

IS THERE ANY SIGNIFICANT CORRELATION BETWEEN AGE, SEX, BMI, CLINICAL AND ENDOSCOPIC FINDINGS IN DYSPEPSIA?

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ABSTRACT

Introduction: Dyspepsia is a common complaint in clinical practice and is present in various clinical dilemmas. Though dyspeptic patient show wide spectrum of symptoms, some are found to have structural cause and others have functional cause. **Aim:** The aim of the study was to correlate clinical and endoscopic findings in patient with dyspepsia: and also assess correlation of H. Pylori infection with endoscopic findings. **Method:** The prospective observational study was conducted at tertiary care centre from July 2015 to September 2017 on total 114 cases presented with dyspepsia after considering specific inclusion and exclusion criteria. A detailed history was taken and clinical examination was carried out. All patients underwent oesophagogastroduodeno (OGD) scopy. Two endoscopic mucosal biopsies were taken from the antrum and body of the stomach for rapid urease test (RUT). **Results:** No correlation was observed between prevalence of dyspepsia and age, sex or body mass index (BMI). In majority of patients clinically suspected findings were confirmed on endoscopy. Majority of patients were found to have structural findings on endoscopy. In most of the subjects with positive endoscopy findings in stomach and/or duodenum had H. pylori infection. Demographic factors like smoking, alcohol, excessive consumption of coffee or tea, NSAIDs or aspirin use were found to have influencing effects on prevalence of dyspepsia. **Conclusion:** Structural dyspepsia is more common in our study than functional dyspepsia. Significant correlation was observed between clinical and endoscopic findings in patient with dyspepsia.

KEYWORDS: Dyspepsia; Oesophagogastroduodenoscopy; H. pylori; Gastroesophageal reflux disease.

INTRODUCTION

The term 'dyspepsia' originate from Greek 'dys' and 'pepse', popularly known as 'bad digestion' [1]. Dyspepsia is a common term used for heterogenous group of abdominal symptoms. It is a nonspecific term to denote upper abdominal discomfort that is thought to arise from upper gastrointestinal tract. Most widely applied definition of dyspepsia is given by the Rome Working Teams formulation. Dyspepsia is a chronic or recurrent pain or discomfort centered in the upper abdomen; patient with predominant or frequent (more than once a week) heartor acid regurgitation, should be considered to have gastroesophageal reflux disease (GERD) until proven otherwise [2]. Predominant epigastric pain or discomfort helps to distinguish dyspepsia from gastroesophageal reflux disease (GERD); in the latter the dominant complaint is typically heartburn or acid regurgitation but there may be adistinct epigastric com-

ponent that is confusing [3].

Dyspepsia may encompass symptoms like: [4] Epigastric discomfort, bloating, anorexia, early satiety, belching or regurgitation, nausea, heartburn, Etc.

Though dyspeptic patient show wide spectrum of symptoms, some found to have structural cause and others have functional cause.

Aims and Objective: The aim of the study was to correlate clinical and endoscopic findings in patient with dyspepsia: and also assess correlation of H. Pylori infection with endoscopic findings.

MATERIAL AND METHODS

Study design: The prospective observational study

Ethics approval: The study protocol was approved by the Ethics Committee, after obtaining an informed, explained verbal and written consent, a detailed history was taken and clinical examination was carried out.

Study setting: was conducted at tertiary care centre Bharati Vidyapeeth University Medical College Hospital and Research Centre, Pune

Study duration: from July 2015 to September 2017.



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Sample size: Total 114 cases with dyspepsia on OPD and IPD basis.

All patients underwent oesophagogastroduodeno (OGD) scopy.

Inclusion criteria: Patients of adult (18-80) age group with complaints of dyspeptic symptoms

Exclusion criteria: Paediatric age group, patients posted for oesophagogastroduodeno (OGD) scopy for other therapeutic uses like PEG, Stenting, Dilatation etc. Known cases of H. Pylori infection, upper gastrointestinal pathology like upper gastrointestinal bleed, Carcinoma Stomach, Carcinoma Oesophagus, patients who had similar complaints in past. Patient who underwent esophagogastroduodenoscopy in past for same complaints, an empirical trial of acid suppression in past.

Investigations required:

HIV, HBsAg. Other Investigations were done according to patient’s presenting symptoms.

