Endoscopic assessment of gastroesophageal reflux disease patients and risk factors of esophageal lesions.

Md . Abdul Alim[a], Harun Or- Rashid[b], Golam Rabbani[c], FAM Anjuman Ara Begum[d]

Abstract

Background: Gastro-esophageal reflux disease (GERD) is a common esophageal disorder in Bangladesh. GERD is associated with significant impaired quality of life and sometimes complicated with high morbidity and mortality. **Objective:** To investigate upper GI endoscopic findings in patients having typical symptoms of GERD and the risk factors of esophageal lesions in GERD patients. **Methods:** This was a cross-sectional descriptive type of study conducted at a private clinic in Rajshahi city. All the adults attending at the clinic having typical GERD symptoms more than 6 weeks constituted the study population. Total 108 GERD patients were included in this study. Data were collected by a data collection sheet through interview and patient examination including UGI endoscopy. Chi-square test was applied to find out the association between Clinico-demographic characteristics and GERD status of the study subjects. Multiple logistic regression analysis was done to identify the risk factors to develop esophageal lesion in GERD patients. **Results:** A total of 108 GERD patients, 88 (81.5%) were nonerosive feflux disease (NERD) patients and the rest 20 (18.5%) patients had esophageal lesions. Of those 20 GERD patients with esophageal lesion, 9 (8.3%) had erythema, 5 (4.6%) had erosion, 4 (3.6%) had hiatus hernia with esophagitis and only 2 (1.8%) had Barretts. Twenty four (22.2%) patients had endoscopic evidence of gastroduodenal lesions. Older age and diabetes mellitus were identified as risk factors of esophageal lesion. **Conclusion:** Gastroduodenal lesions may be an important underlying cause for GERD in Bangladesh. UGI endoscopy should be performed routinely in GERD patients . Special consideration should be taken during the management of GERD in elderly and diabetic patients.

Key Words: GERD, esophageal lesion, gastroduodenal lesions, risk factors.

[a]Associate professor, Department of Gastroenterology, Rajshahi Medical College, Rajshahi, Bangladesh.

[b]Professor, Department of Hepatology, Rajshahi Medical College, Rajshahi, Bangladesh.

[c]Associate professor, Department of Medicine, Barind Medical College, Rajshahi, Bangladesh.

[d] Chief Health officer Rajshahi City, Corporation, Rajshahi, Bangladesh

Correspondence to :
M A Alim
dralim3@gmail.com

Cite this as:
BMCJ 2 018;4(1): 16-22

Received : 21 September 2017
Accepted : 28 November 2017

Introduction

gastro-esophageal reflux disease (GERD) is a common esophageal disorder in which repeated reflux of gastric content into esophagus creating troublesome symptoms and/ or histological inflammatory changes.[1] It is a prevalent disease globally, particularly in developed countries. The prevalence of GERD is estimated to be 10 to 20% in Europe and North America and 5 % in Asia.[2] Recent studies showed the prevalence of GERD in India ranges between 8-20% which is comparable to Western countries.[3,4] The increasing prevalence in Asian populations are most likely related to changing dietary and personal habit.

The exact prevalence of GERD in Bangladesh is not known. GERD is associated with significant impaired quality of life and sometimes complicated with high morbidity and mortality. The diagnosis of GERD is initially made by typical clinical symptoms only. The typical symptoms are heartburn, regurgitation and epigastric pain.[5] gastro-esophageal reflux is ideally confirmed by 24 hours PH monitoring which considered as gold standard. Practically 24 hours Ph monitoring facilities are not widely available. That is why others alternative investigations like UGI endoscopy and Barium esophagram are frequently warranted. UGI endoscopy is warranted as initial tool of choice for investigation of GERD in clinical practice as well as clinical research. Endoscopic findings of esophagus particularly severity of erosion is the good predictor of response to therapy. 40 t0 60 % patients with typical reflux do not have any endoscopic lesion in esophagus and considered as nonerosive reflux disease (NERD).[6]

Empirical therapy without endoscopy is suggested in most of guidelines and this invasive procedure is virtually recommended in patients with GERD symptoms and alarm features or patient not

responding to empirical PPI therapy.[7] The endoscopic esophageal changes caused by reflux disease are not only helpful diagnostically but also identify patients exposed to a significant risk of disease chronicity.[8] But It should be borne in mind that many gastro duodenal diseases like peptic ulcer diseases and delayed gastric emptying is observed high particularly in areas where H pylori infection are prevalent. For this reason such treating instead of testing strategy remain controversial.

