history of alcohol intake; 17 (40.5%) were RUT positive and 29 (72.5%) were RUT negative, whereas 36 (43.9%) subjects were having positive history of alcohol intake; 25 (59.5%) were RUT positive and 11 (27.5%) were RUT negative.

Association of NSAIDs with RUT positivity using Chi-square/Fischer's exact test. 44 (53.7%) subjects were not having history of NSAIDs intake; 18 (42.9%) were RUT positive and 26 (65.0%) were RUT negative, whereas 38 (46.3%) subjects were having positive history of NSAIDs intake; 24 (57.1%) were RUT positive and 14 (35.0%) were RUT negative.

Significant positive association was noted with smoking, alcoholism and NSAIDs (<0.001).

			RUT		Total	P value
			Negative	Positive		
Onset of symptoms	6-11 month	Count	37	28	65	0.035
		% within RUT	92.5%	66.7%	79.3%	
	4-10 years	Count	1	4	5	
		% within RUT	2.5%	9.5%	6.1%	
	1-3 year	Count	2	8	10	
		% within RUT	5%	19.0%	12.2%	
	>10 years	Count	0	2	2	
		% within RUT	0.0%	4.8%	2.4%	

Table 2. Association of Associated Symptoms of Study Subjects with RUT Positivity

Table 2 reveals that majority of patients 65 (79.3%) were having onset of symptoms within 6-11 months, 10 (12.2%) within 1-3 yrs., 5 (6.1%) within 4-10 yrs. and only 2 (2.4%) had onset of symptoms for more than 10 yrs. and association of onset of symptoms with RUT positivity was analysed using Fischer's exact/Chi-square test. Significant positive association of RUT positivity was noted with onset of symptom (p=0.035).

	RUT	N	Mean	STD Deviation	STD Error of Mean	T	P value
Hbg (%)	Negative	40	10.37225	1.66702	0.26358		
	Positive	42	11.5024	2.05278	0.31675	4.515	0.000

Table 3. Comparison of Various Laboratory Findings (Hbg %) in Study Subjects with RUT Positivity

Table 3 reveals that 40 patients were having normal Hb value, i.e. (10'3) and all of them were RUT negative, whereas 42 patients Hb was significantly low, i.e. (8.5) and were found as RUT positive, (p<0.0001).

	RUT	N	Mean	STD Deviation	STD Error of Mean	T	P value
TLC	Negative	40	10.8275	0.68650	1.0854		
	Positive	42	11.2929	0.40267	0.6213	-3.766	0.000

Table 4.Comparison of Various Laboratory Findings (TLC)in Study Subjects with RUT Positivity

Table 4 indicates that 40 patients were having Total Leukocyte Count (TLC) within normal range, i.e. (10.8) and all of them were RUT negative, whereas 42 patient's total leukocyte count was significantly high, i.e. (11.2) and were found as RUT positive, (p<0.0001).

Endoscopic Findings	RUT Test		Total N	P Value
	Positive N (%)	Negative N (%)		
Gastritis	24 (80%)	6 (20%)	30 (36%)	<0.001
Gastric ulcer	10 (83%)	2 (17%)	12 (13.3%)	>0.001
Oesophagitis	8 (89%)	1 (11%)	9 (11%)	<0.001
Duodenitis	4 (66.6%)	2 (33.4%)	6 (7.3%)	>0.001
Duodenal ulcer	6 (100%)	0 (0%)	6 (7.3%)	>0.001
Sliding hiatus hernia	4 (89%)	1 (11%)	5 (6.1%)	<0.001
Gastric cancer	4 (100%)	0 (0%)	4 (4.9%)	>0.001

Table 5. Relationship between Upper Gastrointestinal Lesions and H. Pylori Infection among Patients with Dyspepsia

Table 5 shows oesophagitis was endoscopically found in 9 (11%) out of which 8 (89%) cases were found RUT positive. Gastritis was endoscopically found in 30 (36%) out of which 24 (80%) cases were found RUT positive. Sliding hiatus hernia was endoscopically found in 5 (6.1%) out of which 4 (89%) cases were found RUT positive. Gastric ulcers was endoscopically found in 12 (13.3%) out of which 10 (83%) cases were found RUT positive. Duodenitis was endoscopically found in 6 (7.3%) out of which 4 (66.6%) cases were found RUT positive. Duodenal ulcer was endoscopically found in 6 (7.3%) out of which 6 (100%) cases were found RUT positive. Gastric cancers were endoscopically found in 4 (4.9%) out of which 4 (100%) cases were found RUT positive. Table 5 depicts the most commonly identified endoscopic findings were gastritis and which is statistically significant. Others findings such as sliding hiatus hernia and oesophagitis is statistically significant.

DISCUSSION

In resource-limited settings, especially when access to endoscopy service is limited. It is very important for clinicians to know common causes of dyspepsia and frequency of H. pylori infection. In our study, all patients came with complaints of upper abdominal pain, most common was burning type and dyspepsia. All patients were gone through endoscopy and divided in 50% of organic cause and 50% of without organic cause.

This is consistent with the findings of the studies done in.[1,2] where meta-analysis of 22 studies from the developed countries showed abnormal endoscopic findings in only 51% of dyspeptic patients. However, our finding differs from that of Ethiopia.[7]and Nigeria.[8] where organic causes of dyspepsia were documented in 96.4% and 82.1% of dyspeptic patients, respectively.