Method of collection of data:

Data was collected from a specially designed proforma. The endoscopic findings were noted and correlated with the clinical presentation and H. Pylori infection. Rapid Urease Test (RUT) was done to detection of H pylori infection. It was then subjected to statistical analysis. The consent for this study from patient was taken in the preferred local language for the patient.

Procedure:

Patient lies in left lateral position and Mouth gag was applied. Esophagogastroduodenoscopy (EGD) was done and two endoscopic mucosal biopsy were taken from antrum and body of stomach for Rapid Urease Test (RUT) [6]

RESULTS

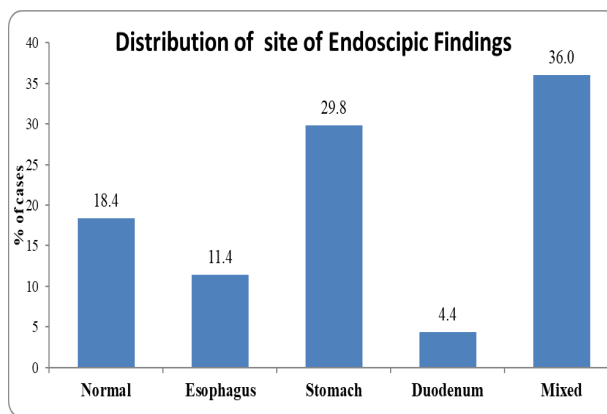


Figure 1. Distribution of cases studied according to site of Endoscopic findings

Table 1. Age distribution of cases studied.

Age Group (years)	No. of cases	% of cases
19 – 24	10	8.8
25 – 34	23	20.2
35 – 44	19	16.7
45 – 54	17	14.9
55 – 64	22	19.3
65 – 74	19	16.7
Above 75	4	3.5
Total	114	100.0

Values are n (% of cases).

Table 2. Sex distribution of cases studied.

Sex	No. of cases	% of cases
Male	57	50.0
Female	57	50.0
Total	114	100.0

Values are n (% of cases).

Table 3. Distribution of site of Endoscopic findings according to sex.

Site of Endoscopic	Male		Female		Total		P-value
	n	%	n	%	n	%	
Normal	9	15.8	12	21.1	21	18.4	0.610 ^{NS}
Esophagus	9	15.8	4	7.0	13	11.4	
Stomach	16	28.1	18	31.6	34	29.8	
Duodenum	2	3.5	3	5.3	5	4.4	
Mixed	21	36.8	20	35.1	41	36.0	
Total	57	100.0	57	100.0	114	100.0	

Values are n (% of cases). P-value by Chi-Square test. P-value<0.05 is considered to be statistically significant. NS- Statistically non-significant.

Table 4. The BMI distribution of cases studied.

BMI (kg/m ²)	No. of cases	% of cases
Underweight (<18.5)	18	15.8
Normal (18.5 – 22.9)	42	36.8
Overweight (23.0 – 24.9)	26	22.8
Pre-Obese (25.0 – 29.9)	27	23.7
Obese Type 1 (30.0 – 40.0)	1	0.9
Total	114	100.0

Values are n (% of cases). Ref - World Health Organization (WHO). Appropriate Body Mass Index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004; 363:157–63.

Table 5. Distribution of Endoscopic findings according to BMI

Site of Endoscopic Findings	BMI Groups (kg/m ²)										Total		P-value
	Under weight		Normal		Over weight		Pre obese		Obese Type 1		n	%	
	n	%	n	%	n	%	n	%	n	%			
Normal	4	22.2	9	21.4	5	19.2	3	11.1	0	0.0	21	18.4	0.824 NS
Esophagus	1	5.6	4	9.5	3	11.5	5	18.5	0	0.0	13	11.4	
Stomach	4	22.2	13	31.0	6	23.1	10	37.0	1	100.0	34	29.8	
Duodenum	0	0.0	1	2.4	2	7.7	2	7.4	0	0.0	5	4.4	
Mixed	9	50.0	15	35.7	10	38.5	7	25.9	0	0.0	41	36.0	
Total	18	100.0	42	100.0	26	100.0	27	100.0	1	100.0	114	100.0	

Table 6. Distribution of cases studied according to rapid urea test (RUT).

Rapid urea test	No. of cases	%
Negative	52	45.6
Positive	62	54.4
Total	114	100.0

Values are n (% of cases).