So The aim of this study is to investigate upper GI endoscopic findings in patients having typical symptoms of GERD with or without alarm features and also to find out gastro-duodenal lesion in such group of patients in our perspective.

Methods

This cross-sectional descriptive type of study was conducted at a private clinic in Rajshahi city. All the adults (>18 years) patients attending at the clinic having typical GERG symptoms i.e. heartburn, regurgitation and epigastric pain more than 6 weeks constituted the study population, Total 108 patients with typical GERD symptoms attending at the clinic during the period from January 2015 - July 2016 were enrolled in this study with their written consent. Before the enrolment, the 108 volunteers were briefly informed about the study specially UGI endoscopy. Those patients, who were on PPI or other antiulcer therapy, were advised to discontinue the therapy and would be on only life style modifications for at least 4 weeks. Patients with NSAID, steroids and bisphosphonate were not enrolled in the study . Pregnant patient and those who are not fit for UGI endoscopy were also excluded from the study.

Data were collected by a data collection sheet through interview and patient examination including UGI endoscopy. The data collection sheet was designed to record the information on Patient's clinical, demographical, lifestyle profiles and endoscopic findings. UGI endoscopic procedure was done by Olympus machine. Lidocaine spray was used for oropharyngeal anaesthesia prior to procedure. All patients were kept fasting for at least 8 hours.

The statistical analysis was performed using SPSS, version 16. Descriptive analytical techniques involving frequency distribution, computation of percentage etc were done. Chi-square test was applied to find out the association between Clinico-demographic characteristics and GERD status of the study subjects. Multiple logistic regression analysis was done to identify the risk factors to develop esophageal lesion in GERD patients.

Table 1. GERD status on endoscopic findings of GERD patients

GERD status on endoscopic findings	Frequency (percentage) N (%)	
NERD		88(81.5)
Normal endoscopic findings	64(59.3)	
Gastroduodenal lesions	24 (22.2)	
Gastric or duodenal Erosions	6(5.5)	
Gastric ulcer	3(2.7)	
Duodenal ulcer disease	6(5.5)	
Gastritis	9(8.3)	
Esophageal lesions		20(18.5%)
Erythema	9(8.3)	
Erosions	5((4.6)	
Hiatus hernia with Esophagitis	4(3.6)	
Barretts	2(1.8)	

Results

A total of 108 GERD patients, 88 (81.5%) were Non-erosive Reflux Disease (NERD) patients, had no any endoscopic evidence of esophageal lesion and the rest 20 (18.5%) patients had esophageal lesions. Of the total 88 NERD patients, 64(59.3%) had normal endoscopic findings. Of those 20 GERD patients with esophageal lesion, 9 (8.3%) had erythema, 5 (4.6%) had erosion, 4 (3.6%) had hiatus hernia with esophagitis and only 2 (1.8%) had Barretts.Twenty four (22.2%) patients had endoscopic evidence of gastroduodenal lesions. Of them, gastritis was in highest number (9, 8.3%) (Table 1).

