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ORIGINAL ARTICLE

High Prevalence of Gastroesophageal Reflux Symptoms in Patients with both Acute and Nonacute Cough

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ABSTRACT

Background and Aim: Gastro esophageal reflux disease (GERD) affects more than 30% of the Asian population, and its symptoms are common. The high prevalence of atrophic gastritis in the Pakistani population is exacerbated by gastro esophageal reflux disease. The present study aims was to assess the high prevalence of gastro esophageal reflux symptoms in patients with both acute and no acute cough.

Materials and Methods: This cross-sectional study was conducted on 426 consecutive patients who attended the General Medicine and Emergency department of Sheikh Khalifa bin Zayed Hospital Rawalakot and Avicenna Hospital, Lahore from February 2021 to July 2021. Informed consent in written form was taken from all the patients. Patients with partial gastrectomy previous history and user of antagonist H2-receptor, steroids, proton pump inhibitor (PPI), and other inflammatory drugs two months prior to the investigation were excluded. Helsinki Declaration was utilized for this study with ethical approval taken from the hospital ethics committee. SPSS version 24 was used for data analysis.

Results: Of the total 426 patients, GERD diagnosed patients were 248 (58.2%) and 178 (41.8%) had respiratory symptoms. The prevalence of GERD symptoms was higher in respiratory symptoms patients compared to without respiratory symptoms patients (p-value=0.05). Out of 178respiratory symptoms patients, GERD symptoms were present in 71 (39.9%) of acute cough while 107 (60.1%) of non-acute cough while 86 (34.7%) of 248 had no respiratory symptoms. The GERD development has no significant association with respiratory symptoms duration, however, patients having respiratory symptoms are at substantially elevated risk for GERD development.

Conclusion: Our study found that respiratory symptoms patients are considerably more likely to develop GERD. GERD prevalence was similar in both acute and non-acute cough patients, implying that the presence of respiratory diseases is associated with the development of GERD regardless of the duration of respiratory symptoms.

Keywords: Gastro esophageal reflux; Acute cough; Respiratory symptoms

INTRODUCTION

Gastro esophageal reflux disease (GERD) affects more than 30% of the Asian population, and its symptoms are common. The high prevalence of atrophic gastritis in the Pakistani population is exacerbated by gastro esophageal reflux disease [1, 2]. Asthmatics frequently experience symptoms of gastro esophageal reflux disease (GERD). According to a recent study assessment of GERD symptoms in asthmatics, the estimated pervasiveness varies between 30% and 90% higher than the general population 10-20% [3]. East Asian study found that 57 % of asthmatics had GERD symptoms which are higher compared to non-asthmatic controls 34% [4]. Additionally, a significant association exists between the asthmatic severities and GERD symptoms incidence [5, 6]. The GERD risk predisposition has been shown in individual asthma medications [7]. Besides GERD symptoms' higher prevalence in asthmatics, it is also related to respiratory symptoms known as Reflux Associated Respiratory Symptoms (RARS). Several studies have found that GERD has chronic respiratory manifestations [8]. Others found a significant association among hyper-responsiveness bronchial, reflux, and cough [9-11].

Respiratory diseases are the prime reason for visiting health care facilities; however, the correlation between these two diseases is still unknown. Despite the evaluation of respiratory disease and GERD association by various researchers but their findings were biased due to the retrospective nature of their study [12]. Chronic bronchitis and asthma are almost double times common in reflux esophagitis patients [13]. Other research found that asthmatics had a higher prevalence of GERD [14]. Although various studies focused on chronic cough and GERD association the association between chronic cough and GERD symptoms is still to be determined. Therefore, the present study's purpose was to assess respiratory symptoms and GERD association in general practice.