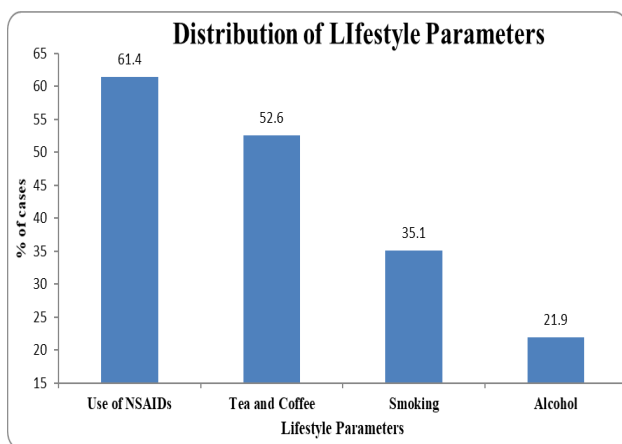


Figure 2. Distribution of lifestyle parameters

DISCUSSION

All patients presenting with dyspepsia were underwent esophagogastroduodenoscopy and Rapid Urease test (RUT). Data was collected in a specially designed proforma. Patient information sheet (PIS) was obtained before esophagogastroduodenoscopy. The collected data was coded and entered in Microsoft Excel sheet and after that statistical analysis was done.

Endoscopy is recommended as first line of investigation for classification of patient with dyspepsia in structural or functional dyspepsia [5]. For rapid urease text biopsy was taken from antrum and body of stomach. H. pyloriis more frequently localized in the antrum and corpus (80%), only in the corpus in 10% and only in the antrum in 8% of cases [6]. Many studies were done and confirmed that obtaining biopsies from both the antrum and the body increases the probability of diagnosing active infection [7].

All 114 patient included in study had dyspepsia clinically. After detailed history and thorough clinical examination, structural dyspepsia was suspected more than functional dyspepsia and on oesophagogastroduodenoscopy (OGD) we found the same. Oesophagogastroduo-

deno (OGD) scopy findings are mentioned in figure 1.

On OGD scopy, positive findings in esophagus (e.g. esophagitis, Mallory Weiss syndrome, Carcinoma esophagus), positive findings in stomach (e.g. gastritis, peptic ulcer disease, carcinoma stomach) and positive findings in duodenum (e.g. duodenal ulcer, duodenitis). Mixed endoscopy findings were considered as either both or all three of esophagus, stomach and duodenum.

Malignancy was clinically suspected in 6 patients, of which 2 were carcinoma esophagus and 4 were carcinoma stomach. In all 6 patients endoscopy findings were also suggestive of malignancy and that were proven on histopathology examination.

Patient with normal endoscopy findings were investigated further to find the cause of dyspepsia. Out of 21 patients 12 patients had cholelithiasis. Rest of the patients in which no structural cause of dyspepsia found were diagnosed to have functional dyspepsia.

Ahmed Gado et al. assessed 1400 patients presenting with dyspepsia over 13 years and all patient underwent OGD scopy. Their goal was to describe patients' characteristic and endoscopic findings among patients with dyspepsia. Endoscopy revealed approximately 40 % patients had organic cause of dyspepsia and in rest 60 % normal findings were seen. They concluded that majority of patients with dyspepsia had no important endoscopy lesions [8]. In contrast to their study findings, we found organic cause on endoscopy in 81.6 % of patients with dyspepsia and only 18.4 % of patients had normal endoscopy. In their study, they found gastritis, esophagitis, duodenitis and peptic ulcer as a common endoscopy findings as a organic cause. In our study also we found same common endoscopy findings as organic cause of dyspepsia.

Khademolhosseini et al. studied prevalence of dyspepsia and its correlation with demographic factors and lifestyle. After extensive statistical analysis, They found that dyspepsia in populations from developing countries was mostly organic in nature, whilst functional dyspepsia was more prevalent in western nations [9].

Of 114 cases studied in our study, the mean \pm Sd of age of the entire study group was 46.7 ± 16.8 years. The minimum – maximum age range among the cases studied was 19 – 78 years. No correlation of dyspepsia with age was observed in our study. (Table 1)

Stanghellini also reported that dyspeptic symptoms decreased with age [10]. Study done by Jones R. And Lydeard S. indicated a decline in prevalence of dyspepsia symptoms with age [11]. However, the results of large scale study done in US failed to find a relationship between dyspepsia and age [12], which was also the finding of our study.