In present study shows that majority of the patients 32 (39.0%) belonged to the age group of 41-50. In this study, 51.2% of the dyspeptic patients had H. pylori infection.

These findings endorse the findings of.[9] who examined 116 patients, 82 patients were between ages 31-45 years. Thus, percentage of subjects between 31-45 years was maximum.

Present study represents that majority of the subjects, i.e. 48 (58.54%) were male sand 34 (41.5%) were females, but not statistically significant. Several studies in different populations, however, have noted a consistent female preponderance with dyspepsia.[10]

In present study, smoking, alcoholism and NSAIDs strongly associated with Helicobacter pylori infection.[10] assessed the endoscopic findings in uninvestigated dyspepsia among 306 patients and analysed 282 subjects in the study and concluded that the prevalence of H.pylori was 54% and smoking status was associated with organicdyspepsia.[11] conducted a meta-analysis onglobal prevalence and risk factors for uninvestigated dyspepsia. The overall pooled prevalence of uninvestigated dyspepsia was 21%, but varied among countries and according to the criteria used to define its presence. Prevalence was significantly higher in smokers (OR 1.25; 95% CI 1.12 to 1.40) and H.pylori-positive individuals.[12] Dyspepsia was more prevalent in subjects who abused tobacco or alcohol.[11] conducted a meta-analysis on global prevalence and risk factors for uninvestigated dyspepsia. The overall pooled prevalence of uninvestigated dyspepsia was 21%, but varied among countries and according to the criteria used to define its presence. Prevalence was significantly higher in Non-Steroidal Anti-Inflammatory Drug (NSAID) users.

In this study, majority of patients 65 (79.3%) were having onset of symptoms within 6-11 months. Out of these, 28 (66.7%) were RUT positive and 37 (92.5%) were RUT negative. Significant positive association of RUT positivity was noted with onset of symptom (p=0.035). Epigastric pain and bloating symptoms were statistically significant with Helicobacter pylori infection.[13]Studied epidemiology of dyspepsia in the general population in Mumbai among2549 presumably healthy adults (mean age 37.2 (14.1) years; 1441 men) were interviewed. Gastrointestinal symptoms, their investigation and treatment, dietary history and history of addictions were noted. Dyspepsia was defined as abdominal fullness or upper abdominal pain present for at least one month; 774 subjects (30.4%) haddyspepsia; the median (range) duration of symptoms was 24 (1-360) months. Abdominal fullness (n=614), abdominal pain (374), heartburn (272) and belching (271) were the most common symptoms. Significant symptoms (present at least once a week) occurred in 306 subjects (12.0% of the population).

In our study, 40 patients were having normal Hb value, i.e. (M-11.0-12.0% and F-10.5-11.5%) and all of them were RUT negative, whereas 42 patients Hb was significantly low, i.e. (below M-11.0 and F-10.5%) and were found as RUT positive, ($p<0.0001$)[14]assessed the association between H.pylor iinfection and anaemia among dyspeptic patients attending Butajira Hospital, Ethiopia.

Our study shows that 40 patients were having Total Leukocyte Count (TLC) within normal range, i.e. (4-11,000percumm) and all of them were RUT negative, whereas 42 patients total leukocyte count was significantly high, i.e. (above 11,000percumm) and were found as RUT positive, ($p<0.0001$).[15] concluded that among 223 patients diagnosed with functional dyspepsia Helicobacter pyloriinfection and neutrophil infiltration were found in 37.7% and 36.3% cases, respectively. In addition, neutrophil infiltration was more common and severe in the H.pylori-positive individuals than in the patients without infection (Mann-Whitney U test = 431.500, $p <.001$). Hb was found to be significantly higher in RUT negative subjects ($p<0.0001$), while TLC count was found to be significantly higher in RUT positive subjects ($p<0.0001$).

Gastritis and peptic ulcer diseases were found to be common causes of morbidity in our studied patients. Moreover, this study also demonstrated the expected relationship between oesophagitis, sliding hiatus hernia and H. pylori infection as reported in other studies.[16] 1997 visualised findings of the upper gastrointestinal fiberoptic endoscopy performed on 100 patients suffering from acidpeptic disease (dyspepsia). The diagnostic criteria and

grading of reflux oesophagitis advocated by Savary and Miller have been adopted. Reflux oesophagitis was found in 43 cases having grade I oesophagitis in 48.84%, grade II in 32.56%, grade III in 14.00% and grade IV in 4.60% cases. Reflux oesophagitis was associated with hiatus hernia in 23.26%, chronic gastritis in 9.30% of cases. The age varied from 16-80 years with almost equal incidence of male and female and the severity of the disease increased with the advancement of age and relationship between duodenal ulcer and H. pylori infection as reported in other studies from Africa and elsewhere.[3,17]

There is ample evidence regarding the beneficial role of H. pylori eradication therapy in patients with PUD and gastritis.[2] Thus, clinicians should test and treat for the infection if resources are available. In resource, poor settings where confirmatory test is not available or may not be cost-effective, empirical therapy is recommended.[2]

CONCLUSION

In present study, we are concluded that all upper abdominal pain is not due to acid peptic disease, but most of upper abdominal pain is due to acid peptic disease with H.pylori positivity. This would prevent irrational use of antacids and antisecretory drugs. So patients having longer symptoms should have always screen for RUT testing.Screening of H.pylori which highly prevent the patients more succeptible for carcinoma of stomach and awareness of the disease makes the present to hospital at earlier stage and prevent devastating complications.

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