MATERIAL AND METHODS

This cross-sectional study was conducted on 426 consecutive patients who attended the General Medicine and Emergency department of Sheikh Khalifa bin Zayed Hospital Rawalakot and Avicenna Hospital, Lahore from February 2021 to July 2021. Informed consent in written form was taken from all the patients. Patients with partial gastrectomy previous history and user of antagonist H2-receptor, steroids, proton pump inhibitor (PPI), and other

inflammatory drugs two months prior to the investigation were excluded. Helsinki Declaration was utilized for this study with ethical approval taken from the hospital ethics committee. Regardless of their primary complaint, all patients who arrived at our hospital for the first time we're asked to complete the F-scale questionnaire. The self-report instrumental questionnaire included 12 questions written in the simplest understandable way. As previously stated [15], the symptoms were identified on the F-scale. I. "Do you get heartburn?" II. Any stomach bloated feeling? III. Stomach situation after a meal? IV. Any hand rubbishing of your chest subconsciously? V. post-meals heartburn? VI. Post-meals sickness? VII. Any infrequent throat sensation? VIII. Full while eating meals feeling?" IX. Feeling of stuck things when you swallow? X. does bitter fluid come toward the throat? XI. Do you burp a lot? XII. Any heartburn feeling when bending over? Cases were considered positive GERD when the patient's severity score exceeded 7 while the incidence of symptoms was measured with the following scale; 0, 1, 2, 3, and 4 were scores assigned for never, occasional, sometimes, often, and always respectively.

According to the indication-based clinical practice procedures, acute cough was considered when patients were compliant regarding cough within three weeks. For the present study, a cough that lasts for more than three weeks is considered a non-acute cough. For data analysis, SPSS version 24 was used where all the parameters were described as mean and standard deviation. The Chi-square test was used for group comparison with a 5% level of significance.

RESULTS

Of the total 426 patients, GERD diagnosed patients were 248 (58.2%) and 178 (41.8%) had respiratory symptoms. The prevalence of GERD symptoms was higher in respiratory symptoms patients compared to without respiratory symptoms patients (p-value=0.05). Out of 178 respiratory symptoms patients, GERD symptoms were present in 71 (39.9%) of acute cough while 107 (60.1%) of non-acute cough while 86 (34.7%) of 248 had no respiratory symptoms. The GERD development has no significant association with respiratory symptoms duration, however, patients having respiratory symptoms are at substantially elevated risk for GERD development. The prevalence of GERD and respiratory symptoms patients are shown in Figure-1. Patients with respiratory symptoms were more likely to have GERD symptoms than without respiratory symptoms patients, with a statistically significant difference (p <0.01, Table 1). Patients with respiratory symptoms have a significantly higher F-scale score (7.1± 6.3) than those without respiratory symptoms (4.5± 5.7) (p-value<0.01). Between patients with and without respiratory symptoms, no significant associations were observed in gender, age, hypertension proportion in treated patients and current smokers (Table 1). The prevalence of GERD symptoms in acute and non-acute cough among 178 patients is shown in Figure-2. Comparison of F-score and GERD symptoms were made between acute and non-acute cough as shown in Table-2.

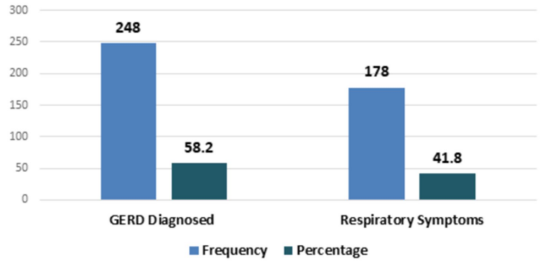

Figure-1 prevalence of GERD and respiratory symptoms patients (n=426)

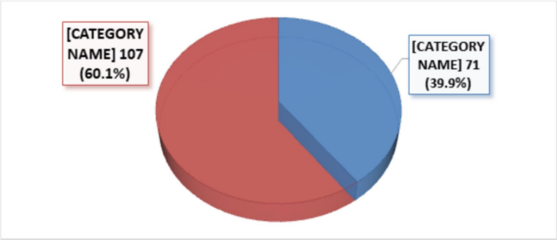

Figure-2 prevalence of GERD symptoms acute and non-acute cough among 178 patients

Table-1. GERD prevalence and F-scale score comparison in respiratory and without respiratory symptoms patients