The male to female sex ratio of the cases studied in the entire study group was 1:1 No variation was seen in sex in our study. The distribution of endoscopic findings did not differ significantly between male and female cases studied (P-value>0.05) in our study. (Table 2 and Table 3)

Liam Murray et al.'s study on 27536 subjects evaluated that no difference between the sexes in patient with dyspepsia [13]. The study done by Shaib Y and El-serag Hb in US found that dyspepsia was more prevalent among our female subjects [14]. In comparison, dyspeptic patients in a study by Maconi et al. had a nearly equal gender distribution while complaints of severe pain were more frequent among female patients [15].

Clinically, No correlation was observed between dyspepsia and body mass index (BMI). Even endoscopic findings did not differ significantly across various body mass index (BMI) groups of the cases studied (P-value>0.05) in our study. (Table 4 and Table 5)

Shaib and El-Serag indicated a slightly higher average body mass index (BMI) in subjects with dyspepsia [12]. On the basis of study done by Liam Murray et al. it appears that being above normal weight substantially increases the likelihood of suffering from dyspepsia [11]. But in our study no correlation was observed between body mass index (BMI) and dyspepsia due to small size of study.

Dyspeptic patients over 60 years of age, or those with alarm features should undergo prompt OGD scopy. Alarm features [16,17] for patients with dyspepsia include: Age > 60 years, with new onset symptoms, family history of upper-GI malignancy, unintended weight loss, GI bleeding or iron deficiency anemia, progressive dysphasia, Odynophagia, persistent vomiting, palpable mass or lymphadenopathy and jaundice.

In 39 patients alarm symptoms were present and on endoscopy structural findings were observed in all of them. To detect H. pylori infection, Rapid Urease Test (RUT) was done. Result of Rapid Urease Test are as per Table 4.

Majority of patients in which Rapid Urease Test was positive found to have gastric or duodenal pathology on endoscopy. In all 18.4 % patients with normal endoscopy had negative Rapid Urease Test.

Ahmed Gado et al. performed testing for H. pylori on patient with dyspepsia and the test was positive in 52% of patients [8]. But the number of patients assessed was very small for meaningful comparison.

Throughout the study, we observed that prevalence of dyspepsia was more among the patients who were smokers, tea or coffee addict, taking NSAIDs and alcoholics. Distribution of lifestyle parameters among patients with dyspepsia in our study was as per figure 2.

Yasuhiro Fujiwara et al. had done extensive study extensive case control study on 2680 subjects. They observed that in patient with dyspepsia odds ratio (OR) were significantly increased among smokers. They also found that patient who had anxiety or stress prefers to smoke to attained relief from their anxiety or stress. So smoking associated with anxiety or stress was reported as a risk factor [18]. According to Shaib and El-serag, dyspeptic subjects were more likely to report smoking than subjects without dyspepsia. They also observed no significant association between dyspepsia and drinking alcohol and coffee [14]. Study done by F Khademolhosseiniet al. concluded that prevalence of dyspepsia was higher in patients who were taking nonsteroid anti-inflammatory drugs (NSAIDs) or aspirin [9]. In our study we also found that demographic factors like smoking, alcohol, and excessive consumption of coffee or tea, non-steroid anti-inflammatory drugs (NSAIDs) or aspirin use were associated with increased prevalence of dyspepsia. But due to very small number of subjects assessed, so our study failed to properly correlate dyspepsia with demographic factors.

CONCLUSION

No correlation was observed between prevalence of dyspepsia and age, sex or body mass index (BMI). In Majority of patients clinically suspected findings were confirmed on endoscopy. Majority of patients found to have structural findings on endoscopy. In most of the subjects with positive endoscopy findings in stomach and/or duodenum had *H. pylori* infection. Demographic factors like smoking, alcohol, excessive consumption of coffee or tea, NSAIDs or aspirin use were found to have influencing effect on prevalence of dyspepsia.