Table 2. Clinico-demographic characteristics and Gastro esophageal reflux disease (GERD) status of the study subjects

Clinico-demographic characteristics	GERD status		p-value
	Non-erosive Reflux Disease (NERD) n (%)	Esophageal Lesion n (%)	
Age (in completed year)			
<40 (n=31)	29 (93.5)	2 (6.5)	0.032
40 and above (n=77)	59 (76.6)	18 (23.4)	
Gender			
Male (n=77)	65 (84.4)	12 (15.6)	0.167
Female (n=31)	23 (74.2)	8 (25.8)	
Alcohol habit			
Alcoholic (n=14)	10 (71.4)	4 (28.6)	0.242
Nonaclcoholic (n=94)	78 (83.0)	16 (17.0)	
Smoking/Tobacco habit			
Have (n=52)	43 (82.7)	9 (17.3)	0.694
Have not (n=56)	45 (80.4)	11 (19.6)	
Diabetes Mellitus			
Diabetic(n=33)	22 (66.7)	11 (33.3)	0.009
Non-diabetic (n=75)	66 (88.0)	9 (12.0)	
Rapid urease test (RUT)			
Positive (n=74)	59 (79.7)	15 (20.3)	0.343
Negative (n=34)	29 (85.3)	5 (14.5)	
BMI			
<25 (n=54)	47 (87.0)	7(13.0)	0.328
25 29.9 (n=34)	26 (76.5)	8 (23.5)	
30 and above (n=20)	15 (75.0)	5 (25.0)	

Majority of study subjects were =40 years (77, 71.3%) with a mean age of 48.5(±14.88) and male (77, 71.3%). Of the total study subjects, 14 (13.0%) were alcoholic, 52 (48.1%) were smoker/tobacco consumer, 33 (30.6%) were diabetic and 54(50%) were with the BMI <25. RUT demonstrated H.pylori infection in 74 patients (Table 2). Esophageal lesion was significantly higher among the older patients aged =40 years (p=0.032) than the younger and the diabetic than the non diabetic patients (p=0.009). Esophageal lesion was more common among the female than male (25.8% Vs 15.6%) and in the alcoholic than nonalcoholic (28.6% Vs 17.0%), but these differences were not statistically significant. The proportion of esophageal lesion was remarkably lower in the GERD patients having BMI <25 than the other two groups of patients with BMI 25-299.9 and =30. But Patient's BMI was not correlated with esophageal lesion. H.pyloric infection and smoking/tobacco consumption were not significantly associated with esophageal lesion (Table 2).

Table 3 Multiple logistic regression analysis: effects of age and diabetes mellitus to develop esophageal lesion in GERD

Variables	Adjusted odds ratio [95% confidence interval (CI)]	P value	Prevalence of the variable (%)
Age		0.03	
<40 years[a]	1		128.7
40 years and above	3.77 (0.80-17.80)		71.3
Diabetes Mellitus		0.024	
Diabetic	3.25 (1.17 9.05)		30.56
Non-diabetic[a]	1		69.44

[a]Reference group

In Multivariate analysis, older age (Adjusted OR, 3.77; 95%CI, 0.80-17.80; $P < 0.03$) and diabetes mellitus (Adjusted OR, 3.25; 95%CI, 1.17-9.05; $P < 0.024$) were identified as risk factors to develop esophageal lesion (Table 3).

Discussion

Gastro esophageal reflux disease is the highly prevalent disease of western and affluent society. The typical symptoms of GERD includes heartburn. regurgitation and epigastric pain and all enrolled patients were carrying these symptoms. In fact UGI endoscopy is the important tool for evaluating GEDR patient widely. Aste H et al. found esophageal abnormalities on endoscopy in 33% cases who are having typical GERD symptoms.[9] Another study showed 40 t0 60 % patients with typical reflux symptoms do not have any endoscopic lesion and considered as endoscopy negative disease (ENRD).[6] In our study we found about more than one fifth of patient exhibit some sort of gastroduodenal lesions. Our findings are making the conformity that gastroduodenal lesions were quite high in patients with typical GERD symptoms. The findings suggested that peptic disease might be an underlying cause for GERD. This study depicted high prevalence of H pylori infection and about two third (68.5%) of patients were RUT positive which consistent with the Lee CS et al. findings in Bangladesh.[10] They found 69.7% RUT test positive in dyspeptic patients. There is a notion that H. pylori infection in stomach protect GERD symptoms. The explanation is that if H pylori infection is associated with predominant corpal gastritis and gastric atrophy that leads to reduced gastric secretion and minimize symptoms of GERD. On the contrary antral predominant H Pylori related gastritis is associated with high acid secretion & worsen GERD symptoms. The present study findings agreed with the 2nd hypothesis. It is clear that despite of all patients had GERD symptoms but about one quarter of cases were gastro duodenal lesions and it is higher than esophageal lesions. From this observation It can be assumed that such findings may be most likely due to high prevalence of PUD and H. Pylori infection. This observation suggested that we need to do UGI endoscopy in patient of GERD like symptoms particularly in our perspective. Though is not supported by many guidelines or studies .[7,11] However, it is needed to do further study to verify the association between PUD and GERD particularly in those countries where the prevalence of PUD and H Pylori infection is very high.