	Respiratory Symptoms		P-value
	Positive	Negative	
Total Patients (n)	178	248	
Age (Year)	38.4±7.8	41.8±9.4	Not Significant
Gender (M/F)	75:103	114:134	N.S
Smoking	62 (34.8%)	79 (31.9%)	N.S
Hypertension	17 (9.6%)	37 (14.9%)	N.S
F-Scale Score	7.1± 6.3	4.5± 5.7	<0.01

Table-2 Comparison of F-score and GERD symptoms were made between acute and non-acute cough

	Chronic/Acute Cough	Sub-acute Cough	P-value
F-scale Score	7.2±5.4	7.8±6.3	NS
GERD Patients n (%)	71 (39.9%)	107 (60.1%)	NS

DISCUSSION

The gastric contents caused by esophageal mucosa abnormal exposure is generally referred to as gastro esophageal reflux disease. The prevalence of GERD symptoms such as acid regurgitation and heartburn were 26% to 60% as reported in population-based surveys [16, 17]. These findings are consistent with ours, despite the fact that GERD symptoms are less common in the East than in the western countries [18]. Atrophic gastritis patients with hypochlorhydria caused by Helicobacter pylori have been observed where GERD development risk was higher [19]. Several recent studies have shown an increase in the prevalence of GERD in Asian countries in recent years [20]. Although it was previously assumed that low acid secretion was associated with a lower prevalence of GERD. It has been established that secretion of gastric acid in both H. pylori-positive and – negative individuals is rising in Pakistan [21].

Many studies, on the other hand, have found a strong correlation between GERD symptoms and chronic cough [22, 23]. Several mechanisms have been proposed to explain the correlation between respiratory symptoms and GERD. Procedures (two) were assumed with the aid of using which GERD can also additionally result in cough: firstly, gastric reflux at microaspiration in the lung inflicting a mucosal reaction inside an exudate; and secondly, esophageal-tracheobronchial reflex leads to bronchospasm. The foregut and the respiration tract have no unusual place in embryological origins and proportion some of the reflexes. The presence of esophageal-tracheobronchial reflex ought to provide an explanation for bronchial allergies worsening after a huge meal [24].

Microaspiration has additionally been proposed as a motive of GERD prompted bronchospasm. The esophagus acid perfusion brought about neurally mediated airway inflammation [24]. The acid-prompted intimate mechanisms of airway barrier are depending on capsaicin-touchy activation of sensory nerves, with the following launch of tachykinins that modulate various elements of airway dysfunction [24]. Another study [25] validated direct proof that ingestion of two hundred mL of 0.1 N HCl improved bronchial activity. The improved breathing attempt and cough increase stomach stress facilitating the retrograde motion of gastric contents [26]. Changes in lung quantity can also additionally adjust the connection among the diaphragm and decrease disrupting the physiological activity of esophageal sphincter (LES) [27]. The impact of bronchial allergies medicinal drugs in addition to the bad intrathoracic stress produces in the course of the bronchial allergies assaults can also additionally conquer the protecting impact of the LES, ensuing in improved GERD [28].

GERD incidence is better in sufferers with non-acute cough compared to acute cough, there has been no substantial variation. This indicates that a growth in intra-stomach stress caused by acute cough flipping sell motion of esophagus gastric contents. It appears not going that GERD would possibly reason acute cough due to the fact GERD is a continual disease. Cough precipitated via way of means of GERD need to be prolonged. Study [29] explored the sequential affiliation among coughing and in asthmatics reflux episodes and determined that despite the fact that occasional coughing can cause reflux, the alternative is a long way greater common. Some sufferers occasionally winged of a continual cough following signs of a higher breathing tract contamination in scientific practice. When cough has been gift for as a minimum three weeks, however now no longer greater than eight weeks, a analysis of post infectious cough need to be taken into consideration [30]. The frequency of post infectious cough will increase to 25% to 50% [31] and gastro esophageal reflux is taken into consideration to be one in every of its mechanisms, signifying the acid reflux clinical remedy in acute cough may also lessen post infectious cough despite the fact that the pathogenesis is regularly multifactorial.

CONCLUSION

Our study found that respiratory symptoms patients are considerably more likely to develop GERD. GERD prevalence was similar in both acute and non-acute cough patients, implying that the presence of respiratory diseases is associated with the development of GERD regardless of the duration of respiratory symptoms.

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