

Evaluation of Gastroesophageal Reflux Disease among Patients with Chronic Obstructive Pulmonary Disease at Tertiary Care Hospital

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ABSTRACT

Objective: To assess the frequency of gastroesophageal reflux disease (GERD) among cases of chronic obstructive pulmonary disease (COPD) at tertiary care Hospital.

Material and Methods: This cross-sectional study was conducted at medicine OPD at Liqueate University of Medical and Health Sciences. Study duration was six months from March 2019 to August 2019. All the cases having age more than 18 years, chronic obstructive pulmonary disease (COPD) and either of gender were included. COPD was defined as the patients having ratio of forced expiratory volume in one second (FEV₁) to forced vital capacity (FVC) less than 70% and having no improvement in forced expiratory volume (FEV) in one second after bronchodilator. All the information including frequency of GERD was collected through a performa. Data was analyzed by using SPSS version 20.

Results: The mean age of the cases was 49.34±34.12 years. Males were most common as 67(82.2%). As per COPD categorization, most of the cases (47.4%) had moderate COPD, followed by, 27.6% with mild, 18.4% with severe and 6.6% cases had very severe COPD. Overall GERD rate was 23.7% among COPD cases and the frequency was statistically insignificant as per severity of COPD (p=0.567).

Conclusion: Gastroesophageal reflux disease was found to be highly frequent among cases of chronic obstructive pulmonary disease. It is thus suggested that each patient presenting with COPD, must be considered for GERD.

Keywords: COPD, GERD, severity

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is an obstructive lung disorder characterized by partial reversibility for airflow limitation. Chronic bronchitis and emphysema are the two pathological and clinical types of COPD.¹ COPD is a chronic condition that causes significant disability and has a clinical pattern marked by events of deteriorating signs and symptoms of respiratory condition, referred as exacerbations.² COPD is estimated to affect 4-20 percent of persons aged above 40 years global population, and 6.3% of Asians.^{3,4} Moreover, among chronic conditions in elderly individuals, it is the most costly and the 4th commonest factor of hospitalizations.³

GERD is a complication of COPD and a chronic medical disorder characterized by the reflux of stomach materials into throat and esophagus, causing symptoms including a heartburns, sour taste in mouth, chest discomfort, breathing difficulties, nausea, and dental caries.¹ Complications including esophagitis, esophageal strictures, and Barrett's esophagus can occur if GERD is left untreated.^{1,5} Abnormal Gastroesophageal reflux (GER) was assessed objectively and was found to be strongly linked to lung disorders.^{6,7} Preventing the pulmonary aspiration relies heavily on laryngopharyngeal sensitivity. In comparison to healthy individuals, GERD and cough patients show significantly lower laryngopharyngeal sensitivity towards air stimuli.^{7,8} The most frequent method for diagnosing GERD is to take a thorough medical history. Chest pain, acid regurgitation, epigastric pain, heartburn, and sleep problems are all common GERD symptoms.² Symptomatic gastroesophageal reflux is common in patients presenting with

severe COPD.⁹ However, textile workers in Pakistan showed a greater rate of COPD and chronic bronchitis.^{10,11} This study has been conducted to assess the frequency of gastroesophageal reflux disease among patients with chronic obstructive pulmonary disease at tertiary care Hospital.

MATERIALS AND METHODS

This cross-sectional study was conducted at medicine OPD at Liqueate University of Medical and Health Sciences. Study duration was six months from March 2019 to August 2019. All the cases having age more than 18 years, COPD and either of gender were included. All the cases those were not willing to participate in the study were excluded. Chronic obstructive pulmonary disease was defined as the patients having ratio of forced expiratory volume in one second (FEV₁) to forced vital capacity (FVC) less than 70% and having no improvement in FEV₁ after bronchodilator. COPD was categorized as mild COPD for FEV₁ value about ≥80% of normal, moderate COPD for FEV₁ value 50-80% of normal, severe emphysema for FEV₁ value 30-50% of normal and End-Stage or very severe COPD was defined as FEV₁ values below Stage 3, or people with low levels of blood oxygen and a Stage 3 FEV₁ based on spirometry. All ethical issues were addressed by counseling patients and taking informed consent. Information regarding the frequency of GERD was collected through a performa. GERD was diagnosed on clinical basis. All the data was recorded via study performa. Data was analyzed by using SPSS version 20.

RESULTS

A total of 76 patients were assessed for GERD. The mean age of the cases was 49.34±34.12 years. Males were most common as 67(82.2%, while females were only 09(11.8%). Out of all 46(60.5%) cases were from rural areas and 30(39.5%) were from urban areas. Mostly patients were poor as 46(60.5%). Table.1

As per COPD categorization most of the cases 47.4% had moderate COPD, followed by, 27.6% mild, 18.4% severe and 6.6% cases had very severe COPD. Fig.1

Overall GERD rate was 23.7% among COPD cases and the frequency was statistically insignificant as per severity of COPD (p-0.567) as showed in table.2

Table 1: Descriptive statistics of age and gender (n=76)

Variables	Mean+SD	Statistics
Age		49.34±34.12 years
Gender	Male	67(82.2%)
	Female	09(11.8%)
Residence	Rural	46(60.5%)
	Urban	30(39.5%)
Socioeconomic status	Poor	46(60.5%)
	Middle	25(32.9%)
	Upper	05(6.6%)