The frequency of GERD complications, such as erosive esophagitis, esophageal stricture, Barrett's esophagus, and esophageal cancer is significantly higher in older patients.[12] Collen et al. found an increase of esophagitis and Barrett's esophagus in patients over 60 years of age compared to those younger, 81% versus 47%.[13] Huang et al[14] found more severe esophageal lesions in elderly patients, as compared to younger patients. Hence, elderly patients with GERD are at greater risk than younger patients for developing serious complications of GERD. In this study, older age was also identified as a risk factor for esophageal lesions like, erythema, erosions, hiatus hernia, barrett's esophagus, GERD patients = 40 years had a risk more than 3 times to develop esophageal lesion than the younger patients <40years.

Male gender has also been reported to be an independent risk factor for esophagitis.[15-17] Moreover, different parietal cell mass, lower esophageal function or body mass index between genders have been proposed as possible causes to explain the gender effect.[18] However, in our study, the proportion of male gender was not significantly different between patients who had esophageal lesion and those who did not. Similarly, we could not find any significant effect for gender to be considered as a risk factor for esophageal lesion.

Over weight and obesity are risk factors for symptoms of GERD.[19-21] Thought in this study Over weight and obesity (BMI =25) was not significantly associated with esophageal lesion but esophageal lesion were higher among the over weight and obese patients than the GERD patients having BMI <25. Most of the type 2 diabetes patients are over weight or obese, it seems to make sense

that GERD and its complications are more common in these individuals.[22] So over weight might be explained part of high frequent symptoms of GERD and it complications like esophageal lesion in type 2 diabetes patients. But most of the studies suggested that diabetic neuropathy is the responsible for the GERD and its complications in diabetes patients.[22,23] The present study findings also suggested that Type 2 diabetes had an independent role for developing esophageal lesion in GERD patients.

Gastroduodenal lesions may be an important underlying cause for GERD in Bangladesh. UGI endoscopy should be performed routinely in GERD patients . Special consideration should be taken during the management of GERD in elderly and diabetic patients.