Recommendations:

- I. Patients aged ≥ 60 years of age presenting with dyspepsia should be investigated with upper gastrointestinal endoscopy to exclude organic pathology.
- II. There is a conditional recommendation and patients at higher risk of malignancy (such as spending their childhood in a high risk gastric cancer country or having a positive family history) could be offered an endoscopy at a younger age.
- III. Alarm features should not automatically precipitate endoscopy in younger patients but this should be considered on a case-by-case basis.
- IV. We recommend dyspepsia patients under the age of 60 should have a noninvasive test for *H. pylori*, and therapy for *H. pylori* infection if positive.
- V. We recommend dyspepsia patients under the age of 60 should have empirical proton pump inhibitors (PPIs) therapy if they are *H. pylori* -negative or who remain symptomatic after *H. pylori* eradication therapy

REFERENCES

- 1) Baron J.H., Watson F., Sonnenberg A. Three centuries of stomach symptoms in Scotland. *Aliment Pharmacol Ther* 2006;24: 821-829.
- 2) Nicholas J Talley, Nimish Vakil. Guidelines for the Management of Dyspepsia. *Am J Gastroenterol* 2005;100:2324–2337.
- 3) Bytzer P, Talley NJ. Dyspepsia. *Ann Intern Med* 2001;134:815–22.
- 4) Mostafa R. Rome III: The functional gastrointestinal disorders, 2006. *World Journal of Gastroenterology: WJG*. 2008;14(13):2124.
- 5) Aasma Shaukat, Amy wang, Ruben D. Acosta, David H. Bruining, Vinay Chandrasekhara, Krishnavel V Et al. The role of endoscopy in dyspepsia. *ASGE* 2015;82(2):227-32.
- 6) Moon SW, Kim TH, Kim HS, Ju JH, Ahn YJ, Jang HJ, Shim SG, Kim HJ, Jung WT, Lee OJ. United rapid urease test is superior than separate test in detecting *Helicobacter pylori* at the gastric antrum and body specimens. *Clinical endoscopy*. 2012 Nov;45(4):392
- 7) Lan HC, Chen TS, Li AF, Chang FY, Lin HC. Additional corpus biopsy enhances the detection of *Helicobacter pylori* infection in a background of gastritis with atrophy. *BMC gastroenterology*. 2012;12(1):18.
- 8) Ahmed Gado, Basel Ebeid, Aida Abdelmohsen, Anthony Axon. Endoscopic evaluation of patients with dyspepsia in secondary referral hospital. *Alexandria Journal of Medicine* 2015;51:179-184
- 9) Khademolhosseini F, Mehrabani D, Zare N, Salehi M, Heydari ST, Beheshti M, Saberi-Firoozi M. Prevalence of dyspepsia and its correlation with demographic factors and lifestyle in Shiraz, southern Iran. *Middle East journal of digestive diseases*. 2010;2(1):24.
- 10) Stanghellini V. Three-month prevalence rates of gastrointestinal symptoms and the influence of demographic factors: results from the Domestic/International Gastroenterology Surveillance Study (DIGEST). *Scandinavian Journal of Gastroenterology*. 1999;34(231):20-8.
- 11) Jones R, Lydeard S. Prevalence of symptoms of dyspepsia in the community. *Bmj*. 1989; 298(6665):30-2.
- 12) Dore MP, Pes GM, Bassotti G, Usai-Satta P. Dyspepsia: when and how to test for *Helicobacter pylori* infection. *Gastroenterology research and practice*. 2016:

- 13) Murray L, Johnston B, Lane A, Harvey I, Donovan J, Nair P, Harvey R. Relationship between body mass and gastro-oesophageal reflux symptoms: The Bristol Helicobacter Project. *International Journal of Epidemiology*. 2003;32(4):645-50.
- 14) Shaib Y, El-Serag HB. The prevalence and risk factors of functional dyspepsia in a multiethnic population in the United States. *The American journal of gastroenterology*. 2004;99(11):2210-6.
- 15) Maconi G, Tosetti C, Stanghellini V, Porro GB, Corinaldesi R. Dyspeptic symptoms in primary care. An observational study in general practice. *European journal of gastroenterology & hepatology*. 2002;14(9):985-90.
- 16) Talley NJ, Vakil N. Guidelines for the management of dyspepsia. *The American journal of gastroenterology*. 2005;100(10):2324-37.
- 17) Moayyedi PM, Lacy BE, Andrews CN, Enns RA, Howden CW, Vakil N. ACG and CAG clinical guideline: management of dyspepsia. *The American journal of gastroenterology*. 2017;112(7):988
- 18) Yasuhiro Fujiwara, Makiko Kubo, Yukie Kohata, Hirohisa Machina, Hirotoshi Okazaki, Hirokazu Yamagami et al. Cigarette smoking and its association with Gastroesophageal Reflux Disease, Dyspepsia or Irritable Bowel Syndrome. *Intern Med*. 2011;50:2443-2447.

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