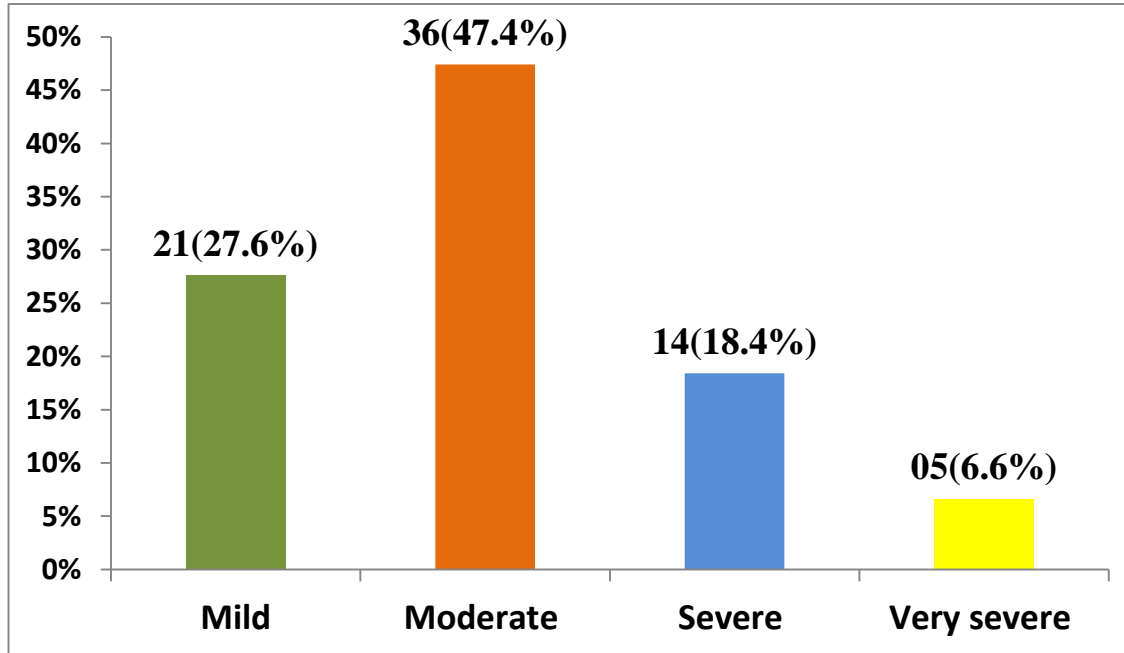


Fig:1 Categorization of COPD n=76

Table 2: Frequency of GERD as per severity of COPD n=76

Severity of COPD		GERD		p-value
		Yes	No	
Mild	Frequency	3	18	0.576
	%	3.9%	23.7%	
Moderate	Frequency	9	27	
	%	11.8%	35.5%	
Severe	Frequency	4	10	
	%	5.3%	13.2%	
Very severe	Frequency	2	3	
	%	2.6%	3.9%	
Total	Frequency	18	58	
	%	23.7%	76.3%	

DISCUSSION

In general population, gastroesophageal reflux disorder (GERD) is among the most frequent gastrointestinal disorders and GERD has become a comorbidity of COPD.² In this study the overall GERD frequency was 23.7%

among COPD cases and the frequency was statistically insignificant as per severity of COPD (p-0.567), while Wahab A et al¹ reported that the GERD frequency in COPD patients was 53.5%. On the other hand, Hafeez S et al¹³ reported that the GERD frequency in COPD patients was 33%. In another study of Broers C et al¹⁴ reported that The incidence of GERD in COPD patients varies between 19% and 78%, in comparison to a mean of 18% seen in controls. In the study of Rogha M et al¹⁵ demonstrated a high prevalence of GERD as 53.6% in COPD patients. However in this study, frequency of GERD is lower as compared to other studies and this difference may be because of study sample size and range and population variations.

In this study according to severity of COPD the 47.4% had moderate COPD, followed by, 27.6% mild, 18.4% severe and 6.6% cases had very severe COPD. Similarly Wahab A et al¹ reported that The COPD severity in 217 study subjects was assessed and 16 (7.4%), 98 (45.2%), 90 (41.5%) and 13 (6.0%) of the patients were found to have mild COPD, moderate COPD, severe COPD, and very severe COPD respectively. Hafeez S et al¹³ reported that 03% study subjects had mild GERD, 7% had moderate,

11% had severe and 12% had very severe symptoms of GERD, while 67% had no nay symptoms of GERD. In this study mild COPD cases were high as compared to others and this this difference may because of small sample size of this study and duration of disease.

In this study, the mean age of study subjects was 49.34±34.12 years and males were most common as 67(82.2%) while females were only 09(11.8%). Similarly Hafeez S et al¹³ reported that 47.54±3.62 years, while inconsistently Rogha M et al¹⁵ demonstrated the average age of the cases 68.0±8.4 years. On other hand Wahab A et al¹ reported that the mean age of the cases was 61.92±11.61 years. In the study of Iliaz S et al¹⁶ demonstrated that the mean age of the COPD cases was 63 ± 10 years. Mean age found to be lower as compared to other international studies. This difference may because of cultural variation. The severity of GERD is affected by the duration and frequency of reflux events, and also the location of gastroesophageal refluxate.² In general population, smoking has been reported to be a risk factor for GERD, and this, combined with the reality that smoking is a key factor of COPD, implies that smoking and the nicotine-related side effects may play a role in GERD among COPD patients.^{2,17}

CONCLUSION

Gastroesophageal reflux disease found to be highly frequent among cases of chronic obstructive pulmonary disease. Thus it is suggested that each patient presenting with COPD, must be considered for GERD. Large scale studies and preventive strategies for GERD in patients with COPD should be done.

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