References

1. Sujoy Roy , Kshaunish Das. GK Dhali. Gastroesophgeal reflux disease. In: Mahmud Hasan , Sheikh Mohammad Fazle Akbar , Mamun Al Mahtab. Text book of Hepato-gastroenterology. Ist ed. New Delhi. Jaypee brothers Medical Publishers (P) Ltd; 2015.
2. Dent J, El Serag HB Wallander MA. Epidemiology of GERD: A systemic review. Gut, 2005;54(5):710-17.
3. Bhatia SJ, Reddy DN, Ghosal UC, et al. ISG task force report: Epidemiology and symptoms profile of gastroesophgeal reflux in the Indian population. Report of Indian Society of Gastroenterology Task Force . Indian J Gastroenterol.2011;30.
4. Praveen Kumar Sharma, Vineet Ahuja, Kausal Madan et al. Prevalence, severity and risk factors of symptomatic gastroesophageal reflux disease among employees of a large hospital in Northern India . Indian Journal of Gastro enterology 2011; 30(3):128-34.
5. Vishal Yadav, Abhishek Singhai , RK Jha. A Spectrum of GERD among Indian Population. Sch J. App. Med. Sci, 2013;1(6): 924-7.
6. Armstrong D. Endoscopic evaluation of gastroesophgeal reflux disease. Yale J Biol Med;1999 :72(2-3):93-100.
7. Fock KM ,Talley N, Goh KL, Sugano K, et al. Asia Pacific consensus on the management of gastroesophgeal reflux disease: an update focusing on refractory reflux disease and barretts esophagus. Gut 2016;65:1402-15.
8. Lundel LR, Dent J, Bennet JR, et al. Endoscopic assessment of esophagitis: Clinical and functional correlates and further validation of the Los Angeles Classification. Gut 1999;45: 172-80.
9. Aste H, Bonelli L, Ferraris R. Gastroesophgeal reflux disease relation ship between clinical and histological features. Digestive disease & science 1999;44: 2412-18.
10. LEE CS , KIM D Y, Jung CW Park JY . Prevalence of H Pylori in Bangladesh by Rapid urease test The Orion Medical Journal 2003;16:73-8.
11. Phillip O Katz, Lauren B Gerson, Marcelo F Vela. Guideline for diagnosis and management of gastroesophageal reflux disease. Am J gastroenterol 2013;108:308-24.
12. Johnson DA, Fennerty MB. Heartburn severity underestimates erosive esophagitis severity in elderly patients with gastroesophageal reflux disease. Gastroenterology 2004; 126: 660-64.
13. Collen MJ, Abdulian JD, Chen YK. Gastroesophageal reflux disease in the elderly: more severe disease that requires aggressive therapy. Am J Gastroenterol 1995; 90: 1053-7.
14. Huang X, Zhu HM, Deng CZ, Porro GB, Sangaletti O, Pace F. Gastroesophageal reflux: the features in elderly patients. World J Gastroenterol 1999; 5: 421-3.
15. A.G.Serrano, F.J.G.Igea, J.A.L.Jim´enez, C.P.Hern´andez. Clinical features and endoscopic progression of gastroesophageal reflux disease. Revista Espanola de Enfermedades Digestivas, 2003;95(10):712-16.
16. M. S. Rosaida and K. L. Goh, "Gastro-oesophageal reflux disease, reflux

oesophagitis and non-erosive reflux disease in a multiracial Asian population: a prospective, endoscopy based study," European Journal of Gastroenterology and Hepatology 2004;16(5):495-501.

17. J.Labenz, D.Jaspersen, M.Kuligetal. Risk factors,for erosive esophagitis: a multivariate analysis based on the proGERD study initiative. The American Journal of Gastroenterology 2004; 99(9):1652-56.
18. A. C. Ford, D. Forman, P. D. Reynolds, B. T. Cooper, and P. Moayyedi, "Ethnicity,gender,andsocioeconomicstat usasrisk factors for esophagitis and Barrett's esophagus," The American Journal of Epidemiology 2005;162(5):454-60.
19. El-Serag HB, Graham DY, Satia JA, Rabeneck L. Obesity is an independent risk factor for GERD symptoms and erosive esophagitis. Am J Gastroenterol 2005; 100: 1243-50.
20. Nilsson M, Johnsen R, Ye W, Hveem K, Lagergren J. Obesity and estrogen as risk factors for gastroesophageal reflux symptoms. JAMA 2003; 290: 66-72
21. Hampel H, Abraham NS, El-Serag HB. Meta-analysis: obesity and the risk for gastroesophageal reflux disease and its complications. Ann Intern Med 2005; 143: 199-211.
22. Wang X, Pitchumoni CS, Chandrarana K, Shah N. Increased prevalence of symptoms of gastroesophageal reflux diseases in type 2 diabetics with neuropathy. World J Gastroenterol 2008; 14(5): 709-12.
23. Sehe Dong Lee, Bora Keum, Hoon Jai Chun and Young-Tae Bak*. Gastroesophageal Reflux Disease in Type II Diabetes Mellitus With or Without Peripheral Neuropathy. Neurogastroenterol Motil 2011;17 (3):274-8.